West Kelowna Transmission Project

Public Consultation June 20 – July 27, 2016

Welcome

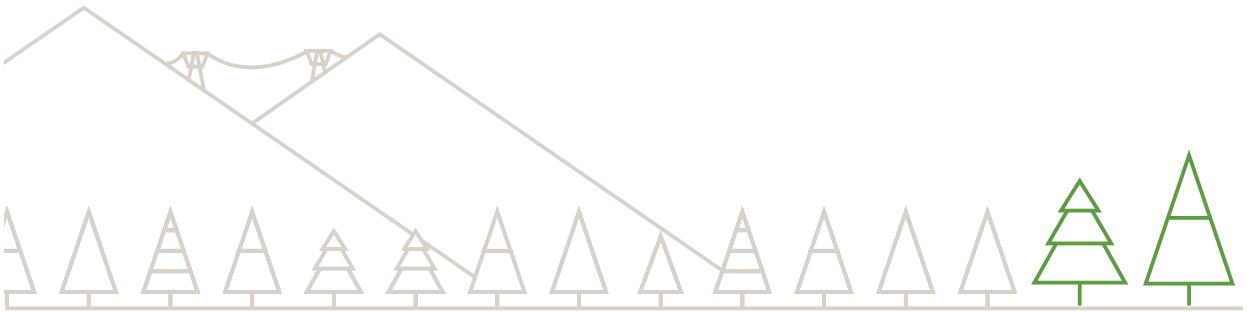
On February 5, 2015, the Province of British Columbia and BC Hydro announced the West Kelowna Transmission Project. We're in the early planning stage for a new, secondary transmission line delivering clean, reliable power to the communities of West Kelowna and Peachland.

The existing line into the area has provided reliable power to the communities for decades. The new line will strengthen and reinforce the existing transmission network.

This Discussion Guide contains information about the three alternatives with options we've been studying. We'll identify one alternative later this year to focus our studies on.

The Feedback Form on pages 15–19 provides you with an opportunity to share your input on the alternatives.

Please provide your feedback by **WEDNESDAY, JULY 27**.



How your input will be used

What we hear from you about the alternatives during consultation, along with input from First Nations, and our study results, will be considered to identify a leading alternative for further study.

We want to hear from you

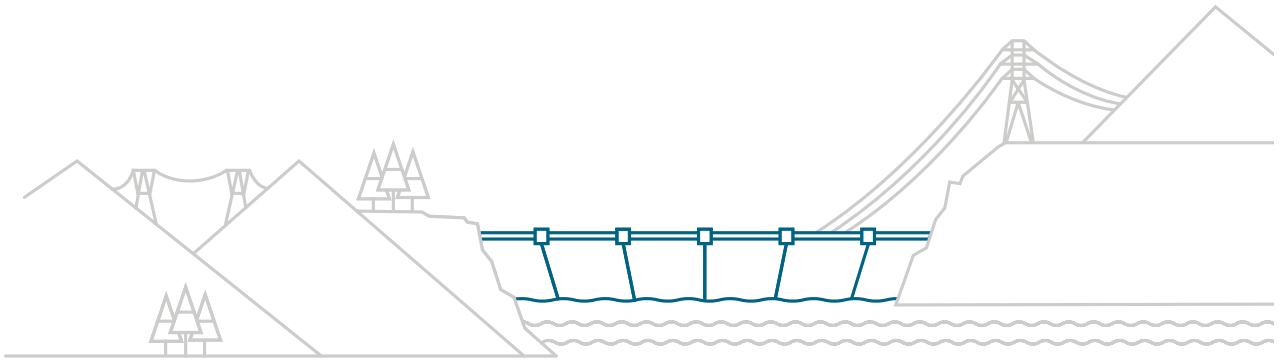
You can learn more and provide your feedback by:

- Reading this Discussion Guide and completing the Feedback Form.
- Coming to an Open House (schedule to the right).
- Completing an online feedback form: **bchydro.com/wktp**
- Emailing us: **stakeholderengagement@bchydro.com**
- Calling us toll free: **1 866 647 3334**
- Visiting our website: **bchydro.com/wktp**
- We can also mail you an information package if you can't make it to an open house.

Public open house schedule

Open houses are a drop-in meeting format. We'll share the information we have so far on this project and members of our project team will be available for discussion and to answer questions. No RSVP is required.

Date	Time	Location
Mon, June 20, 2016	5:00 p.m. to 8:00 p.m.	PEACHLAND Peachland Community Centre 4450 6th St, Peachland
Tues, June 21, 2016	5:00 p.m. to 8:00 p.m.	WEST KELOWNA Westbank Lions Community Centre 2466 Main St, West Kelowna
Wed, June 22, 2016	5:00 p.m. to 8:00 p.m.	KELOWNA Coast Capri Hotel 1171 Harvey Ave, Kelowna
Thurs, June 23, 2016	5:00 p.m. to 8:00 p.m.	VERNON Vernon Atrium Hotel & Conference Centre 3914 32nd St, Vernon



