



Alberta Electric System Operator

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In the Matter of the Need for Eastervale Solar Project Connection

And in the matter of the *Electric Utilities Act*, S.A. 2003, c. E-5.1, the *Alberta Utilities Commission Act*, S.A. 2007, c. A-37.2, the *Hydro and Electric Energy Act*, R.S.A. 2000, c. H-16, the Regulations made thereunder, and *Alberta Utilities Commission Rule 007*

Application of the Alberta Electric System Operator for Approval of the
Eastervale Solar Project Connection
Needs Identification Document

Date: September 2, 2025

Contents

PART A - APPLICATION	1
1 Introduction	1
1.1 Application	1
1.2 Application Overview	1
1.3 AESO Directions to the TFO	1
2 Need Overview and Proposed Transmission Development	3
2.1 Duty to Provide Transmission System Access Service	3
2.2 Proposed Transmission Development	3
2.3 Proposed Transmission Development Cost Estimate	4
2.4 Transmission Development Alternatives	5
2.5 Connection Assessment	5
2.6 Transmission Dependencies	6
2.7 AESO Participant Involvement Program	6
2.8 Environmental and Land Use Effects	7
2.9 Approval is in the Public Interest	7
3 Request to Combine this Application with the Facility Proposal for Consideration in a Single Process	8
3.1 Facility Proposal	8
3.2 Purpose	8
4 Relief Requested	9
4.1 Approval is in the Public Interest	9
4.2 Request	9
PART B – APPLICATION APPENDICES	10
PART C – REFERENCES	11

PART A - APPLICATION

1 Introduction

1.1 Application

Pursuant to Section 34(1)(c) of the *Electric Utilities Act* (Act), and in accordance with further provisions set out in legislation,¹ the Alberta Electric System Operator (AESO) applies to the Alberta Utilities Commission (Commission) for approval of the *Eastervale Solar Project Connection Needs Identification Document* (Application). This application is submitted in accordance with AUC Rule 007, Section 7.1.2, *Abbreviated needs identification document application information requirements*.

1.2 Application Overview

The market participant, Eastervale Solar Inc. (market participant), requested system access service to connect its proposed Eastervale Solar Project (the Facility)² to the transmission system in the Provost area (AESO Planning Area 37, Provost). The Facility includes a proposed collector substation, to be designated as Eastervale 1090S substation. The market participant expects the Facility to be commercially operational by June 2028.

The market participant's request includes a new Rate STS, *Supply Transmission Service*, contract capacity of 300 MW and a new Rate DTS, *Demand Transmission Service*, contract capacity of 1 MW. The market participant's request can be met by adding one 240 kilovolt (kV) transmission line to connect the Facility to the existing 240 kV transmission line 1047L using a T-tap configuration (the Proposed Transmission Development, as further described in Section 2.2).

The scheduled in-service date for the Proposed Transmission Development is October 1, 2027.

This Application describes the need to respond to the market participant's request for system access service, and the AESO's determination of the manner in which to respond to the request. Having followed the AESO Connection Process,³ the AESO has determined that the Proposed Transmission Development provides a reasonable opportunity for the market participant to exchange electric energy and ancillary services. The Proposed Transmission Development is consistent with the AESO's long-term plans for the Central Planning Region, which includes the Provost area. The AESO submits this Application to the Commission for approval in accordance with the AESO's responsibility to respond to requests for system access service and having determined that transmission development is required and is in the public interest.^{4,5}

1.3 AESO Directions to the TFO

During the AESO Connection Process, the AESO issued various directions to the legal owner of the transmission facility (TFO), in this case AltaLink Management Ltd., in its capacity as general partner of AltaLink L.P., (AltaLink), including a direction to submit, for Commission approval under the HEEA, a Facility Proposal

¹ The *Alberta Utilities Commission Act*, S.A. 2007, c. A-37.2, the *Hydro and Electric Energy Act*, R.S.A. 2000, c. H-16, the Regulations made thereunder, and Alberta Utilities Commission Rule 007 (AUC Rule 007).

² Power Plant Application 30067-A001 and Substation Application 30067-A002, Eastervale Solar Inc., Eastervale Solar Project Power Plant and Substation Application (May 27, 2025).

³ For information purposes, refer to note iv of Part C of this Application for more information on the AESO Connection Process.

