

Needs identification document checklist application

Date: December 2, 2021

Applicant reference: P1250 – Grizzly Bear Creek Wind Power Plant Connection NID Approval Amendment

Identification
<p>Company name: Alberta Electric System Operator</p> <p>Name, position and contact information of applicant contact:</p> <p>Michelle Jackson Regulatory Administrator 403-539-2850 Michelle.Jackson@aeso.ca</p>
Project details
<p>This application is for:</p> <p>Generation connection <input checked="" type="checkbox"/> Non-distribution facility owner load <input type="checkbox"/></p>
<p>Project written description, including the need, nature and extent of the project and the Alberta Electric System Operator's (AESO) preferred option:</p> <p>The AESO is applying to the Commission to amend Needs Identification Document Approval 26879-D03-2021(NID approval)¹ by removing the Steele 2016S substation from the approved transmission development, as follows:</p> <p>Remove part (a) from the NID approval in its entirety: (a) Add a new switching station, to be designated as Steele 2016S Substation, with a 144 kilovolt (kV) circuit breaker and connect the Steele 2016S Substation to the Grizzly Bear Creek Wind Power Plant.</p> <p>Amend part (b) of the NID approval as follows: (b) Connect the Steele 2016S Substation <u>the Grizzly Bear Creek Wind Power Plant</u> to the existing 144-kV Transmission Line 7L65 through by adding a 144-kV circuit using a T-tap configuration.</p> <p>The above transmission development is required to respond to the request for system access service submitted by Wild Run Limited Partnership (Wild Run) to connect its approved Grizzly Bear Creek Wind Power Plant (Facility) in the Vermilion area (AESO Planning Area 13, Lloydminster, which is part of the AESO Central Planning Region). The Facility includes Wild Run's approved Grizzly Bear 708S collector substation. Wild Run expects the Facility to be commercially operational by December 2022.</p> <p>Wild Run's request includes a new Rate STS, <i>Supply Transmission Service</i>, contract capacity of 120 MW and a new Rate DTS, <i>Demand Transmission Service</i>, contract capacity of 1.5 MW.</p>
<p>Applicable ratings/capability of any proposed major elements:</p> <p>The 144 kV transmission circuit shall have a minimum capacity of 167 MVA.</p>
<p>Proposed in-service date: October 1, 2022.</p>
<p>Cost estimate for the preferred option for the project is attached.</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

¹ Appendix 2 to Decision 26879-D01-2021, Alberta Electric System Operator, *Grizzly Bear Transmission Project* (October 25, 2021).

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 transmission development and the associated generation would have on the transmission system.

The post-connection assessment identified thermal criteria violations under certain Category B conditions. These thermal criteria violations are listed below.

- Nevis 766S substation 240/144 kV Transformer 901T
- 144 kV transmission line 7L171 (Michichi Creek 802S – Wintering Hills 804S)
- 138 kV transmission line 174L (Bardo 197S - Holden 395S)
- 144 kV transmission line 7L65 (Vermilion 710S – Project tap)
- 144 kV transmission line 7L224 (Hansman Lake 650S – Monitor 774S)

The following mitigation measures can be used, alone or in combination as appropriate, to mitigate the post-connection system thermal criteria violations:

- planned remedial action scheme (RAS) 139;
- planned modified RAS 134; and
- real-time operational practices.

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

The AESO examined three other transmission development alternatives, in consultation with ATCO Electric Ltd.:

1. **T-tap Connection to 144 kV Transmission Line 7L129** – This alternative would require adding one 144 kV circuit, approximately 2 kilometers in length.
2. **T-tap Connection to 144 kV Transmission Line 7L129 with line rebuild** – This alternative involves upgrading approximately 35 kilometers of the existing 144 kV transmission line 7L129 to a higher capacity and connecting the Facility to the rebuilt transmission line 7L129 using a T-tap configuration. This alternative would also require adding one 144 kV circuit, approximately 2 kilometers in length.
3. **Radial connection to the Buffalo Creek 526S substation** – This alternative would require adding one 144 kV circuit, approximately 13 kilometers in length, and modifying the Buffalo Creek 526S substation, including adding one 144 kV circuit breaker.

Alternatives 1 and 3 above were ruled out due to limited capacity on the 144 kV transmission line 7L129. Alternative 2 was ruled out due to increased transmission development, and hence overall increased cost, compared to the proposed transmission development.

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:

n/a