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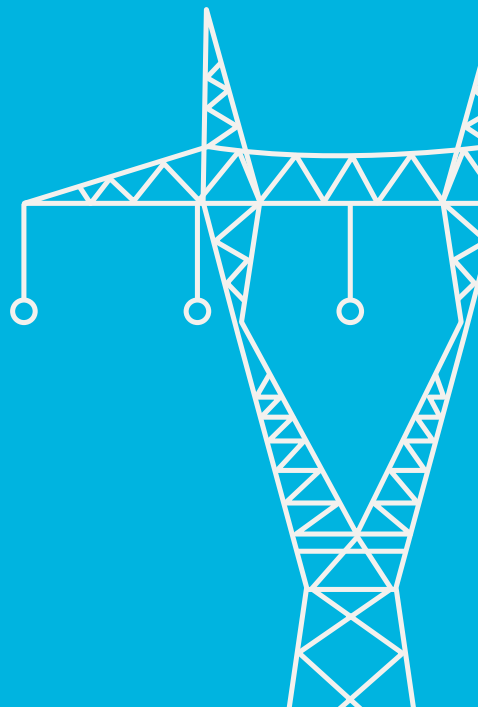


We're in the early planning stage for a new transmission line.

On February 5, 2015, the Province of British Columbia and BC Hydro announced the West Kelowna Transmission Project. We're in the early planning stage for a new, secondary transmission line delivering clean, reliable power to the communities of West Kelowna and Peachland.

The existing line into the area has provided reliable power to the communities for decades. The new line will strengthen and reinforce the existing transmission network. About 22,000 customers are served by the Westbank Substation and a single 138 kilovolt transmission line. The existing transmission line is 80 kilometres long and runs through rugged, remote terrain susceptible to forest fires and landslides.

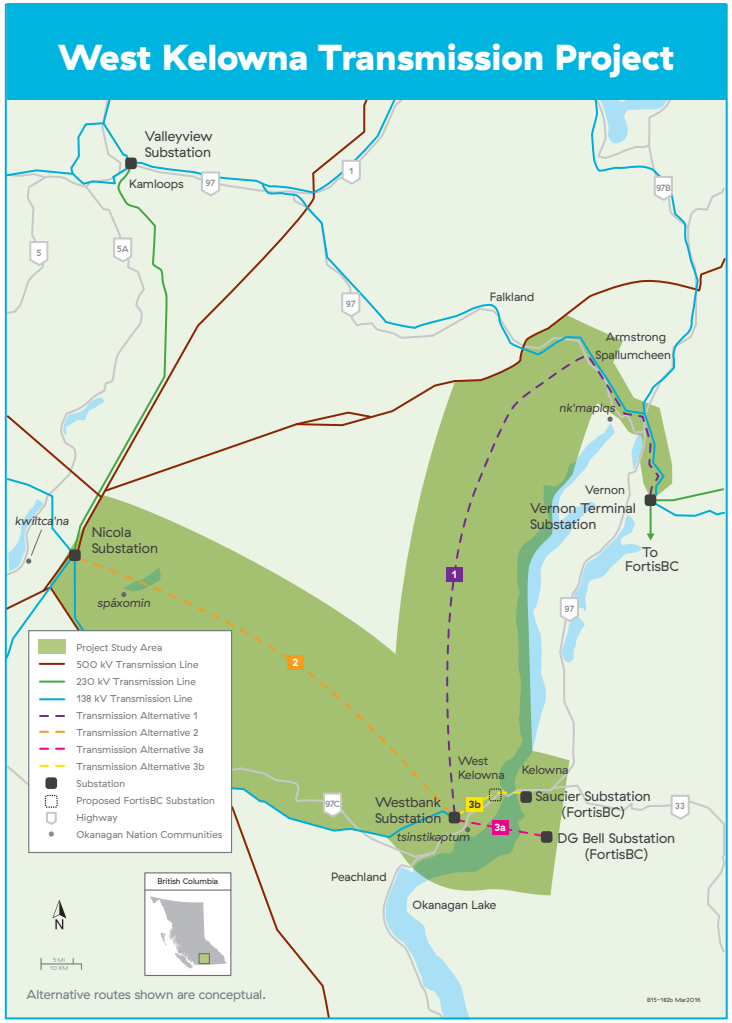
We've prioritized the West Kelowna area as needing a redundant supply of power because of:

- The large number of customers served by a single transmission line.
- The challenge of restoring power on the existing transmission line resulting from its 80 kilometre length, remote location and rough terrain.
- The risk of destructive forces like forest fires and landslides.

In the meantime, we'll continue to monitor and manage any risks to the existing transmission line.

We're looking at three alternatives with options for a new transmission line:

- ***Alternative 1:*** build a new transmission line on the west side of Okanagan Lake, connecting Westbank Substation to Vernon Terminal Substation.
- ***Alternative 2:*** build a new transmission line to Nicola Substation using a different route than the existing transmission line.
- ***Alternative 3:*** build a new transmission line, including a submarine cable across Okanagan Lake, connecting Westbank Substation to the FortisBC system.
  - ***3a:*** connecting Westbank Substation to DG Bell Substation in the FortisBC system.
  - ***3b:*** FortisBC building a new substation in West Kelowna and a transmission line crossing Okanagan Lake to Saucier Substation. We would then build a transmission line from Westbank Substation to the new FortisBC substation.