⁴ For information purposes, some of the legislative provisions relating to the AESO's planning duties and duty to provide system access service are referenced in notes i and ii of Part C of this Application.

⁵ Note v of Part C of this Application describes the Application scope in more detail.

for the Proposed AltaLink Development, as defined in Section 2.2.⁶ The AESO also issued directions to ATCO Electric Ltd. (ATCO) to prepare a service proposal and cost estimate to address the need for the Proposed ATCO Development. ATCO has a small scope of work as described in Section 2.2, for which it has determined that a transmission facility proposal is not required.

⁶ The directions are described in more detail in the following sections of this Application and in Part C, note vi.

2 Need Overview and Proposed Transmission Development

2.1 Duty to Provide Transmission System Access Service

The AESO, pursuant to its responsibilities under Section 29 of the Act, must provide system access service on the transmission system in a manner that gives all market participants a reasonable opportunity to exchange electric energy and ancillary services.

The AESO, in consultation with the market participant and TFO, has determined that the Proposed Transmission Development is the preferred option to provide the market participant with a reasonable opportunity to exchange electric energy and ancillary services. In accordance with Section 34 of the Act, the AESO has determined that the Proposed Transmission Development will result in an expansion or enhancement of the capability of the transmission system thereby establishing the need for this Application. The market participant has made the appropriate applications to the AESO to obtain transmission system access service.

Through the AESO Connection Process, the AESO, in consultation with the market participant and AltaLink, has determined the Proposed Transmission Development and has assessed the impacts that the Proposed Transmission Development and the associated generation would have on the Alberta interconnected electric system.

2.2 Proposed Transmission Development

The Proposed Transmission Development, as shown in Figure 2-1, involves the following elements:

Proposed AltaLink Development

1. Add one 240 kV circuit, approximately 0.9 km in length, with a minimum capacity of 334 MVA, to connect the Facility to the existing 240 kV transmission line 1047L using a T-tap configuration.⁷
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.⁸

Proposed ATCO Development

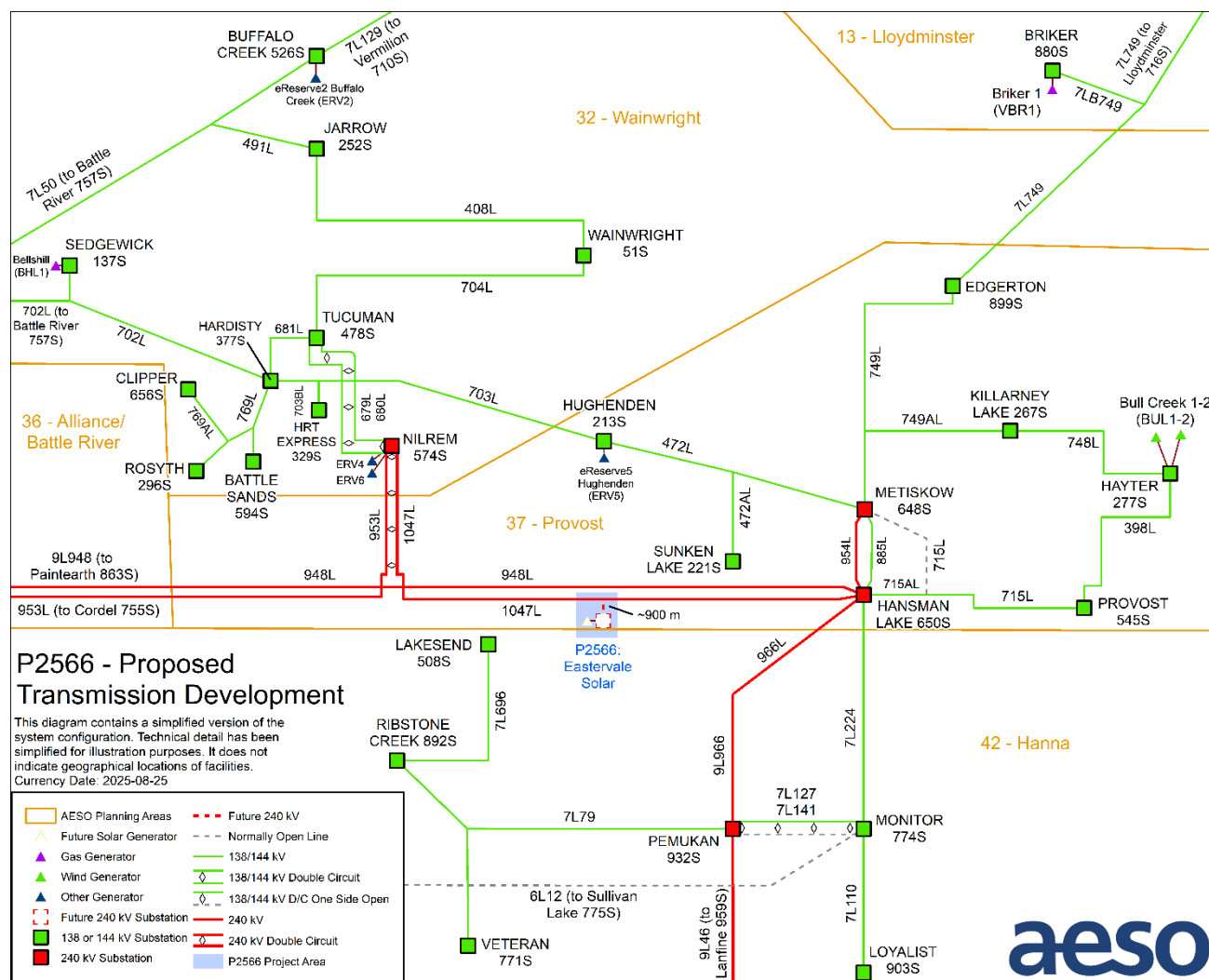
1. Modify, alter, add or remove equipment, including switchgear, and any operational, protection, control and telecommunication devices required to undertake the work as planned and ensure proper integration with the transmission system.⁹

