

Needs identification document checklist application

Date: June 3, 2025

Applicant reference: P2614 – Fort Saskatchewan Path2Zero Expansion Connection

Identification

Company name: Alberta Electric System Operator (AESO)

Name, position and contact information of applicant contact:

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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:

Dow Chemical Canada ULC (Dow Chemical) has requested system access service to reliably connect its proposed Fort Saskatchewan Path2Zero Expansion (the Facility) in the Fort Saskatchewan area (AESO Planning Area 33, which is part of the AESO Northeast Planning Region). The Facility includes a substation, to be designated the Main Site BLK 80 1199S substation (Substation Application 29880-A001). Dow Chemical has applied for an Industrial System Designation for the Facility (Application 29880-A014). Dow Chemical expects the Facility to be commercially operational by August 15, 2026.

Dow Chemical's request includes a new Rate DTS, *Demand Transmission Service*, contract capacity of 231 MW and a new Rate STS, *Supply Transmission Service*, contract capacity of 0 MW.

The Proposed Transmission Development consists of:

1. Add two 240 kilovolt (kV) circuits, approximately 3.5 km in length, to connect the Facility to the existing Lamoureux 71S substation in a radial configuration.
2. Modify the Lamoureux 71S substation, including adding four 240 kV circuit breakers.
3. 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 conductor used for the 240 kV transmission circuits shall have a minimum capacity of 480 MVA.

Proposed in-service date: 8/15/2026

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

Yes ☒ No ☐

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, voltage stability, transient stability and short-circuit studies were conducted to assess the impact of the Proposed Transmission Development and the associated load 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, transient stability and voltage stability studies were performed following the connection of the Proposed Transmission Development.

A new thermal violation was observed on the 240 kV transmission line 908L (Ellerslie 98S 89S – Petrolia) under Category B conditions following the connection of the Project. Following the connection of the project, the pre-connection thermal criteria violation on the 72 kV transmission line 72RG1 (Rossdale – Garneau) is marginally exacerbated under Category B conditions.

Real-time operational practices and the existing remedial action scheme (RAS) 172 can continue to be used 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 six other transmission development alternatives:

1. **In-and-out connection to 240 kV transmission lines 997L and 942L** – This alternative would require adding one 240 kV switching substation connected to the 240 kV transmission lines 997L and 942L in an in-and-out configuration. This alternative would also require adding two 240 kV circuits, approximately 2 km each, to connect the Facility to the new 240 kV switching substation.

This alternative was ruled out due to increased transmission development, and hence overall increased cost, compared to the Proposed Transmission Development.
2. **In-and-out connection to 240 kV transmission line 997L (two circuits)** – This alternative would require adding one 240 kV switching substation connected to the 240 kV transmission line 997L in an in-and-out configuration. This alternative would also require adding two 240 kV circuits, approximately 2 km each, to connect the Facility to the 240 kV switching substation.

This alternative was ruled out due as there is reasonable access to connect the Facility to Lamoureux 71S substation and the potential for unbalanced flows on 997L introduced by this configuration.
3. **In-and-out connection to 240 kV transmission line 997L (one circuit)** – This alternative would require adding one 240 kV switching station connected to the 240 kV transmission line 997L in an in-and-out configuration. This alternative would also require adding one 240 kV circuit, approximately 2 km in length, to connect the Facility to the 240 kV switching substation.

This alternative was ruled out due as there is reasonable access to connect the Facility to Lamoureux 71S substation and the potential for unbalanced flows on 997L introduced by this configuration.
4. **In-and-out connection to 240 kV transmission line 942L (two circuits)** – This alternative would require adding one 240 kV switching substation connected to the 240 kV transmission line 942L in an in-and-out configuration. This

alternative would also require adding two 240 kV circuits, approximately 2 km each, to connect the Facility to the 240 kV switching substation.

This alternative was ruled out due as there is reasonable access to connect the Facility to Lamoureux 71S substation and the potential for unbalanced flows on 942L introduced by this configuration.

5. **In-and-out connection to 240 kV transmission line 942L (one circuit)** – This alternative would require adding one 240 kV switching station connected to the 240 kV transmission line 942L in an in-and-out configuration. This alternative would also require adding one 240 kV circuit, approximately 2 km in length, to connect the Facility to the 240 kV switching substation.

This alternative was ruled out due as there is reasonable access to connect the Facility to Lamoureux 71S substation and the potential for unbalanced flows on 942L introduced by this configuration.

6. **Radial 240 kV connection to Ursus 430S substation** – This alternative would require adding two 240 kV circuits, approximately 7 km each, to connect the Facility to the existing Ursus 430S substation, and modifying the Ursus 430S substation by adding four 240 kV circuit breakers.

This alternative 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:

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.