What's redundant supply?

Redundant supply means there is more than one source (for example, a transmission line) providing power to the community or "back-up" power. That way, if one source is taken out of service, the other can still supply the community with electricity.

Alternative 1: to Vernon Terminal Substation

Description

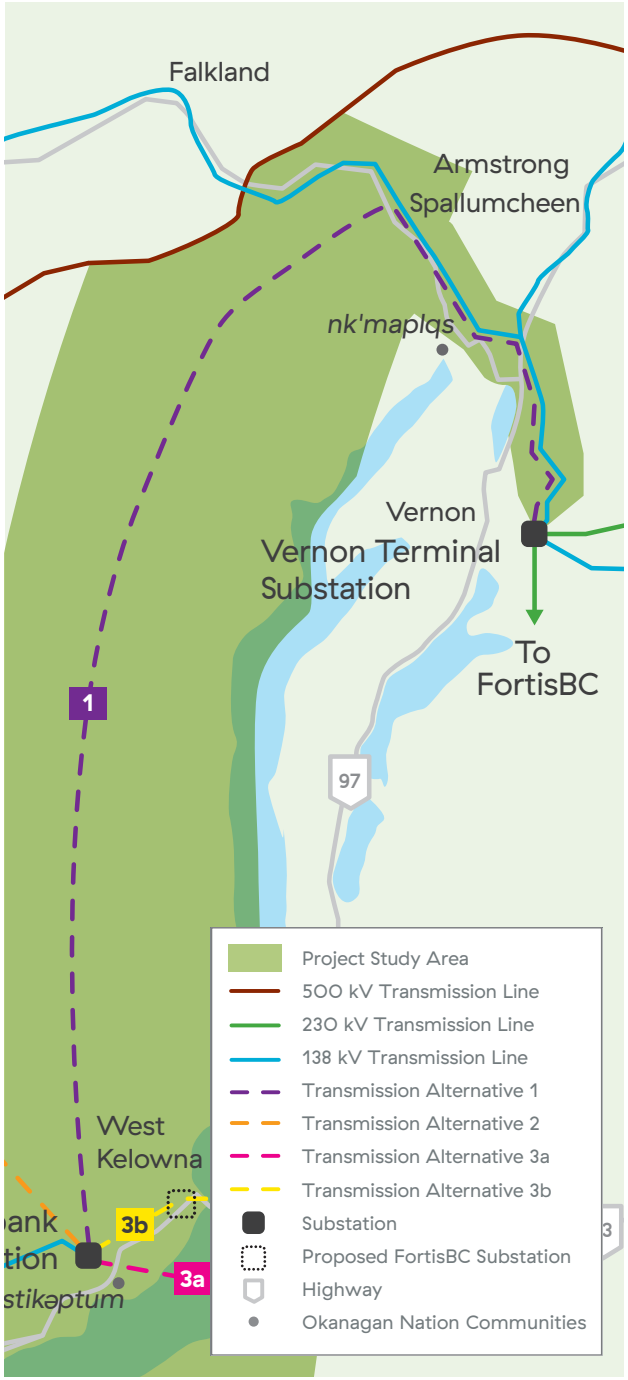
For this alternative, we'd build a new transmission line on the west side of Okanagan Lake, connecting Westbank Substation to Vernon Terminal Substation.

We would need new rights-of-way to build this alternative. Routing hasn't been identified yet, it's only conceptual.

Until recently, we'd presented a second option on this alternative, of connecting a new line from Westbank Substation to the existing line running between Vernon Terminal and Valleyview substations, in the area between Spallumcheen and Falkland. We've determined this option is not technically possible as a connection to the existing line could weaken our system in the area.

What are rights-of-way?

Our power lines cross all kinds of property: residential, agricultural, industrial, commercial and recreational. We negotiate with the land owner (private property owners, First Nations, municipalities and the provincial and federal Crown) to acquire rights-of-way to construct, operate and maintain a power line and the right to keep the rights-of-way clear of all structures, fire hazards, vegetation and any other use that might interfere with our power lines.



Alternative 1: to Vernon Terminal Substation

Key considerations for this alternative include:

To help you see how each of the alternatives stack-up against each other, we've colour-coded some of the considerations:

● High Risk ● Moderate Risk ● Low Risk

Safety ●

Safety is our key priority in every decision we make. This alternative has high overall potential safety risk. There are a number of potential high safety risks on this alternative because of challenging terrain and access for our workers. It's expected that this alternative would require the most helicopter access, the highest level of clearing and the most access road construction, all of which increase hazards for our workers.

First Nations

This consideration is not colour coded, as we're currently collaborating with the Okanagan Nation and other First Nations to obtain their input on the alternatives.

Environment ●

This alternative has high overall potential environmental risk. This alternative has the largest environmental footprint, as the potential line length is the longest at an estimated 110 kilometres. A leading factor for increased environmental risk on this alternative are the poor geotechnical conditions, for example the steep slopes and loose soil conditions found in this area. It's expected that this alternative would pose a high level of risk to wildlife and fisheries, due to the sensitive areas included in this alternative, such as Fintry Park.