⁷ The 240 kV circuit will connect the market participant's proposed Eastervale 1090S substation, which is part of the Facility. Through the detailed routing and siting activities the TFO as estimated that the 240 kV circuit will have a length of approximately 0.9 kilometres. This is subject to change as routing and/or siting is finalized by the TFO.

⁸ Details and configuration of equipment required for the Proposed Transmission Development are more specifically described in the AESO's Functional Specification included in AltaLink's Facility Proposal. Also, further details will be determined as detailed engineering progresses and the market participant's operating requirements are finalized. Routing and/or siting of transmission facilities do not form part of this Application and are addressed in AltaLink's Facility Proposal. Line numbering and substation names provided here are for ease of reference and are subject to change as engineering and design progresses. The market participant's facilities that may subsequently be connected to the Proposed Transmission Development are the responsibility of the market participant and are not included in the Application.

⁹ ATCO has advised that its scope of work will consist of protection and control, SCADA and telecommunication changes and the design and implementation of RAS 211 scheme implementation at 755S Cordell substation.

Figure 2-1: Proposed Transmission Development



2.3 Proposed Transmission Development Cost Estimate

The AESO directed AltaLink and ATCO to prepare a cost estimate for the Proposed AltaLink and ATCO Development described in Section 2.2.

AltaLink has estimated the cost of the Proposed AltaLink Development to be approximately \$8.9 million.¹⁰ In accordance with the ISO tariff, the AESO has determined that approximately \$8.8 million of the costs associated with the Proposed AltaLink Development will be classified as participant-related. The remaining \$0.1 million of the costs will be classified as system-related as these costs are attributed to a grounding study and grounding grid upgrades at the Metiskow 648S substation. ATCO has estimated the cost of the Proposed ATCO Development to be approximately \$0.15 million.¹¹ In accordance with the ISO tariff, the AESO has determined the costs associated with the Proposed ATCO Development will be classified as participant-related.

¹⁰ The cost is in nominal dollars using a base year of 2025 with escalation considered. Further details of this cost estimate, which has an accuracy level of +20%/-10%, can be found in Appendix B.

¹¹ The cost is in nominal dollars using a base year of 2025 with escalation considered. Further details of this cost estimate, which has an accuracy level of +20%/-10%, can be found in Appendix B.

