



**Alberta Utilities Commission
In the Matter of the Need for the
Vista Coal Mine 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
Vista Coal Mine Connection
Needs Identification Document**

**Vista Coal Mine Connection
Needs Identification Document**

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 *Vista Coal Mine Connection Needs Identification Document* (Application).

1.2 Application Overview – Coalspur Mines (Operations) Ltd. (Coalspur), as a market participant, has requested system access service (request) to connect its approved coal mine facility, called the Vista Coal Mine Facility (the Facility), to be located in the Town of Hinton area (AESO Planning Area 29, Hinton/Edson). The Facility will be served by Coalspur Mines (Operations) Ltd.'s (market participant) approved Vista 1029S substation.² The Facility is expected to begin commissioning in Q4 2018.

The market participant's request includes a new Rate DTS, *Demand Transmission Service*, contract capacity of 23 MW in the Town of Hinton area. The market participant's request can be met by adding one 138 kV circuit to connect the market participant's approved Vista 1029S substation to the existing 138 kV transmission line 847L using a T-tap connection configuration (the "Proposed Transmission Development", as further described in Section 2.2). The scheduled in-service date for the Proposed Transmission Development is November 28, 2018.

This Application describes the need to respond to the market participant's request for system access service. Having followed the AESO Connection Process,³ the AESO has determined that the Proposed Transmission Development provides a reasonable

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 On December 15, 2017, in Commission Decision 23040-D01-2017, pursuant to Section 16(1) of the *Hydro and Electric Energy Act*, the Commission granted Coalspur an exemption to own and operate the transmission facility (Vista 1029S substation) that will connect its electric distribution system to the AES within the area covered by its mineral surface lease for the Vista Coal Mine.

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

**Vista Coal Mine Connection
Needs Identification Document**

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 Town of Hinton area. The AESO, in accordance with its responsibility to respond to requests for system access service, submits this Application to the Commission for approval.^{4,5}

1.3 AESO Directions to the TFO – During the AESO Connection Process, the AESO issued various directions to the legal owner of transmission facilities (TFO), in this case, AltaLink Management Ltd., in its capacity as general partner of AltaLink, L.P., including direction to assist the AESO in preparing this Application.⁶

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.

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

**Vista Coal Mine Connection
Needs Identification Document**

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 market participant has requested system access service through a connection to the transmission system. In accordance with Section 34 of the Act, the AESO has determined that an expansion or enhancement of the transmission system is required to respond to the request, thereby establishing the need for this Application. The market participant has made the appropriate applications to the AESO to obtain transmission system access service.

The AESO, in consultation with the market participant and the TFO, has determined that the Proposed Transmission Development is the preferred option to meet the market participant's request for system access service.

Through the AESO Connection Process, the AESO, in consultation with the market participant and the TFO, has determined the characteristics of the Proposed Transmission Development and assessed the impacts that the Proposed Transmission Development and the associated load would have on the Alberta interconnected electric system.⁷ The AESO has issued directions to the TFO to prepare a transmission facility proposal (Facility Proposal) to meet the need to respond to the market participant's request.

2.2 Proposed Transmission Development – The Proposed Transmission Development involves connecting the Facility to the transmission system, and consists of the following elements:

⁷ The AESO relies on the market participant to assess the impact of the Proposed Transmission Development on its distribution system in the Proposed Transmission Development area.

Vista Coal Mine Connection Needs Identification Document

1. Add one 138 kV circuit, with a minimum rating similar to the existing 138 kV transmission line 847L, to connect the market participant's approved Vista 1029S substation to the existing 138 kV transmission line 847L using a T-tap connection configuration;⁸ and
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.^{9,10}

2.3 Proposed Transmission Development Cost Estimate – The AESO directed the TFO to prepare cost estimates for the Proposed Transmission Development, described in Section 2.2. The TFO estimated the cost of the Proposed Transmission Development to be approximately \$1.8 million.¹¹ In accordance with the ISO tariff, the AESO has determined that all costs associated with the Proposed Transmission Development will be classified as participant-related.

2.4 Transmission Development Alternatives – In addition to the proposed transmission development, the following transmission development alternatives were examined:

1. **In-and-Out Connection to the 138 kV transmission line 847L** – This alternative involves adding a 138 kV switching station, including three 138 kV

⁸ The TFO has estimated that the 138 kV circuit that will connect the market participant's approved Vista 1029S substation to existing 138 kV transmission line 847L will have a length of approximately 100 metres (m).