Stakeholders

This consideration is not colour coded, as we're currently consulting with stakeholders to obtain their input on the alternatives.

Cost ●

It's anticipated that this alternative would have the highest cost of all alternatives, largely due to line length, difficult terrain and construction methods.

Socio-economic ●

This alternative has high potential socio-economic risk. New rights-of-way would be required in developed and urbanized areas in West Kelowna and Vernon, with a high potential for visual impacts and impacts on private property.

What about reliability?

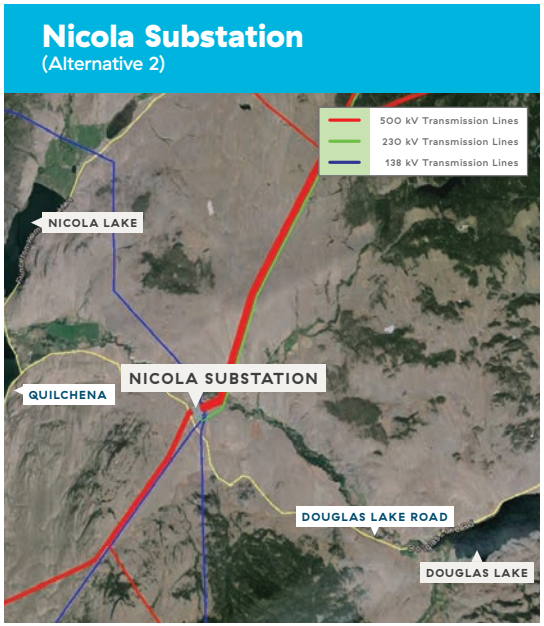
Providing you with reliable power is our primary business and you can count on us to keep outage times to a minimum. Since the reliability of the existing line is good, a secondary line, regardless of the source will improve reliability. All of the alternatives are expected to provide a similar level of reliability.

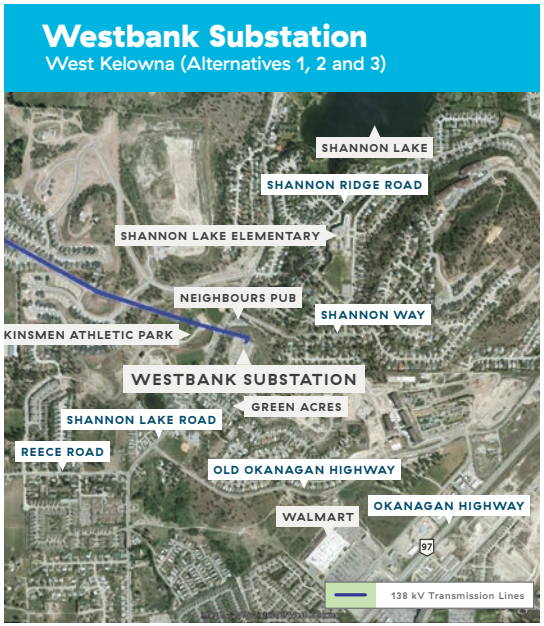
Alternative 2: to Nicola Substation

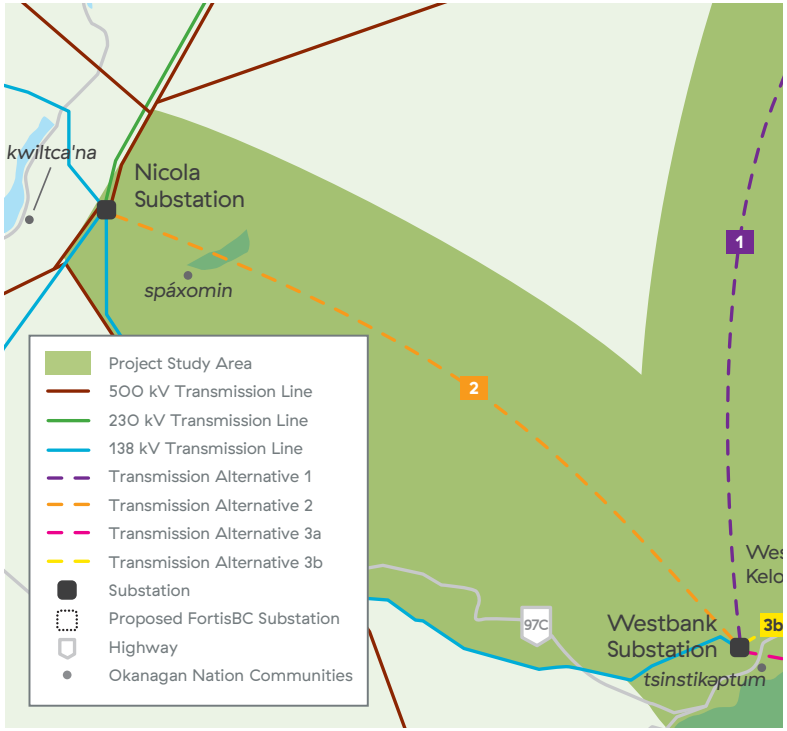
Description

For this alternative, we'd build a new transmission line from Westbank Substation to Nicola Substation, using a different route than the existing transmission line.

We would need new rights-of-way to build this alternative. Routing hasn't been identified yet, it's only conceptual.







