

Proposed double-circuit solution

Need for an additional circuit for portions of the line in Banff and Canmore

The existing 54L transmission line is a single-circuit transmission line. The Alberta Electric System Operator (AESO), who is responsible for planning the transmission system in Alberta, has determined the need for an additional circuit to support reliability of the power system in the Banff area.

To support this need, we are now proposing to rebuild a 15 km portion of the 54L transmission line as a double-circuit. The double-circuit portion is located between the connection point with the 85L transmission line (near A40 on the maps included in this package) and the West Cascade substation. A single-circuit option is no longer being considered for this portion of the 54L transmission line.

We included the potential of this double-circuit option in our June 2026 update for the Canmore and Harvie Heights area. This package includes the structure details for the proposed double-circuit portion now that it is confirmed.

Please refer to the AESO Need Overview included in this package for more details regarding the need for the additional circuit.

Proposed double-circuit transmission structures

Overhead double-circuit transmission structures

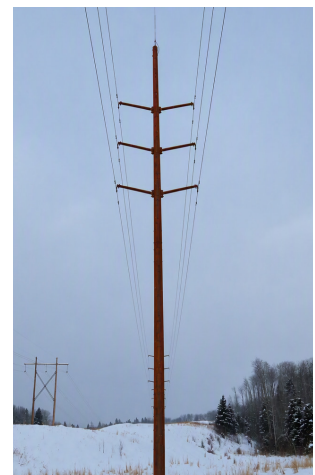
The existing 54L transmission line structures are wood or steel and either monopole or H-frame structures. They are approximately 15 to 20 metres (m) tall and spaced approximately 120 to 200 m apart. The proposed structures for the double-circuit section will be:

- primarily monopoles with two-pole structures in some locations
- approximately 16 to 35 m in height, compared to 26 to 35 m that was previously communicated
- made of self-weathering steel

In addition to the [Overhead Optical Ground Wire \(OPGW\)](#) that was previously identified for 54L, the double-circuit portion will also have an [Overhead Shield Wire \(OHSW\)](#).

An example of what the self-weathering steel monopole structures may look like is shown in the top photo on the right.

Specialized structures with guy wires may be required in some locations based on engineering requirements.



Underground double-circuit riser structures

Riser structures are needed where an underground cable comes above ground to connect to the electric grid. Where an underground double-circuit solution is proposed, two riser structures will be required at the end of each underground segment. The proposed riser structures will be:

- approximately 22 to 32 m in height
- made of self-weathering steel

An example of what the self-weathering steel riser structures may look like is shown in the bottom photo on the right.

In addition to the two riser structures, underground vaults will be required in the potential underground segment in Harvie Heights to connect the cables underground. The vaults will:

- be located within the existing right-of-way
- be made of concrete
- be approximately six m long and 2.5 to three m wide
- extend above ground up to one metre in height



Updates to potential route and underground segments

Potential transmission line routes near Harvie Heights

In our June 2026 project update we included two new potential route options in the Harvie Heights area. Since then, we have continued to gather information on these new route options through field visits and additional engineering and have made some proposed updates.

- Route along Highway 1: Portions of this route have shifted approximately seven to 10 m.
- Firebreak route: Portions of this route have shifted approximately 20 to 100 m. We have determined that this route will require a 20 m wide right-of-way.

The modified route options are shown on the maps included in this package.

Double-circuit with potential underground segment in Banff National Park

We continue to discuss the project within the boundaries of Banff National Park with Parks Canada. Based on these discussions, we are now evaluating both overhead and underground transmission lines in the Johnson Lake area, shown between points B24 and B26 on the maps included in this package.

Parks Canada conceptually supports the use of a double-circuit configuration within Banff National Park to address AESO power reliability requirements, with the condition that visual impacts are addressed in high-value areas, including assessing the feasibility of an underground option for the segment at Johnson Lake.

Locations for the temporary bypass transmission line

A temporary bypass transmission line is required to maintain the flow of electricity during construction. Each section of the bypass line will be removed after that section of the 54L transmission line is rebuilt. The location of the temporary bypass is dependent on the final route selected for the proposed line rebuild. Once detailed design and construction reviews are completed, the route options for the bypass may be modified. The potential bypass locations are shown on the maps included in this package.

Vegetation easements, access trails and workspace

Vegetation easements

Along the 54L transmission line, we are proposing to remove danger and hazard trees, as required, to reduce the number of outages and the potential fire hazard that could result from tree contacts with the line.

