

June 4, 2018

Chapel Rock to Pincher Creek Area Transmission Development & BC-AB Intertie Restoration Project Community Workshops

Questions & Answers

Workshop participants provided us with questions about the project, all of which are included along with our responses below. You will notice that we have separated the questions and comments we received into categories to help show the overarching themes that were identified. Please note that similar questions have been combined and grouped together, while other questions have been paraphrased or shortened.

Please contact us at stakeholderrelations@altalink.ca or 1.877.269.5903 if you believe that your question or feedback was not captured accurately and we will work to provide you with a response.

Project overview

As a reminder, the Chapel Rock to Pincher Creek Area Transmission Development includes:

- A new substation, named Chapel Rock, which will connect to the Alberta/British Columbia intertie transmission line located west of Highway 22.
- A new transmission line connecting the Chapel Rock Substation to either the existing Goose Lake or Castle Rock Ridge substations, both located north of Pincher Creek.

General

Feedback has been provided during consultation for previous project versions. Why do we have to go through this process again? The decision seems as if it has been made long ago.

AltaLink values the feedback received from the previous consultation processes and will incorporate it in the new project. AltaLink did not receive direction to file a facilities application for the previous project. As the previous project occurred several years ago, AltaLink must re-consult with landowners to gather more current information and feedback, and verify previously provided data.

In addition, because of the new potential structure options and alignment variations available for this project, AltaLink is seeking stakeholder feedback on these alternatives to come up with the best solution for this project.

Why is the project called Chapel Rock?

The name of the project was provided to AltaLink by the Alberta Electric System Operator (AESO). Transmission projects are typically named after geographical indicators, as is the case with this project. We heard from stakeholders that Chapel Rock is a landmark in the area they would prefer the project not be named after. We appreciate and understand the feedback.

How will the community and economy benefit from the project? Will there be new jobs?

AltaLink anticipates there will be more than 100 people employed by the engineering, procurement and construction (EPC) contractor and its various subcontractors during the peak of construction activities for the project.

Local businesses providing services such as food, accommodation, materials and more can benefit from increased business during the construction, operation and maintenance of the transmission line.

Additionally, AltaLink compensates landowners directly through a one-time right-of-way agreement payment, as well as through ongoing annual structure payments for structures that are located on private property.

What effect would a new line have on the Pincher Creek airport, any future growth and local industry?

The new line will not adversely impact the Pincher Creek airport or potential future growth. Local industry will also not be impacted. New transmission lines will provide additional capability for future renewable generation and will support future electricity demand in the area.

Having access to the transmission system supports Alberta's Renewable Electricity Program and the transition away from coal in an effort to achieve 30% renewable generation by 2030.

What is the advantage of staging construction? Will there be more transmission lines built as more wind turbines are built?

During our workshops, we talked about the possibility of staging construction, which means building one transmission line now, and building another several years in the future. The need and timing of transmission facilities are determined by the AESO and will support development of nearby generation.

The potential to stage construction allows AltaLink to consider multiple solutions and structure types. As the project continues to develop, AltaLink will consider stakeholder feedback, technical requirements, environmental considerations and overall project costs in determining the preferred solution.

Who makes money from the project?

AltaLink earns a rate of return on the transmission projects it constructs, owns and operates through the transmission portion of everyone's power bills.

AltaLink will submit a facilities application for the proposed project to the Alberta Utilities Commission (AUC). If the project is approved by the AUC, AltaLink will construct the proposed project and earn a rate of return on its investment once construction is complete. The current rate of return approved by the AUC is 8.5% on the approved equity portion of AltaLink's facilities. This rate of return is reviewed by the AUC every few years.

The AUC has the responsibility to ensure the delivery of Alberta's utility services takes place in a manner that is fair, responsible and in the public interest. Included in this mandate is an obligation to determine the fair rate of return for regulated utilities, including AltaLink.

How many years will it take to pay off the project?

Substation and transmission line assets are generally amortized over a period of approximately 50 to 60 years.

Who is AIMCO and how much money are they making from the project?

AIMCO is the Alberta Investment Management Corporation. AltaLink is not affiliated with AIMCO. AIMCO is not an investor on this or any other transmission project in Alberta.

Why is power transmission in Alberta so much more costly than in other provinces?

The cost to construct transmission lines in Alberta is not necessarily more than in other provinces. Various factors contribute to the overall cost to construct transmission lines. Many of these factors are regional in nature, including geographic location, site conditions, line length, line voltage and capacity levels, technology used, and labour markets.

The transmission costs make up less than 20% of the average residential utility bill in Alberta.

What guarantees can be given that generation from the United States will not be transmitted through the power line, and will the United States benefit from the project?