Managing forest fire risk

When it comes to managing forest fire risk on each of the alternatives, routing will play a major role. After we've identified one alternative for further study, we'll start to study what routes would be best. We're also looking at the possibility of using fire-resistant steel poles.

What are we doing now?

We work in partnership with the Ministry of Forests to proactively monitor and manage forest fire risk on all our transmission lines throughout the province. Vegetation on or near our rights-of-way is assessed annually to reduce fuel loading and the potential for trees to fall on the lines. When needed we also use fire retardant on our wood pole structures.

Alternative 2: to Nicola Substation

Key considerations for this alternative include:

To help you see how each of the alternatives stack-up against each other, we've colour-coded some of the considerations:

● High Risk ● Moderate Risk ● Low Risk

Safety ●

Safety is our key priority in every decision we make. This alternative has low overall potential safety risk. There are low potential safety risks for our workers because of existing access roads and large sections of non-mountainous terrain. It's expected that this alternative could require a small amount of helicopter access and a moderate amount of clearing.

Environment ●

This alternative has moderate overall potential environmental risk. This alternative has a moderate environmental footprint; the potential line length is the second longest at an estimated 72 kilometres. This alternative has low potential impact to fisheries and wildlife, and relatively low geotechnical risks.

Cost ●

It's anticipated that this alternative would have the lowest cost of all alternatives, largely due to construction methods and the type of infrastructure being built.

Socio-economic ●

This alternative has moderate potential socio-economic risk. New rights-of-way would be required. This alternative is the least developed and urbanized, with a large amount of rural and crown land and the potential to partially use existing rights-of-way.

First Nations

This consideration is not colour coded, as we're currently collaborating with the Okanagan Nation and other First Nations to obtain their input on the alternatives.

Stakeholders

This consideration is not colour coded, as we're currently consulting with stakeholders to obtain their input on the alternatives.

Alternative 3 (options a and b): to FortisBC

Description

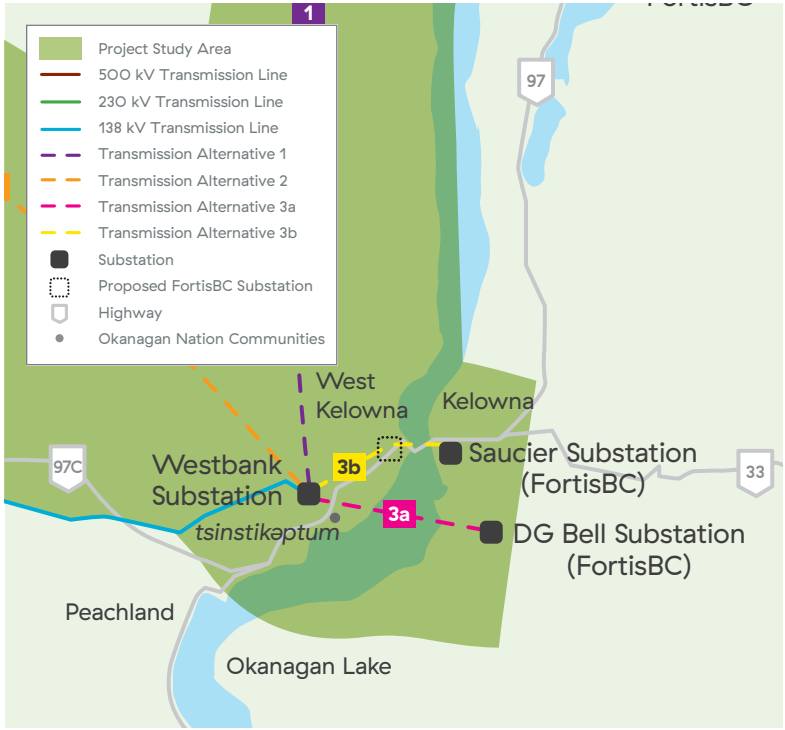
With this alternative we'd build a new transmission line, including a submarine cable across Okanagan Lake, connecting Westbank Substation to the FortisBC system.

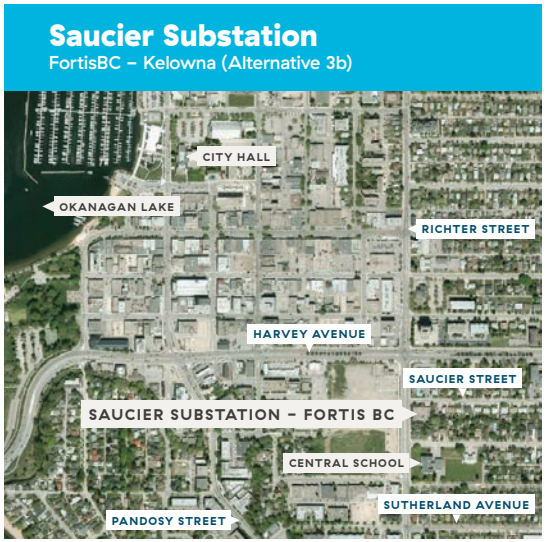
As shown on the map to the right, we've explored two options for connecting to FortisBC:

