

**Date:** February 17, 2026

**Applicant reference:** P2552 – Lone Butte Solar Project Connection

<p><b>Identification</b></p> <p><b>Company name:</b> Alberta Electric System Operator (AESO)</p> <p><b>Name, position and contact information of applicant contact:</b>          Brenda Hill          Regulatory Administrator          403-539-2850          Brenda.Hill@aeso.ca</p>
<p><b>Project details</b></p> <p><b>This application is for:</b></p> <p>Generation connection <input checked="" type="checkbox"/>      Non-distribution facility owner load <input type="checkbox"/></p>
<p><b>Project written description, including the need, nature and extent of the project and the Alberta Electric System Operator’s (AESO) preferred option:</b></p> <p>Lone Butte Solar Project Corp. (Lone Butte) has applied to the AESO for transmission system access to connect its proposed Lone Butte Solar Project (the Facility) in the Torrington area (AESO Planning Area 39, Didsbury, which is part of the AESO Central Planning Region). The Facility includes a proposed collector substation, to be designated the Lone Butte 1801S substation (Power Plant Application 29380-A001 and Substation Application 29380-A002). Lone Butte expects the Facility to be commercially operational by November 17, 2028.</p> <p>Lone Butte’s request includes a new Rate STS, <i>Supply Transmission Service</i>, contract capacity of 450 MW and a new Rate DTS, <i>Demand Transmission Service</i>, contract capacity of 2 MW.</p> <p>The Proposed Transmission Development consists of:</p> <ol style="list-style-type: none"> <li>1. Add one 240 kV circuit, approximately 17 km in length, to connect the Facility to the existing 240 kV transmission line 929L using a T-tap configuration.</li> <li>2. Modify, alter, add or remove equipment, including switchgear, and any operational, protection, control and telecommunication devices required to undertake the work as planned and ensure proper integration with the transmission system.</li> </ol>
<p><b>Applicable ratings/capability of any proposed major elements:</b></p> <p>The 240 kV transmission circuit shall have a minimum capacity of 500 MVA to accommodate Lone Butte’s requested STS contract capacity.</p> <p><b>Proposed in-service date:</b> 11/1/2027</p>
<p><b>Cost estimate for the preferred option for the project is attached.</b></p> <p>Yes <input checked="" type="checkbox"/>      No <input type="checkbox"/></p> <p>Cost estimates prepared by AltaLink Management Ltd. (AltaLink) and ATCO Electric Ltd. (ATCO) are attached. Costs for the 240 kV transmission circuit are included in the AltaLink cost estimate. AltaLink and ATCO have advised they will coordinate construction activities</p>

for the 240 kV transmission circuit to the extent practicable. ATCO costs include the design and installation of telecommunications, SCADA and protection and control systems.

### Technical considerations

**Single line diagram(s) of the proposed development and study area is attached.**

Yes  No

**The AESO has conducted appropriate studies and considers that the project will not result in adverse impacts to the Alberta Interconnected Electric System.**

Yes  No

**List any new or exacerbated Category B system impacts that occur as a result of the project and provide a description of how they will be addressed (e.g. description of remedial action schemes that will be used):**

Power flow, transient stability, and short circuit studies were conducted to assess the impact that the Proposed Transmission Development and the associated generation would have on the transmission system. Power flow and short circuit studies were conducted prior to and following the connection of the Proposed Transmission Development and transient stability studies were performed following the connection of the Proposed Transmission Development.

The post-connection assessment identified thermal criteria violations under certain Category B conditions. The thermal criteria violations exacerbated following the connection of the facility and Proposed Transmission Development are listed below:

- 138 kV transmission line 688L (between Summit 653S and 138 kV transmission line 688AL)
- 240 kV transmission line 9L97 (between Oakland 946S and Anderson 801S)
- 240 kV transmission line 9L70 (between Oakland 946S and Anderson 801S)
- 240 kV transmission line 9L62 (between Red Deer 63S and Nevis 766S)

New Category B thermal violations observed following the connection of the Proposed Transmission Development are listed below:

- 240 kV transmission line 900L (between Benalto 17S and Red Deer 63S)
- 240 kV transmission line 914L (between Gaetz 87S and Red Deer 63S)

Real-time operational practices can be used to mitigate the post-connection thermal criteria violations, and CETO Stage 2 will also mitigate the violation on 9L62.

**Briefly describe any alternatives to the AESO's preferred option that the AESO considered and why they were ruled out:**

In addition to the Proposed Transmission Development, the AESO examined six other transmission development alternatives:

**1. T-tap connection to 240 kV transmission line 901L**

This alternative involves connecting the Facility to the existing 240 kV transmission line 901L using a T-tap configuration. This alternative involves adding one 240 kV circuit, approximately 17 km in length, to connect the Facility to 901L.

This alternative was ruled out as an outage of 901L may result in supply loss that would exceed the Most Severe Single Contingency limit of 466 MW.

**2. T-tap connection to 240 kV transmission line 925L**

This alternative involves connecting the Facility to the existing 240 kV transmission line 925L using a T-tap configuration. This alternative involves adding one 240 kV circuit, approximately 17 km in length, to connect the Facility to the existing transmission line. This alternative would require crossing the 240 kV transmission line 901L.

This alternative was ruled out as it was offered to another project more advanced in the AESO connection process and connecting a second project on the same line with a T-tap will violate the Most Severe Single Contingency limit of 466 MW, following the loss of 240 kV transmission line 925L.

The following four transmission development alternatives were ruled out as all involve increased transmission development, and hence overall increased cost, compared to the Proposed Transmission Development.

**3. In-and-out connection to the 240 kV transmission line 901L**

This alternative involves connecting the Facility to the existing 240 kV transmission line 901L using an in-and-out configuration. This alternative requires adding a switching substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 901L. This alternative also requires adding one 240 kV circuit, approximately 17 km in length, to connect the Facility to the proposed switching substation.

**4. In-and-out connection to 240 kV transmission line 925L**

This alternative involves connecting the Facility to the existing 240 kV transmission line 925L using an in-and-out configuration. This alternative requires adding a switching substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 925L. This alternative also requires adding one 240 kV circuit, approximately 17 km in length, to connect the Facility to the proposed switching substation. This alternative would also require crossing the 240 kV transmission line 901L.

**5. In-and-out connection to 240 kV transmission line 929L**

This alternative involves connecting the Facility to the existing 240 kV transmission line 929L using an in-and-out configuration. This alternative requires adding a switching substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 929L. This alternative also requires adding one 240 kV circuit, approximately 17 km in length, to connect the Facility to the proposed switching substation. This alternative would also require crossing the 240 kV transmission lines 901L and 925L.

**6. Radial connection to the East Crossfield 64S substation**

This alternative involves connecting the Facility to the existing East Crossfield 64S substation in a radial configuration. This alternative requires adding one 240 kV circuit, approximately 45 km in length, to connect the Facility to the existing East Crossfield 64S substation. This alternative also requires modifying East Crossfield 64S substation, including adding one 240 kV circuit breaker.

**Participant involvement requirements**

**Notification requirements have been met and there are no unresolved objections.**

Yes  No

**Environmental requirements**

**The AESO does not anticipate significant environmental effects as a result of the project.**

Yes  No

**Other considerations**

**If you answered no to any of the questions above, please explain:**

N/A

**The project raises issues not addressed by the preceding questions.**

Yes  No

**If yes, please explain:**

**When complete, save a copy of this form as a PDF file and submit the file to the AUC through the eFiling System**