Alberta is part of an interconnected electricity system that includes interties with BC, Saskatchewan and Montana. The AESO manages the system by balancing the supply with what's needed. For questions regarding the Alberta electricity system, please contact the AESO. Alberta has been a net importer of electricity for 18 of the last 20 years. Alberta generally exports about 1-2% of the power produced in the province, while importing between 2-5%.

Siting**I certainly believe that there are at least preferred and alternate routes that are already being planned. This information should have been included.**

AltaLink is developing potential transmission line alignments now based on our study of the area, previous information collected and input received from stakeholders at the community workshops. We did not have any alignments on maps at the time of the workshop because we wanted feedback from stakeholders who know the area the best before we started developing alignments.

The purpose of the workshops was to receive stakeholder input on potential structure types and location preferences. This feedback is very valuable to AltaLink as we continue the process of identifying preliminary transmission line alignments and structure types.

Why are the routes located in so many different areas?

AltaLink did not include transmission line alignments or route options as part of the workshop materials. Throughout the project planning process, AltaLink will continue to engage with all stakeholders to determine preferred and alternate alignments to be included in our facilities application to the AUC.

Where is the line/substation going?

This proposed project includes building a new substation that will connect to an existing transmission line west of Highway 22 and approximately 40 to 50 kilometres of new transmission line that will connect to an existing substation in the Pincher Creek area. We will consult on potential transmission line alignments and substation locations in our next phase of

consultation, planned for the summer/fall.

Why not use existing transmission lines in the area?

The current transmission lines in the area do not have the capability to fully support the potential Renewable Electricity Program as mandated by the Government of Alberta and determined by the AESO. For questions regarding the Alberta electricity system, please contact the AESO.

What is your siting criteria?

AltaLink takes several factors into consideration in an effort to find alignments and ultimately propose routes with low overall environmental, social and economic effects. Stakeholder feedback is one component of that process, and is considered along with other factors such as:

- Agricultural impact
- Residential impact
- Environmental impact
- Visual impact
- Cost

Will you provide an impact matrix?

An impact matrix compares potential transmission line alignments using AltaLink’s siting criteria. AltaLink will assess the potential impacts of the project and provide metrics within the facilities application it submits to the AUC.

There have been previous route suggestions made by stakeholders. Have they ever been presented?

AltaLink assesses all route options presented by stakeholders. In previous versions of this project, some routes were adopted and some were rejected following a review of their impacts on our siting criteria. Stakeholders who suggested routes are provided an update as to the rationale for adopting or rejecting their suggestions. All route suggestions are included in our facilities application to the AUC along with a summary of the rationale for adopting or rejecting stakeholder suggestions.

Can I provide input if the routing goes through Bellevue?

We are now identifying potential alignment options for the project and anticipate mailing information packages to stakeholders this summer/fall. We will provide various options for stakeholders to share their input with us on these alignments through open houses and one-on-one consultations.

Have you considered replacing the 138 kilovolt (kV) line south (then north) of Highway 3 to a 240 kV single pole line with a substation in BC?

The current transmission lines in the area serve a specific purpose. For instance, the 138 kV transmission line located in the southern portion of the study area provides power to municipalities in the Crowsnest Pass. The proposed new transmission line will serve a different purpose, which is to better integrate wind into Alberta’s electrical system. As a result, opportunities to replace the existing lines are limited. Locating a substation within BC would increase the overall new transmission line length, cost and impacts of the project.

Will bridges be installed on critical watercourses and be left for recreation access?

AltaLink will assess the requirement for watercourse crossings as the project develops. AltaLink will consult with affected landowners and discuss options where the preference would be to leave the crossing structures intact for recreational access.

Can you alternate between structure types?

Where practical, appropriate and needed, AltaLink will consider using a different structure type in a certain location to mitigate localized impacts, meet technical requirements or overcome geographical constraints. An example of this would be where a potential transmission line alignment has to cross a narrow corridor, AltaLink may use a taller, narrower double circuit structure to cross the corridor.

Why has AltaLink acted outside the AUC's previous direction to limit the study area and gone back to its original map with potential routing along the western edges in the Porcupine Hills?

The current study area does not include the Porcupine Hills. In Decision 2014-004, from January 27, 2014, the AUC provided guidance to AltaLink in terms of the general area routes should be considered.

"78. The Commission finds that routes for Alternative 2 generally should be located south of the Oldman Reservoir. It also finds that once the transmission line is west of the reservoir, routes may extend further north but that in order to reduce the length of the line, preference should be given to more southerly substation locations. Specifically, of the three previously identified potential substation sites, the northernmost site near Maycroft should not be considered."

The current study area developed by the AESO and being used by AltaLink is designed to meet this direction by the AUC, and does not extend north to the Maycroft area. The eastern edge of the study area follows the Oldman River along the northern shore of the Oldman Dam Reservoir.

How do you handle visual pollution and the effect on views?