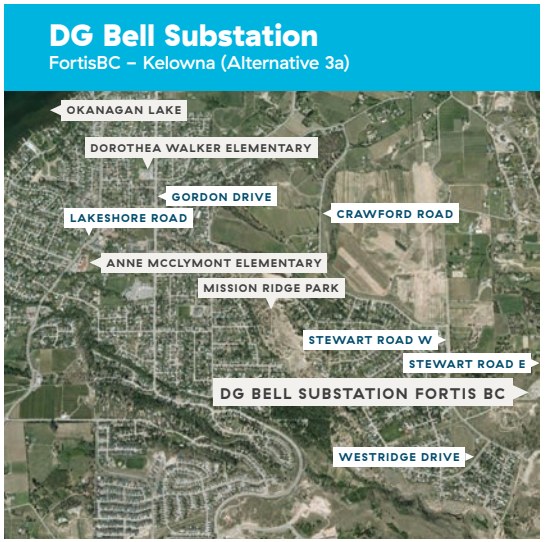
3a: Connecting Westbank Substation to DG Bell Substation in the FortisBC system. This would include a submarine cable under Okanagan Lake.

3b: FortisBC building a new substation in West Kelowna and a transmission line crossing Okanagan Lake, connecting to Saucier Substation. In this option we would build a new transmission line connecting Westbank Substation to the new FortisBC substation. For this option the lake crossing would be at the narrowest part of the lake where the bridge is—it's possible this would be a submarine cable or a cable attached to the bridge itself.

We would need new rights-of-way to build either option for this alternative. Routing hasn't yet been identified, it's conceptual only.







If a connection to FortisBC is selected, will I have to pay an electricity bill from FortisBC and BC Hydro?

If Alternative 3 (Options a or b) is selected, you'll continue to receive one bill for your electricity from BC Hydro. We have other similar connections to FortisBC. You won't be charged a premium if we use electricity from FortisBC to power Westbank Substation. Our projects, including the West Kelowna Transmission Project, are worked into our 10-year capital plan. Our 10-year rate plan takes into account all of the upgrades included in the capital plan. The rates outlined in our 10-year rate plan apply to all our customers, province-wide. That way, the cost of any project, including the West Kelowna Transmission Project, is shared by our customers across the province.

Alternative 3 (options a and b): to FortisBC

Key considerations for this alternative include:

To help you see how each of the alternatives stack-up against each other, we've colour-coded some of the considerations:

● High Risk ● Moderate Risk ● Low Risk

Safety ●

Safety is our key priority in every decision we make. This alternative has low overall potential safety risk. There are low potential safety risks for our workers because of the relatively short transmission line or cable length. This alternative will require a submarine cable in Okanagan Lake or a cable attached to the bridge itself.

First Nations

This consideration is not colour coded, as we're currently collaborating with the Okanagan Nation and other First Nations to obtain their input on the alternatives.

Environment ●

This alternative has moderate overall potential environmental risk. This alternative has the smallest environmental footprint having the shortest potential line length (3a: estimated 31 kilometres, 3b: estimated 14 kilometres). It also includes a crossing of Okanagan Lake, creating a moderate potential impact to fish and fisheries habitat.

Stakeholders

This consideration is not colour coded, as we're currently consulting with stakeholders to obtain their input on the alternatives.

Cost ●

3a: It's anticipated that this option would have a moderate cost compared to the other alternatives, largely due to the requirement of submarine cable and undergrounding a portion of the transmission line.

3b: It's anticipated that this option would have a moderate cost compared to the other alternatives, largely due to the requirement of a new substation, submarine cable and undergrounding a portion of the transmission line.

Socio-economic ●

This alternative has high potential socio-economic risk. New rights-of-way would be required in developed and urbanized areas in West Kelowna and Kelowna, with a high potential for visual impacts and impacts on private property.

What other alternatives did we look at?

Do nothing

- This alternative was screened as it doesn't address the need for redundancy in West Kelowna.

Local generation

- We studied the possibility of installing generators near Westbank Substation.
- While this alternative could provide a similar level of reliability as a new transmission line, it's anticipated that this alternative would cost significantly more than the transmission line alternatives.
- This alternative is not in line with the province's Clean Energy Act, which includes reducing green house gas emissions as a key objective.
- Due to these factors, we screened local generation from the alternatives being studied.

Options for Alternative 1

- Until recently, we'd presented a second option on Alternative 1, of connecting a new line from Westbank Substation to the existing line running between Vernon Terminal and Valleyview substations, in the area between Spallumcheen and Falkland.
- We've screened this option as not technically possible.
- When a transmission line has three end-points (in this instance Vernon Terminal, Valleyview and Westbank substations), it's difficult to quickly isolate a problem on any section of the transmission line.
- The resulting lengthy time to isolate the problem will negatively impact the rest of our system.

What is the Clean Energy Act?

British Columbia's Clean Energy Act sets the foundation for a new future of electricity self-sufficiency, job creation and reduced greenhouse gas emissions, powered by unprecedented investments in clean, renewable energy across the province. It reinforces our energy conservation objectives and sets the groundwork for three priorities:

- Ensuring electricity self-sufficiency at low rates;
- Harnessing B.C.'s clean power potential to create jobs in every region;
- Strengthening environmental stewardship and reducing greenhouse gases.

