

Needs identification document checklist application

Date: May 21, 2025

Applicant reference: P2454 - Flipi Gas Fired Generation Project Connection

Identification

Company name: Alberta Electric System Operator (AESO)

Name, position and contact information of applicant contact:

Brenda Hill
 Regulatory Administrator
 403-539-2850
 Brenda.Hill@aeso.ca

Project details

This application is for:

Generation connection ☒ Non-distribution facility owner load ☐

Project written description, including the need, nature and extent of the project and the Alberta Electric System Operator's (AESO) preferred option:

Kiwetinothk Energy Corp. (Kiwetinothk) has applied to the AESO for transmission system access to connect its proposed Flipi Gas Fired Generation Project Connection (the Facility) in the Rimbey area (AESO Planning Area 30, Drayton Valley, which is part of the AESO Central Planning Region). The Facility includes Kiwetinothk's proposed collector substation, to be designated the Wapos 1077S substation (Substation Application 29810-A002). Kiwetinothk expects the Facility to be commercially operational by October 1, 2029.

Kiwetinothk's request includes a new Rate STS, Supply Transmission Service, contract capacity of 466 MW and a new Rate DTS, Demand Transmission Service, contract capacity of 2.5 MW.

Kiwetinothk submitted a proposal to the AESO, pursuant to Section 24.31 of the *Transmission Regulation* (TReg) (Market Participant Proposal), for the construction and temporary operation of a transmission facility, specifically the Proposed Kiwetinothk Development defined below. A completed Market Participant Proposal was submitted by Kiwetinothk on April 30, 2025. Subsequently, on May 20, 2025, the AESO conditionally approved the Market Participant Proposal pursuant to Section 36(1) of the *Electric Utilities Act* (the Act), and in accordance with Section 36(2) of the Act, specified the time within which the market participant was to submit, for Commission approval under the *Hydro and Electric Energy Act*, a transmission facility proposal for the Proposed Market Participant Development.

The Proposed Transmission Development consists of two components:

1. The Proposed AltaLink Development:
 - Add a switching substation, to be designated as Leedale 1076S, including three 240 kilovolt (kV) circuit breakers.
 - Connect the proposed Leedale 1076S switching substation to the existing 240 kV transmission line 926L using an in-and-out configuration.
 - 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.
2. The Proposed Kiwetinothk Development, which includes transmission facilities that, as contemplated by Section 24.31 of the

Transmission Regulation (TReg), will be constructed by Kiwetinohk, and, thereafter, jointly operated by Kiwetinohk and AltaLink for a temporary period of time specified (as per Section 24.31(7)) of the TReg:

- Add one 240 kV circuit to be designated as 987L, approximately 130 metres in length, to connect the Facility to the Leedale 1076S switching substation.
- 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.

Applicable ratings/capability of any proposed major elements:

The 240 kV transmission circuit shall have a minimum capacity of 518 MVA.

Proposed in-service date: 6/1/2028

Cost estimate for the preferred option for the project is attached.

Yes ☒ No ☐

AltaLink's cost estimate is attached. Kiwetinohk has requested their cost estimate not be provided due to confidentiality and commercial sensitivity.

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 by the connection of the project are listed below:

- 138 kV transmission line 740L (Edson 58S to Bickerdike 39S)
- 138 kV transmission line 890L (Edson 58S to Pinedale 207S)
- 240 kV transmission line 974L (Bickerdike 39S to Sundance 310P)
- 240 kV transmission line 973L (Bickerdike 39S to Sundance 310P)

Existing remedial action scheme (RAS) 185, RAS 186, and RAS 188, and real-time operational practices can be used, alone or in combination as appropriate, to mitigate the post-connection thermal criteria violations:

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 nine other transmission development alternatives, in consultation with Kiwetinohk and AltaLink:

1. T-Tap Connection to the 138 kV Transmission Line 757L

- This alternative involves connecting the Facility to the existing 138 kV transmission line 757L using a T-tap configuration. This

alternative requires adding one 138 kV circuit, approximately 16 km in length, to connect the Facility to the existing transmission line.

