



Alberta Utilities Commission

In the Matter of the Need for the

Riverview Wind Power Plant 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**

**Amended Application of the Alberta Electric System Operator
for Approval of the
Riverview Wind Power Plant Connection
Needs Identification Document**

**Riverview Wind Power Plant Connection
Amended Needs Identification Document**

PART A - APPLICATION

1 Introduction

1.1 Background – On June 11, 2013 the Alberta Electric System Operator (AESO) filed the *Riverview Wind Energy Connection Needs Identification Document*¹ (Original Application) with the Alberta Utilities Commission (Commission). On April 27, 2017, the Commission granted a motion filed by the AESO requesting that the Commission suspend its review of the Original Application until such time as the AESO had updated the Original Application, which the AESO submitted had become outdated.² Following a determination by the Commission that the power plant applications filed by Enel Alberta Wind Inc. (Enel) for the Riverview Wind Power Plant project were incomplete and would be placed on hold,³ the AESO on August 10, 2017 advised the Commission that it would not be amending the Original Application until such time as the Commission decided to continue its review of Enel’s power plant applications for the Riverview Wind Power Plant project.⁴

On December 13, 2017, the Government of Alberta announced that Enel’s Riverview Wind Power Plant project was one of the winners of round one of the AESO’s Renewable Electricity Program (REP).

As a result of the Riverview Wind Power Plant Project winning round one of the REP, the AESO now considers it appropriate to amend the Original Application in accordance with Section 34(2) of the *Electric Utilities Act* (Act). This amended *Riverview Wind Energy Connection Needs Identification Document* (Amended Application) replaces the Original Application.

¹ Exhibit 0039.00.AESO-2402.

² Exhibit 2402-0020.

³ Exhibit 2402-0029.

⁴ Exhibit 2402-0030.

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1.2 Application – Pursuant to Section 34(1)(c) of the Act, and in accordance with further provisions set out in legislation,⁵ the AESO applies to the Commission for approval of this Amended Application.

1.3 Application Overview – Riverview Limited Partnership (RLP), by its general partner Enel Alberta Wind Inc., has requested system access service to connect the proposed Riverview Wind Power Plant⁶ (the Facility) to be located in the Pincher Creek area (AESO Planning Area 53, Fort Macleod). The Facility has an expected commercial operation date of December 1, 2019. RLP’s request includes a Rate STS, *Supply Transmission Service*, contract capacity of 115 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 1 MW at the existing Castle Rock Ridge 205S substation. RLP’s request can be met by modifying the Castle Rock Ridge 205S substation, including adding one 240 kV circuit breaker (the “Proposed Transmission Development”, as further described in Section 2.2). The scheduled in-service date for the Proposed Transmission Development is June 30, 2019.

This Amended Application describes the need to respond to RLP’s request for system access service. Having followed the AESO Connection Process,⁷ the AESO has determined that the Proposed Transmission Development provides a reasonable opportunity for the market participant, in this case RLP, to exchange electric energy and ancillary services. The Proposed Transmission Development is consistent with the AESO’s long-term plans for the South Planning Region, which includes the Pincher Creek area. The AESO, in accordance with its responsibility to respond to requests for

⁵ 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).

⁶ RLP submitted an application for the proposed Facility to the Commission, which was registered on January 31, 2013, in Application 1609252-1 and Proceeding No. 2402.

⁷ For information purposes, refer to note iv of Part C of this Application for more information on the AESO Connection Process.

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system access service, submits this Amended Application to the Commission for approval.^{8,9}

1.4 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 directions to assist the AESO in preparing this Amended Application.¹⁰

⁸ 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.

⁹ Note v of Part C of this Application describes the Application scope in more detail.

¹⁰ The directions are described in more detail in the following sections of this Application and in Part C, note vi.

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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, in this case RLP, a reasonable opportunity to exchange electric energy and ancillary services.

RLP 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 Amended Application. RLP has made the appropriate applications to the AESO to obtain transmission system access service. The AESO, in consultation with RLP and the TFO, has determined that the Proposed Transmission Development is the preferred option to meet RLP's request for system access service.

Through the AESO Connection Process, the AESO, in consultation with RLP and the TFO, has determined the characteristics of the Proposed Transmission Development and assessed the impacts that the Proposed Transmission Development and the associated generation would have on the transmission system. The AESO has issued directions to the TFO to prepare a transmission facility proposal¹¹ (Facility Proposal) to meet RLP's request.

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

1. Modify the Castle Rock Ridge 205S substation, including adding one 240 kV circuit breaker;

¹¹ Also referred to as facility application, or FA, under AUC Rule 007.

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2. Connect the Facility to the Castle Rock Ridge 205S substation¹²; and
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.¹³

2.3 Proposed Transmission Development Cost Estimate – The AESO directed the TFO to prepare a cost estimate for the Proposed Transmission Development. The TFO estimated the in-service cost of the Proposed Transmission Development, described in Section 2.2, to be approximately \$4 million.¹⁴ 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 – No alternatives to the Proposed Transmission Development were examined. The Proposed Transmission Development forms the basis for the cost estimates and the Connection Assessment described herein.