Want to know more? Visit **bchydro.com** and search Clean Energy Act.

We'd like your input.

Please complete the Feedback Form on pages 15–18 to share your thoughts on these alternatives.

What we hear from you about these alternatives during consultation, along with input from other stakeholders, and our study results, will be considered as we assess the feasibility of the alternatives, and determine a leading alternative on which to do further study.

We're collaborating with the Okanagan Nation and other First Nations to understand and address their interests through the life of the project. We'll work with the Okanagan Nation and other First Nations to find opportunities for their participation in work at different stages of the project.

Sarah McKinney, Stakeholder Engagement and Dag Sharman, Community Relations.

Our executive team meeting with leaders of the Okanagan Nation Alliance and the Nlaka'pamux Nation Tribal Council.

How will we determine a leading alternative for further study?

To evaluate alternatives, we assess the social, economic and environmental aspects of each alternative.

Key aspects include:

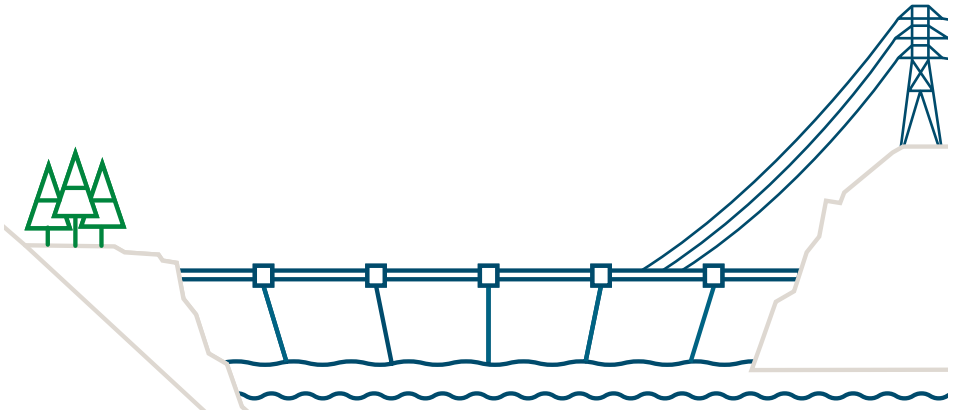
- Safety
- System reliability
- Environmental impacts
- First Nations interests
- Stakeholder interests
- Constructability and maintenance of alternatives
- Visual impacts
- Property requirements and impacts
- Cost to the ratepayer
- Schedule

What's next?

After this consultation period is complete, we'll assess the alternatives to identify a leading alternative for further study. We plan to complete that process and share that information with you before the end of 2016.

We'll continue to provide information and engage with you throughout the life of this project, through email and our website: **bchydro.com/wktp**.

If you'd like to be added to our email update list, please call 1 866 647 3334 or email us at **stakeholderengagement@bchydro.com**.



Project timeline

PROJECT ANNOUNCEMENT

IDENTIFICATION

- Initial studies
- Identify leading alternative
- Additional studies
- Confirm preferred alternative

DEFINITION

- Preliminary design
- Regulatory approvals

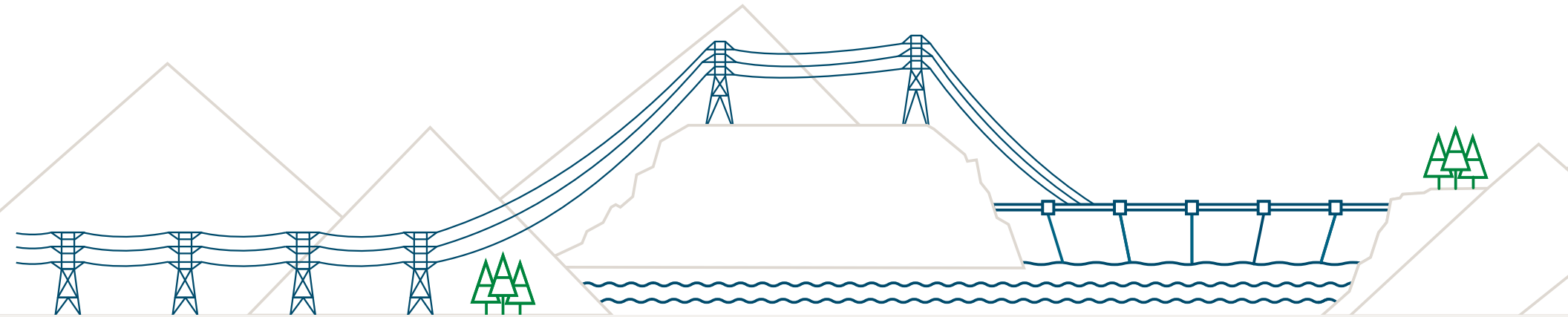
IMPLEMENTATION

- Final design
- Procurement
- Construction
- Commissioning

OPERATIONS

Feb 2015 | **2016** | **2017** | **2018** | **October 2020 earliest**

We're still in the early stages of this project. Consultation is ongoing throughout Identification, Definition and Implementation.