Visual impact is one of the factors we consider as we work to identify potential route alignments. This includes impacts on recreational users such as hikers, fishermen, hunters, scenic viewers, and cross country skiers. It also includes the impact of structures and lines as seen from residences, farms, roads, and recreational areas. Our goal is to identify a route alignment with low overall impacts when taking into consideration visual impacts, cost, technical requirements, stakeholder input and the rest of our siting criteria.

Environment

How do the structures options you are proposing for the new 240 kV transmission line compare against each other for bird strikes, and how can you assure there will not be bird strikes?

Generally, birds are more likely to collide with the transmission line wires as opposed to the structures themselves and these collisions vary from site to site due to flight paths and other factors.

At AltaLink, we are concerned about the interactions birds have with our facilities and work to mitigate these interactions wherever possible. AltaLink stays up to date on current research as it

relates to birds and power lines, assesses potential bird interactions on our existing and planned facilities, and uses mitigation measures to minimize potential effects on birds, such as installing markers on our lines to make them more visible to birds.

For new transmission line projects, avoidance of large water bodies is AltaLink's primary mitigation for preventing bird collisions with our lines. When these areas cannot be avoided, AltaLink looks into installing markers to increase the visibility of the lines to birds in flight.

What will the impact be on the environment, such as wildlife and native grasses?

Environmental impacts are an important consideration when planning a new transmission project, and this includes wildlife, bird migration, native grasslands and other specific features of the land. Our goal is to reduce the impact that our facilities have on the environment and where impacts cannot be avoided, implement appropriate mitigation measures. Further information about environmental considerations and mitigations will be provided in our next phase of consultation, and will also be included in our facilities application to the AUC.

What will the effect be on conservation easements?

A conservation easement is an agreement where a landowner relinquishes certain rights or opportunities in order to protect the conservation values of all or part of their land. AltaLink is aware of landowners who have signed conservation easements on their property and would attempt to avoid these easements where possible. In the event conservation easements do need to be crossed, AltaLink will work with the landowner and organizations associated with those easements to minimize impact to the greatest extent possible.

Has anyone from AltaLink walked the proposed lines to identify heritage sites?

AltaLink considers current provincial historical resources data during the planning of transmission line alignments. Additionally, AltaLink will apply to Alberta Culture and Tourism for Historical Resources Act direction and will adhere to any requirements issued by that agency. Adherence could include the completion of a preconstruction Historical Resources Impact Assessment by a third-party consultant, if required. Alberta Culture and Tourism regulates all preconstruction archaeological and historical site assessments and any subsequent mitigation programs, if required. Construction activities will not start until Historical Resources Act approval has been issued by Alberta Culture and Tourism.

Engineering

What are the safety factors that are considered in the design of the structures?

There are a variety of different safety factors that apply to the design of structures, such as clearances, conductor (wire) weight, wind speed in the area, and more. AltaLink's transmission line structure design needs to meet AESO requirements and the safety codes in Alberta. AltaLink also refers to industry standards like the Institute of Electrical and Electronics Engineers (IEEE), American Society of Civil Engineers (ACE), and Canadian Standards Association (CSA) to ensure its structures will withstand different conditions they may be subjected to during the life of the facility.

What are the wind and ice loading levels for each of the proposed structures?

Loading levels refer to the amount of wind or ice the structure needs to be engineered to withstand throughout its life. At a minimum, new 240 kV lines are required to meet the AESO's Transmission Line Design Criteria (called rule 502.2).

What are the costs of each of the structure types?

The final cost of each structure is dependent on factors that are not yet known. AltaLink is assessing the cost of the various structure types as part of its estimating effort. Multiple factors go into the selection of the structure types, including impact to agricultural use, environment, residential, visual, electrical effect, and cost.

Is upgrading the Goose Lake Substation option a viable alternative to building a Chapel Rock Substation?

Upgrading the Goose Lake Substation and constructing a new substation in the Chapel Rock area are both required for the project. This project involves approximately 40 to 50 kilometres of new 240 kV transmission line from an existing substation north of Pincher Creek to the new proposed Chapel Rock Substation where it will connect with the 500 kV system. The purpose of the Chapel Rock Substation is to connect the 500 kV and 240 kV transmission systems.

Underground**Can you clarify why you are choosing overhead transmission and not underground?**

AltaLink believes that an overhead solution is the best solution for this project. Underground transmission lines are approximately five to 10 times more expensive than overhead solutions. Because of these additional costs, AltaLink typically only buries transmission lines underground when a third party such as a developer or municipality incurs the cost, or where the availability of land is limited. There are also environmental and reliability implications when burying a transmission line. AltaLink will include underground information in its facilities application to the AUC for its consideration but will not be submitting a proposed underground option.

What about newer and cheaper underground methods?

AltaLink is open to understanding more about newer underground methods and can assess specific options once shared.

Are you able to bury the line for short sections (1 kilometre or less)?