2. T-Tap or In-and-Out Connection to the 240 kV Transmission Line 190L

- **T-Tap**—This alternative involves connecting the Facility to the existing 240 kV transmission line 190L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 10 km in length, to connect the Facility to the existing transmission line.
- **In-and-Out**— This alternative involves connecting the Facility to the existing 240 kV transmission line 190L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing transmission line 190L. This alternative also requires adding one 240 kV circuit, approximately 10 km in length to connect the Facility to the substation.

3. T-Tap or In-and-Out Connection to the 240 kV Transmission Line 903L

- **T-Tap**- This alternative involves connecting the Facility to the existing 240 kV transmission line 903L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 10 km in length, to connect the Facility to the existing transmission line. This alternative requires crossing the 240 kV transmission line 190L.
- **In-and-Out**- This alternative involves connecting the Facility to the existing 240 kV transmission line 903L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing transmission line 903L. This alternative also requires adding one 240 kV circuit, approximately 10 km in length to connect the Facility to the substation.

4. T-Tap Connection to the 240 kV Transmission Line 926L

- This alternative involves connecting the Facility to the existing 240 kV transmission line 926L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 0.5 km in length, to connect the Facility to the existing transmission line.

5. T-Tap or In-and-Out Connection to the 240 kV Transmission Line 922L

- **T-Tap**- This alternative involves connecting the Facility to the existing 240 kV transmission line 922L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 0.5 km in length, which would require crossing the 240 kV transmission line 926L, to connect the Facility to the existing transmission line.
- **In-and-Out Connection**- This alternative involves connecting the Facility to the existing 240 kV transmission line 922L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing transmission line 922L. This alternative also requires adding one 240 kV circuit, approximately 0.5 km in length, which would require crossing the 240 kV transmission line 926L, to connect the Facility to the substation.

6. Radial Connection to the Willesdengreen 68S Substation

- This alternative involves connecting the Facility to the existing Willesdengreen 68S Substation using a radial configuration. This alternative requires adding one 240 kV circuit, approximately 40 km in length to connect the Facility to the existing Willesdengreen 68S Substation. This alternative requires modifying Willesdengreen 68S, including adding one 240 kV circuit breaker.

7. T-Tap or In-and-Out Connection to the 240 kV Transmission Line 995L

- **T-Tap**- This alternative involves connecting the Facility to the existing 240 kV transmission line 995L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 40 km in length, to connect the Facility to the existing transmission line.
- **In-and-Out** - This alternative involves connecting the Facility to the existing 240 kV transmission line 995L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing transmission line 995L. This alternative also requires adding one 240 kV circuit, approximately 40 km in length to connect the Facility to the substation.

8. Radial Connection to the Benalto 17S Substation

- This alternative involves connecting the Facility to the existing Benalto 17S Substation using a radial configuration. This alternative requires adding one 240 kV circuit, approximately 40 km in length to connect the Facility to the existing Benalto 17S Substation. This alternative also requires modifying Benalto 17S, including adding one 240 kV circuit breaker.

9. Double In-and-Out Connection to 240 kV Transmission Lines 922L and 926L

- This alternative involves connecting the Facility to the existing transmission lines 922L and 926L using a double in and out configuration. This alternative involves adding a substation, including six 240 kV circuit breakers, connected to transmission lines

922L and 926L. This alternative also requires adding one 240 kV circuit, approximately 0.5 km in length to connect the Facility to the substation.

Alternative 1 was ruled out as the available capacity on the 138 kV system cannot accommodate the size of the Project. Alternative 4 was ruled out because the T-tap configuration does not meet Kiwetinohk's required level of reliability. Alternatives 2, 3, 5, 6, 7, 8 and 9 were 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:

The AESO completed studies assuming AltaLink's line rating restoration projects on transmission lines 922L and 926L will be completed before the commercial operation date of the Facility. This work is scheduled for completion in Q1 2026 and has been approved by the Alberta Utilities Commission in Decision 28174-D02-2024. Details of the line restoration work are provided in Appendix 13-A32 of AltaLink's 2025 General Tariff Application.

If the line restoration projects are delayed to after the commercial operation date of the Facility, the AESO may determine that mitigation is required to address Category A thermal criteria violations.

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