Feedback form

We're planning for a new, secondary transmission line to strengthen the transmission network delivering clean reliable electricity to the communities of West Kelowna and Peachland. We're currently exploring three alternatives with options and would like your feedback. Information about the project can be found in this Discussion Guide. All comments will remain anonymous. When responding to the open ended questions below, please do not identify or refer to other persons.

The purpose of this feedback form is to obtain public feedback and opinions on alternatives for building a secondary transmission line to Westbank Substation. BC Hydro is collecting this information in accordance with its obligations under the Utilities Commission Act. BC Hydro cannot accept 3rd party (private) information without express consent of that person or entity. At BC Hydro's discretion, BC Hydro will reject surveys that are deemed to contain 3rd party information. If you have specific questions about the project or privacy concerns about this feedback survey, please contact ***stakeholderengagement@bchydro.com****.*

Alternative 1: to Vernon Terminal Substation

1 a) Please tell us your level of agreement with a new transmission line connecting Westbank Substation (West Kelowna) to Vernon Terminal Substation (Vernon).

☐	☐	☐	☐	☐
Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree

1 b) Please share any comments you have about the reasons for your agreement or disagreement with Alternative 1.

1 c) Please share any additional comments on Alternative 1.

Alternative 2: to Nicola Substation

2 a) Please tell us your level of agreement with a new transmission line connecting Westbank Substation (West Kelowna) to Nicola Substation.

☐	☐	☐	☐	☐
Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree

2 b) Please share any comments you have about the reasons for your agreement or disagreement with Alternative 2.

2 c) Please share any additional comments on Alternative 2.

Alternative 3a: to DG Bell Substation in FortisBC system

3 a) Please tell us your level of agreement with a new transmission line connecting Westbank Substation (West Kelowna) with DG Bell Substation in the FortisBC system. This would include an underwater cable under Okanagan Lake.

☐	☐	☐	☐	☐
Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree

3 b) Please share any comments you have about the reasons for your agreement or disagreement with Alternative 3a.

3 c) Please share any additional comments on Alternative 3a.

Alternative 3b: to Saucier Substation in FortisBC system

4 a) Please tell us your level of agreement with a new transmission line connecting Westbank Substation (West Kelowna) with Saucier Substation in the FortisBC system. In this option for Alternative 3, FortisBC would build a new substation somewhere in West Kelowna and an underwater transmission line to connect to Saucier Substation. We would build a new transmission line connecting Westbank Substation to the new FortisBC substation.

☐	☐	☐	☐	☐
Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree

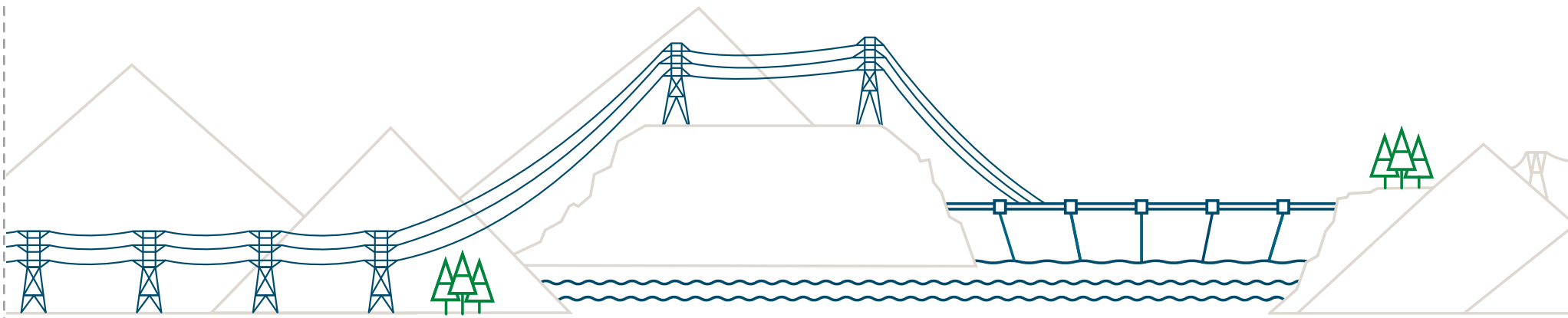
4 b) Please share any comments you have about the reasons for your agreement or disagreement with Alternative 3b.

4 c) Please share any additional comments on Alternative 3b.

Additional comments on the West Kelowna Transmission Project

By submitting this feedback form, I consent to the potential disclosure, storage and access of my anonymous feedback by BC Hydro for the purpose of public consultation.

NOTE: This feedback form is anonymous. If you have a question you'd like answered please share it with staff at our open house, or call or email us. If you'd like to subscribe for updates on the West Kelowna Transmission Project, please be sure to sign-in at the front desk at an open house, visit our website at bchydro.com/wktp or call or email us.



We want to hear from you.

Feedback will be received from June 20 – July 27, 2016

You can provide your feedback and learn more by:

- Reading this Discussion Guide and completing the Feedback Form.
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- Completing an online feedback form:
  bchydro.com/wktp
- Emailing us:
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- Calling us toll free:
  1 866 647 3334
- Visiting our website:
  bchydro.com/wktp