As a result of further detailed engineering and analysis, we have reduced the Vegetation Control Easement (VCE) required on Provincial Crown land and reduced the easements required on private property in Canmore and Harvie Heights. On private property we now anticipate we will require a 15 m easement from the edge of the right-of-way on both sides, which has decreased from the up to 25 m that was previously communicated. The 15 m easement will exclude areas containing permanent structures and buildings such as houses, garages, decks, etc.

We will contact affected landowners to discuss which danger or hazard trees may need to be removed. This will be discussed on a case-by-case basis.

We will complete vegetation management outside of the right-of-way in Banff National Park as approved by Parks Canada through the impact assessment process.

Access trails and construction workspace

To facilitate rebuilding 54L, we have identified additional required access trails and construction workspace. We will consult with applicable landowners and/or agencies regarding potential construction workspace and access trails, as shown on the maps.

Proposed substation and transmission line modifications

To support the need for the additional circuit, we need to modify two existing substations and existing transmission lines.

Substation modifications

At the West Cascade Substation (shown in the top photo on the right), we are proposing to:

- install one new 138/25 kV [transformer](#)
- install three new 138 kV [circuit breakers](#) and associated equipment
- replace an existing control building with a new control building that will house three new 25 kV circuit breakers

At the Cascade Substation (shown in the second photo on the right), we are proposing to:

- install two new 138 kV circuit breakers and other associated equipment
- remove one existing 25/13.2 kV transformer

We do not anticipate needing to expand the fence at either substation site.
Note: The building shown in the bottom photo on the right is owned by TransAlta.



Transmission line modifications

To accommodate the additional circuit, we are proposing the following transmission line modifications:

- technical modifications in two locations where 54L connects with the existing 85L and 54AL transmission lines
- replacing up to 160 m of the existing 85L transmission line conductor (wire) where it crosses Highway 1
- replacing one existing structure on the 85L transmission line (shown below on the left) with a new H-frame structure supported with guy wires (shown below on the right)



Draft Detailed Impact Assessment Amendment

AltaLink has been working on a Detailed Impact Assessment (DIA) with Parks Canada for the previously proposed single-circuit design and is continuing to collaborate closely on DIA amendments for the proposed double-circuit. AltaLink will update stakeholders on DIA amendments as the project progresses.

Contact us

To learn more about the proposed project please contact:

AltaLink

1-877-267-1453 (toll free)

E-mail: stakeholderrelations@altalink.ca

Website: www.altalink.ca/projects/54L

To learn more about Alberta's electric system and the need for the project, please contact:

Alberta Electric System Operator

1-888-866-2959 (toll-free)

Email: stakeholder.relations@aeso.ca

Website: www.altalink.ca/projects

The AESO is an independent, not-for-profit organization responsible for the safe, reliable, and economic planning and operation of the provincial transmission grid. For more information about why this project is needed, please refer to the AESO's Need Overview included with this package or visit www.aeso.ca. If you have any questions or concerns about the need for this project or the proposed transmission development to meet the need you may contact the AESO directly. You can make your questions or concerns known to a transmission facility owner representative who will collect your personal information for the purpose of addressing your questions and/or concerns to the AESO. This process may include disclosure of your personal information to the AESO.

To learn more about the application and review process, please contact:

Alberta Utilities Commission (AUC)

310-4282 (1-833-511-4282 outside Alberta)

Email: info@auc.ab.ca

Website: www.auc.ab.ca

The AUC ensures the fair and responsible delivery of Alberta's utility services. AltaLink submits applications for new transmission projects to the AUC and the AUC reviews them in a public process.

PRIVACY COMMITMENT

AltaLink is committed to protecting your privacy. Collected personal information will be protected under AltaLink's Privacy Policy and the Personal Information Protection Act. As part of the regulatory process for new transmission projects, AltaLink may provide your personal information to Alberta Utilities Commission (AUC). For more information about how AltaLink protects your personal information, visit our website at www.altalink.ca/privacy or contact us directly via e-mail privacy@altalink.ca or phone at 1-877-267-6760.

DEFINITIONS

Overhead optical ground wire (OPGW): Provides lightning protection for a transmission line and is part of the telecommunication network that allows AltaLink to monitor, control, protect and restore the electric system.

Overhead shield wire (OHSW): A wire installed at the top of transmission structures that helps protect the transmission line from lightning strikes and improve system reliability.

Circuit: A circuit is a path that allows electricity to flow from one location to another. A single-circuit transmission line has three wires, while a double-circuit transmission line has six wires.

Transformers: Transformers step down the voltage in a substation so power can be distributed safely to your community through distribution lines. Transformers also step up the voltage so power can be transmitted through transmission lines.

Circuit breakers: Circuit breakers are electrical switches inside a substation that protect substation equipment. Circuit breakers help ensure the safety and reliability of the electric system.