2.4 Transmission Development Alternatives

In addition to the Proposed Transmission Development, the AESO, in consultation with the market participant and AltaLink, examined five other transmission development alternatives to respond to the market participant's request for system access service:

1. **Radial 240 kV connection to Hansman Lake 650S substation** – This alternative involves connecting the Facility to the existing Hansman Lake 650S substation using a radial configuration. This alternative requires adding one 240 kV circuit, approximately 32 km in length, and modifying the Hansman Lake 650S substation, including adding one 240 kV circuit breaker.
2. **T-tap connection to 240 kV transmission line 948L** – This alternative involves connecting the Facility to the existing 240 kV transmission line 948L using a T-tap configuration. This alternative requires adding one 240 kV circuit, approximately 0.8 km in length, to connect the Facility to the existing transmission line.
3. **Radial 240 kV connection to Nilrem 574S substation** – This alternative involves connecting the Facility to the existing Nilrem 574S substation using a radial configuration. This alternative requires adding one 240 kV circuit, approximately 26 km in length, and modifying the Nilrem 574S substation, including adding one 240 kV circuit breaker.
4. **In-and-out connection to 240 kV transmission line 948L** – This alternative involves connecting the Facility to the existing 240 kV transmission line 948L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 948L. This alternative requires adding one 240 kV circuit, approximately 0.8 km in length, to connect the Facility to the proposed substation.
5. **In-and-out connection to 240 kV transmission line 1047L** – This alternative involves connecting the Facility to the existing 240 kV transmission line 1047L using an in-and-out configuration. This alternative requires adding a substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 1047L. This alternative requires adding one 240 kV circuit, approximately 0.8 km in length, to connect the Facility to the proposed substation.

These alternatives were ruled out as they involve increased transmission development, and hence overall increased cost, compared to the Proposed Transmission Development.

2.5 Connection Assessment

Power flow, short-circuit, and transient stability studies were conducted to assess the impact that the Proposed Transmission Development and the associated supply 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 the associated Facility. Transient stability studies were conducted following the connection of the Proposed Transmission Development and associated Facility.¹²

Pre-Connection Assessment Results

The pre-connection assessment identified system performance issues under Category A and Category B conditions. Category A thermal criteria violations were observed on the 138/144 kV transmission lines 472L, 749AL, 7L760, 7L132 and 715L. Thermal criteria violations were also observed under certain Category B conditions in the pre-connection assessment.

¹² The connection assessment is included as Appendix A.

Post-Connection Assessment Results

Some of the Category A thermal criteria violations observed in the pre-connection assessment were exacerbated following the connection of the Proposed Transmission Development, and new Category A thermal criteria violations were observed. New Category A thermal criteria violations were observed on a different segment of the 138 kV transmission line 472L (not overloaded under Category A conditions in pre-Project scenarios), as well as on the 138 kV transmission line 704L and were observed on the 240 kV transmission line 9L62 as well.

Following the connection of the Project, some of the thermal criteria violations observed in the pre-Project scenarios were materially exacerbated, and additional thermal criteria violations were observed.

Post-Connection Mitigation Measures

The Category A thermal criteria violations observed on the 138/144 kV transmission lines 472L, 749AL, 7L760, 7L132, 715L, and 704L can be managed by applying Section 302.1 of the ISO rules, *Real-Time Transmission Constraint Management* (TCM Rule) to curtail generation. The need for system developments to address these thermal criteria violations will be assessed according to the forthcoming Optimal Transmission Planning (OTP) framework.¹³

Real-time operational practices, existing remedial action schemes (RAS) 134, 201, 203, planned RAS 238, and planned 9L24/760L RAS can be used to mitigate the post-connection system performance issues observed under certain Category B conditions. Existing RAS 211 will be modified to include the Project to mitigate overload on 704L.

The total amount of generation tied to modified planned RAS 211 exceeds the Maximum Severe Single Contingency (MSSC) limit of 466 MW. Therefore, pre-contingency generation curtailment under the Category A condition may be required using real-time operational practices to prevent generation curtailment above the MSSC limit during Category B conditions.

The second stage of the approved Central East Transfer-out Transmission Development Project¹⁴ will address some of the Category A and B thermal criteria violations involving the 240 kV transmission line 9L62.

2.6 Transmission Dependencies

The Proposed Transmission Development does not require the completion of any other AESO plans to expand or enhance the capability of the transmission system prior to connection.

2.7 AESO Participant Involvement Program

The AESO directed AltaLink to assist the AESO in conducting the AESO's participant involvement program (PIP).¹⁵

Between October 2024 and July 2025, AltaLink and the AESO used various methods to notify stakeholders and Indigenous Groups about the need for development and the AESO's preferred option to respond to the system access service request. This included a notification to market participants that may be affected by the Proposed Transmission Development. The AESO has responded to questions and concerns raised by one of the notified market participants. No other questions or concerns have been raised by the other notified market participants.