AltaLink may consider underground alternatives for short portions of new transmission lines. We will provide information about underground to the AUC as part of our facilities application and the AUC will review it in its public process.

Can you submerge the transmission line in a waterbody?

AltaLink explored the option of using a submarine cable within the Oldman River Reservoir on the Fidler to Chapel Rock Transmission Project and determined that this option is not practical in this location due to reliability issues and potential environmental impacts.

Can you directional drill for a powerline similar to what petroleum companies do?

Shallow depth directional drilling is an available technology that may be used when it is not possible to openly excavate an underground section of a transmission line, gas line or water line. Examples would include river, rail and road crossings. Deep directional drilling used by petroleum companies is not an available option for powerline construction due to the significant costs and technical challenges in the region.

Electric and Magnetic Fields (EMF) & health

What will AltaLink do about induction and fencing?

An electrical charge that accumulates on a fence is known as induction. Typically, this does not occur close to transmission lines because appropriate grounding already exists. AltaLink will, if required, ground metal buildings, fences, (including electric fences) and other structures close to its facilities to avoid the build-up of an electrical charge and possible nuisance shocks. Please contact us if you have concerns or questions about buildings or fences that may need to be grounded.

What are the potential health impacts of transmission facilities?

AltaLink recognizes that people are concerned about Electric and Magnetic Fields (EMF), and we treat those concerns seriously. AltaLink provides information from unbiased independent sources to keep people informed on the status of EMF research. National and international agencies, such as Health Canada and the World Health Organization (WHO), summarize this research and provide recommendations. AltaLink does not conduct health research, but does take measurements of EMF near our facilities.

After more than 40 years of research that included thousands of studies and reviews by multiple agencies, none of these agencies have concluded that exposure to EMF from power lines is a demonstrated cause of any long-term adverse effects to human, plant, or animal health. None of these agencies has recommended that the general public take steps to limit their everyday exposure to EMF. Based on this research and the conclusions of these agencies, AltaLink believes that the levels of EMF associated with its high-voltage transmission facilities are not a risk to your health. If you have questions or concerns, please contact us and we will provide more information.

BC-AB Intertie Restoration Project

What is the BC-AB Intertie Restoration Project?

You may have also heard about a separate but related project in the area, called the BC-AB Intertie Restoration Project. The AESO has directed AltaLink to prepare a separate facilities application to complete work to restore the capacity of the 500 kV 1201L intertie transmission line between British Columbia and Alberta to its original design. The BC-AB Intertie Restoration Project includes:

- Adding equipment underneath the intertie transmission line west of Highway 22
- Increasing the transmission line's ground clearance in certain locations
- Work at the Bennett Substation near Calgary where the transmission line terminates

What additional equipment will be placed under the 500 kV line?

AltaLink is proposing to add equipment called series capacitors underneath the existing transmission line in several locations. A series capacitor regulates voltage and helps balance power within the electrical grid and will be located within the transmission line right-of-way in fenced areas. More information will be provided to directly impacted landowners at a later date.

Why did the AESO select AltaLink to restore the BC-AB intertie transmission line?

The proposed project is located within AltaLink's service territory so the AESO has directly assigned the project to AltaLink. AltaLink owns and operates transmission infrastructure in our service territory, including the BC-AB 1201L intertie transmission line within Alberta.

Noise

What has happened with the noise study on the structures on the intertie transmission line?

AltaLink has investigated stakeholder concerns regarding intermittent audible noise issues on the BC-AB intertie transmission line over the years. This intermittent noise is heard at certain times of the year under very high wind conditions. AltaLink complies with the AUC Rule 012 related to noise control, however we note that wind conditions are outside of the AUC governed limits when this noise occurs. AltaLink recently applied mitigation measures, including adding equipment that reduce vibrations along the transmission wires, in the vicinity of the audible noise concerns.

Will new transmission structures cause any noise?

For any structure that is built, AltaLink will comply with AUC Rule 012: Noise Control. The rule's most conservative permissible sound level requirement is 40 dBA (decibels) at nighttime at the nearest dwelling or at a distance of 1.5 kilometres based on summertime conditions. The average urban background noise at nighttime is approximately 40 dBA.

Will any noise from the transmission lines increase in high winds?

A combination of high wind conditions, location and structure/wire design – such as on the BC-AB intertie transmission line – can result in intermittent noise from the transmission line at very high wind speeds outside of AUC Rule 012 guidelines.

Need

Alberta Electric System Operator (AESO)

Stakeholders had questions for the AESO about the need for this development, the potential alternatives to serve that need and about the process moving forward. The AESO has produced a video to help answer these questions which can be viewed at www.aeso.ca/grid/projects/SATR-CRPC. If you would like more information regarding the need for the project, please contact the AESO directly at stakeholder.relations@aesoc.ca or 1.888.866.2959.