⁹ Details and configuration of equipment required for the Proposed Transmission Development, including substation single-line diagrams, are more specifically described in the AESO's Functional Specification included in the TFO's Facility Proposal. Also, further details will be determined as detailed engineering progresses and DFO operating requirements are finalized. Routing and/or siting of transmission facilities do not form part of this Application and are addressed in the TFO's Facility Proposal.

¹⁰ The market participant has advised that the Proposed Transmission Development would involve associated distribution system developments. The distribution system development granted the market participant an exemption by the Commission on October 5, 2017 in Decision 22744-D01-2017, pursuant to Section 24 of the *Hydro and Electric Energy Act*, to own and operate a 25-kilovolt (kV) electric distribution system within the area covered by its mineral surface lease for the Vista Coal Mine. This exemption covers the 25-kV/7200-V mobile substations and 25-kV distribution lines only.

¹¹ The cost is in nominal dollars using a base year of 2018 with escalation considered. Further details of this cost estimate, which has an accuracy level of +20%/-10%, can be found in Appendix B.

Vista Coal Mine Connection Needs Identification Document

circuit breakers, and connecting the 138 kV switching station to the existing 138 kV transmission line 847L using an in-and-out connection configuration.

This alternative also involves adding one 138 kV circuit, approximately 100 m in length, to connect the market participant's approved Vista 1029S substation to the existing 138 kV transmission line 847L in a radial connection configuration. This alternative was ruled out due to increased overall development, and hence increased overall cost, compared to the Proposed Transmission Development.

2. **Radial Connection to the existing Bickerdike 39S substation** – This alternative involves modifying the existing Bickerdike 39S substation including adding a 138 kV circuit breaker, and connecting the market participant's approved Vista 1029S substation to the existing Bickerdike 39S substation in a radial configuration. This would require the addition of one 138 kV circuit, approximately 60 kilometres in length. This alternative was ruled out due to increased overall development, and hence increased overall cost, compared to the Proposed Transmission Development.

The Proposed Transmission Development was selected as the preferred transmission alternative and forms the basis for the cost estimates and the connection assessment described herein.

2.5 Connection Assessment – Power flow, voltage stability, and short-circuit studies were conducted to assess the impact that 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 connection of the Proposed Transmission Development, and voltage stability studies were performed following connection of the Proposed Transmission Development.¹²

¹² The connection assessment is included as Appendix A.

**Vista Coal Mine Connection
Needs Identification Document**

The connection assessment did not identify any system performance issues prior to and following connection of the Proposed Transmission Development. Based on the study results, the Proposed Transmission Development will not adversely affect the performance of the transmission system.

2.6 AESO Forecast and Transmission System Plans – The AESO’s corporate forecast for the Central Planning Region is consistent with the load associated with the Proposed Transmission Development.¹³ The AESO’s corporate forecasts are used by the AESO to assess the adequacy of the regional transmission system and as a basis for identifying the need for transmission system expansion or enhancement. Therefore, the need associated with the Proposed Transmission Development is consistent with the AESO’s long-term plans for this region.

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

2.8 AESO Participant Involvement Program – The AESO directed the TFO to assist the AESO in conducting the AESO’s participant involvement program (PIP). Between June and August 2018, the TFO and the AESO used various methods to notify stakeholders about the need for development and the AESO’s preferred option to respond to the system access service request. In August 2018, the AESO notified stakeholders of its intention to file this Application with the Commission. 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.¹⁴

2.9 Information Regarding AUC Rule 007, Section 6.2.1, NID15(2) – The AESO has been advised that the TFO’s Facility Proposal addresses the requirements of AUC

¹³ The *AESO 2017 Long-term Outlook* provides forecasting information for the Central Planning Region, which includes the Proposed Transmission Development area.

¹⁴ Further information regarding the AESO’s PIP for this Application is included in Appendix C.

**Vista Coal Mine Connection
Needs Identification Document**

Rule 007, Section 6.2.1, NID15(2).¹⁵ In consideration of this fact, and as the filing of the Application is combined with the TFO's Facility Proposal, the AESO has not undertaken a separate assessment of the sort contemplated in AUC Rule 007, Section 6.2.1, NID15(2).