¹³ More information about Optimal Transmission Planning (OTP) is available on the AESO Engage website.

¹⁴ Decision 25469-D01-2021, Alberta Electric System Operator, Needs Identification Document Application, *Central East Transfer-out Transmission Development*.

¹⁵ ATCO has determined that no PIP was required given ATCO's scope of work.

Apart from the inquiry described above, there are no outstanding concerns or objections regarding the need for the Proposed Transmission Development or the AESO's preferred option to respond to the system access service request.¹⁶

2.8 Environmental and Land Use Effects

AltaLink has advised that the Proposed Transmission Development is not expected to result in significant environmental effects.

2.9 Approval is in the Public Interest

Having regard to the following:

- the transmission planning duties of the AESO as described in Sections 29, 33 and 34 of the Act;
- the market participant request for system access service and the AESO's assessment thereof;
- the AESO's connection assessment;
- the cost estimate for the Proposed AltaLink and ATCO Developments;
- confirmation from AltaLink that no significant environmental effects are expected;
- information obtained from AESO PIP activities; and
- the AESO's long-term transmission system plans;

it is the conclusion of the AESO that the Proposed Transmission Development provides a reasonable opportunity for the market participant to exchange electric energy and ancillary services. In consideration of these factors, the AESO submits that approval of this Application is in the public interest.

¹⁶ Further information regarding the AESO's PIP for this Application is included in Appendix C.

3 Request to Combine this Application with the Facility Proposal for Consideration in a Single Process

3.1 Facility Proposal

Pursuant to Subsection 35(1) of the Act, the AESO has directed AltaLink to prepare a Facility Proposal corresponding with this Application.

The AESO understands that the AltaLink Facility Proposal will be filed shortly.¹⁷ The AESO requests, and expects AltaLink will request, that this Application be combined with the Facility Proposal for consideration by the Commission in a single process. This request is consistent with Section 15.4 of the HEAA and Section 7.1 of AUC Rule 007.

3.2 Purpose

While it is believed that this Application and the Facility Proposal will be materially consistent, the AESO respectfully requests that in its consideration of each, the Commission be mindful of the fact that the documents have been prepared separately and for different purposes. The purpose of this Application is to obtain approval of the need to respond to the market participant's request for system access service and provide a preliminary description of the manner proposed to meet that need, having regard for the AESO's determination that the Proposed Transmission Development is required to provide the market participant with a reasonable opportunity to exchange electric energy and ancillary services. In contrast, the Facility Proposal will contain more detailed engineering and designs for the Proposed Transmission Development and seek approval for the construction and operation of specific facilities.

¹⁷ The AESO understands that AltaLink intends to file a Facility Proposal relating to this Application to be titled Eastervale Solar Connection Project.

4 Relief Requested

4.1 Approval is in the Public Interest

The AESO submits that its assessment of the need to meet the market participant's request for system access service is technically complete and that approval is in the public interest.

4.2 Request

For the reasons set out herein, and pursuant to Section 34 of the Act, the AESO requests that the Commission approve this Application, including issuing an approval of the need to respond to the market participant's request for system access service, and to connect the Facility to the transmission system, by means of the following transmission development:

- A. Add one 240 kV circuit to connect the Facility to the existing 240 kV transmission line 1047L using a T-tap configuration; and
- B. 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.

All of which is respectfully submitted this 2nd day of September, 2025.

Alberta Electric System Operator

"Electronically Submitted by"

Pravin Koshti
Director, Customer Access and Project Engineering

PART B – APPLICATION APPENDICES

The following appended documents support the Application (Part A).

APPENDIX A **Connection Assessment** – Appendix A contains the *AESO Engineering Connection Assessment – P2566 Eastervale Solar Project Connection* that assesses the transmission system performance prior to and following the connection of the Proposed Transmission Development. As part of the AESO Connection Process, the AESO defined the study scope, and provided the system models and study assumptions to the market participant who engaged a consultant to conduct the connection assessment studies. The AESO reviewed the results of the connection assessment studies prepared by the consultant, and found the results acceptable for the purposes of assessing the impacts of the Proposed Transmission Development on the transmission system.