2.5 Connection Assessment – Power flow, transient stability and short-circuit studies were conducted to assess the impact that the Proposed Transmission Development and the associated generation (the Project) would have on the

¹² The Castle Rock Ridge 205S substation will connect to RLP's proposed expansion of the Castle Rock Ridge 205S substation, which is part of the Facility.

¹³ 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 amended 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 the TFO's amended Facility Proposal. Line numbering and substation names provided here are for ease of reference and are subject to change as engineering and design progresses. Market participant 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.

¹⁴ 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.

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transmission system.¹⁵ Power flow and short-circuit studies were conducted prior to and following connection of the Project. Transient stability studies were conducted following connection of the Project.

The pre-connection assessment identified a system performance issue. Under certain Category B conditions, a thermal criteria violation was observed. An existing remedial action scheme (RAS) can be used to mitigate the pre-connection system performance issue.

The post-connection assessment identified the same system performance issue that was identified in the pre-connection assessment under certain Category B conditions. The thermal criteria violation was exacerbated in the post-connection assessment compared to the pre-connection assessment. The existing RAS can continue to be used to mitigate the post-connection system performance issue.

2.6 AESO Forecast and Transmission System Plans – The AESO’s corporate forecast for the South Planning Region is consistent with the generation and load associated with the Proposed Transmission Development.¹⁶ 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 the 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 a participant involvement program (PIP). Between May 2018 and June 2018, the TFO and the AESO used various methods to notify

¹⁵ The connection assessment is included as Appendix A.

¹⁶ The *AESO 2017 Long-term Outlook* provides forecasting information for the South Planning Region, which includes the Proposed Transmission Development area.

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stakeholders 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 were previously informed that they may be affected by the Project. In June 2018, the AESO notified stakeholders of its intention to file this Amended Application with the Commission. No concerns or objections have been raised regarding the need for the Proposed Transmission Development or the AESO's preferred option to respond to the system access service request. In addition, no concerns have been raised by the notified market participants.¹⁷

2.9 Information Regarding AUC Rule 007, Section 6.2.2, NID23(3) – The AESO has been advised that the TFO's amended Facility Proposal addresses the requirements of AUC Rule 007, Section 6.2.2, NID23(3).¹⁸ In consideration of this fact, and as the filing of the Application is combined with the TFO's amended Facility Proposal, the AESO has not undertaken a separate assessment of the sort contemplated in AUC Rule 007, Section 6.2.2, NID23(3).

2.10 Confirmation Date – In the event that the proposed facilities are not in service by December 30, 2019, which is six months following the scheduled in-service date of June 30, 2019, the AESO will inform the Commission in writing if the need to expand or enhance the transmission system described in this Amended Application continues, and if the technical solution described in this Amended Application approval continues to be the AESO's preferred technical solution.

The AESO has been advised that the TFO's amended Facility Proposal addresses the requirements of AUC Rule 007, Section 6.2.2, NID25(2).¹⁹ In consideration of this fact, and as the filing of this Amended Application is combined with the TFO's amended Facility Proposal, the AESO has not included an implementation schedule of the sort contemplated in AUC Rule 007, Section 6.2.2, NID25(2).

¹⁷ Further information regarding the AESO's PIP for this Application is included in Appendix C.

¹⁸ Please refer to the letter included as Appendix D of this Application.

¹⁹ *Ibid*

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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;
- RLP'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;

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 Amended Application is in the public interest.

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3 Relief Requested

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

3.2 In the event that the proposed facilities are not in service by December 30, 2019, which is six months following the scheduled in-service date of June 30, 2019, the AESO will inform the Commission in writing if the need to expand or enhance the transmission system described in this Amended Application continues, and if the technical solution described in this Amended Application approval continues to be the AESO's preferred technical solution.

3.3 For the reasons set out herein, and pursuant to Section 34 of the Act, the AESO requests that the Commission approve this Amended 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, as follows:

- A. Modify the Castle Rock Ridge 205S substation, including adding one 240 kV circuit breaker;
- B. Connect the Facility to the Castle Rock Ridge 205S substation; and
- C. 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 13th day of July 2018.

Alberta Electric System Operator

"Electronically submitted by"

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

Alberta Electric System Operator

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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 - Riverview Wind Power Plant Connection* that assesses the transmission system performance prior to and following the connection of the Proposed Transmission Development and the associated generation.

APPENDIX B **TFO Capital Cost Estimate** – Appendix B contains 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, NID24.

APPENDIX C **AESO PIP** – Appendix C contains a summary of the PIP activities conducted, in accordance with requirement NID27 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 **TFO Information Regarding AUC Rule 007, Section 6.2.2, NID23(3) and NID25(2)** – Appendix D contains a letter provided by the TFO confirming that the requirements of AUC Rule 007, NID23(3) and NID25(2) will be addressed within the TFO's amended Facility Proposal.

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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.²⁰ 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 [RLP 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:²¹ <https://www.aeso.ca/rules-standards-and-tariff/alberta-reliability-standards/>

In addition, the AESO’s *Transmission Planning Criteria – Basis and Assumptions* is included as an attachment to 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/>²²

²⁰ 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.

²¹ This link is provided for ease of reference and does not form part of this Application.

²² This link is provided for ease of reference and does not form part of this Application.

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- 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*.