2.10 Confirmation Date – In the event that the proposed facilities are not in service by May 28, 2019, which is six months following the scheduled in-service date of November 28, 2018, the AESO will inform the Commission in writing if the need to expand or enhance the transmission system described in this Application continues, and if the technical solution described in this Application approval continues to be the AESO's preferred technical solution.

The AESO has been advised that the TFO's Facility Proposal addresses the requirements of AUC Rule 007, Section 6.2.2, NID17(2).¹⁶ In consideration of this fact, and as the filing of this Application is combined with the TFO's Facility Proposal, the AESO has not included an implementation schedule of the sort contemplated in AUC Rule 007, Section 6.2.2, NID17(2).

2.11 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's request for system access service;
- the AESO's connection assessment;
- the TFO's cost estimate for the Proposed Transmission Development;
- information obtained from AESO PIP activities; and
- the AESO's long-term transmission system plans;

¹⁵ Please refer to the letters included as Appendix D of this Application.

¹⁶ *Ibid*

**Vista Coal Mine Connection
Needs Identification Document**

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.

**Vista Coal Mine Connection
Needs Identification Document**

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

3.1 Pursuant to Subsection 35(1) of the Act, the AESO has directed the TFO to prepare a Facility Proposal to meet the need identified. The AESO understands that the TFO's Facility Proposal will be filed shortly.¹⁷ The AESO requests, and expects the TFO 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 *Hydro and Electric Energy Act* and Section 6 of AUC Rule 007.

3.2 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. 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 *Vista Coal Mine Connection*.

**Vista Coal Mine Connection
Needs Identification Document**

4 Relief Requested

4.1 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 In the event that the proposed facilities are not in service by May 28, 2019, which is six months following the scheduled in-service date of November 28, 2018, the AESO will inform the Commission in writing if the need to expand or enhance the transmission system described in this Application continues, and if the technical solution described in this Application continues to be the AESO's preferred technical solution.

4.3 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. The addition of one 138 kV circuit to connect the market participant's approved Vista 1029S substation to the existing 138 kV transmission line 847L using a T-tap connection configuration; and
- B. The modification, alteration, addition or removal of 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 24th day of August 2018.

Alberta Electric System Operator

"Electronically submitted by"

Robert Davidson, P.Eng.
Director, Transmission Connection Projects

Alberta Electric System Operator

**Vista Coal Mine Connection
Needs Identification Document**

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 – Vista Coal Mine 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 market participant engaged a consultant to conduct the connection assessment studies. The AESO defined the study scope, and provided the system models and study assumptions. The AESO also reviewed the Connection Assessment Results report prepared by the consultant, and finds the Connection Assessment Results report 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. This estimate has been prepared by the TFO at the direction of the AESO, to an accuracy level of +20%/-10%, which exceeds the accuracy required by AUC Rule 007, NID16.

APPENDIX C **AESO PIP** – Appendix C contains a summary of the PIP activities conducted, in accordance with requirement NID19 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.

APPENDIX D **Information Regarding AUC Rule 007, Section 6.2.1, NID15(2) and NID17(2)** – Appendix D contains a letter provided by the TFO confirming that the requirements of AUC Rule 007, NID15(2) and NID17(2) will be addressed within the TFO's Facility Proposal.

**Vista Coal Mine Connection
Needs Identification Document**

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 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 [Coalspur in this case] wishing to exchange electric energy and ancillary services a reasonable opportunity to do so."
- iii. **AESO 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 at: <https://www.aeso.ca/rules-standards-and-tariff/alberta-reliability-standards/>¹⁹

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 at: <https://www.aeso.ca/grid/connecting-to-the-grid/connection-process/>²⁰

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.

¹⁹ This link is provided for ease of reference and does not form part of this Application.

²⁰ This link is provided for ease of reference and does not form part of this Application.

Vista Coal Mine Connection Needs Identification Document

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*. 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 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 the TFO** – Pursuant to Subsection 35(1) of the Act, the AESO has directed the TFO, 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 the TFO, pursuant to Section 39 of the Act and Section 14 of the *Transmission Regulation*, to assist in the preparation of the AESO's Application. The TFO has also been directed by the AESO under Section 39 of the Act to prepare a service proposal to address the need for the Proposed Transmission 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*.