APPENDIX B **Capital Cost Estimates** – Appendix B contains a detailed cost estimate corresponding to the Proposed Transmission Development. Appendix B includes estimates prepared by AltaLink and ATCO, to an accuracy level of +20%/-10% which exceeds the accuracy required by AUC Rule 007, Section 7.1.2, NID 11.

APPENDIX C **AESO PIP** – Appendix C contains a summary of the PIP activities conducted, in accordance with requirements of NID12 and Appendix A2 of AUC Rule 007, regarding the need to respond to the market participant's request for system access service. Copies of the relevant materials distributed during the PIP are attached for reference.

PART C – REFERENCES

- i. **AESO Planning Duties and Responsibilities** – Certain aspects of the AESO's duties and responsibilities with respect to planning the transmission system are described in the Act. For example, Section 17, Subsections (g), (h), (i), and (j), describe the general planning duties of the AESO.¹⁸ Section 33 of the Act states that the AESO "must forecast the needs of Alberta and develop plans for the transmission system to provide efficient, reliable, and non-discriminatory system access service and the timely implementation of required transmission system expansions and enhancements." Where, as in this case, the market participant (refer to note ii below) is requesting system access service, and the AESO has determined that the request requires or may require the expansion or enhancement of the capability of the transmission system, the AESO must prepare and submit for Commission approval, as per Section 34(1)(c), a needs identification document that describes the need to respond to requests for system access service, including the assessments undertaken by the AESO regarding the manner proposed to address that need. Other aspects of the AESO's transmission planning duties and responsibilities are set out in Sections 8, 10, 11, and 15 of the *Transmission Regulation*.
- ii. **Duty to Provide Transmission System Access** – Section 29 of the Act states that the AESO "must provide system access service on the transmission system in a manner that gives all market participants [Eastervale Solar Inc.] wishing to exchange electric energy and ancillary services a reasonable opportunity to do so."
- iii. **AESO Transmission Planning Criteria** – In accordance with the Act, the AESO is required to plan a transmission system that satisfies applicable reliability standards. Transmission Planning (TPL) standards are included in the Alberta Reliability Standards, and are generally described on the AESO website.

In addition, the AESO's *Transmission Planning Criteria – Basis and Assumptions* is included in Appendix A.
- iv. **AESO Connection Process** – For information purposes, the AESO Connection Process, which changes from time to time, is generally described on the AESO website.
- v. **Application for Approval of the Need to Respond to a Request for System Access Service** – This Application is directed solely to the question of the need to respond to a request for system access service, as more fully described in the Act and the *Transmission Regulation* and the AESO's determination of the manner in which to respond to the request. This Application does not seek approval of those aspects of transmission development that are managed and executed separately from the needs identification document approval process. Other aspects of the AESO's responsibilities regarding transmission development are managed under the appropriate processes, including the ISO rules, Alberta reliability standards and the ISO tariff, which are also subject to specific regulatory approvals. While the Application or its supporting appendices may refer to other processes or information from time to time, the inclusion of this information is for context and reference only.

Any reference within the Application to market participants or other parties and/or the facilities they may own and operate or may wish to own and operate, does not constitute an application for approval

¹⁸ The legislation and regulations refer to the Independent System Operator or ISO. "AESO" and "Alberta Electric System Operator" are the registered trade names of the Independent System Operator.

of such facilities. The responsibility for seeking such regulatory or other approval remains the responsibility of the market participants or other parties.

- vi. **Directions to AltaLink and ATCO** – Pursuant to Subsection 35(1) of the Act, the AESO has directed AltaLink, in its capacity as a legal owner of transmission facilities, in whose service territories the need is located, to prepare a Facility Proposal to meet the need identified. The Facility Proposal is also submitted to the Commission for approval. The AESO has also directed AltaLink, pursuant to Section 39 of the Act and Section 14 of the *Transmission Regulation*, to assist in the preparation of the AESO's Application. AltaLink and ATCO have also been directed by the AESO under Section 39 of the Act to prepare a service proposal to address the need for the Proposed AltaLink and ATCO Development.
- vii. **Capital Cost Estimates** – The provision of capital costs estimates in the Application is for the purposes of relative comparison and context only. The requirements applicable to cost estimates that are used for transmission system planning purposes are set out in Section 25 of the *Transmission Regulation*, AUC Rule 007, and Section 504.5 of the ISO rules, *Service Proposals and Cost Estimating*.