



Alberta Utilities Commission

**In the Matter of the Need for the Eyre 558S Substation and
Transmission Line Development**

**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
Transmission Regulation, AR 86/2007 and Alberta Utilities
Commission Rule 007, all as amended**

**Application of the Alberta Electric System Operator for
approval of the Needs Identification Document for the Eyre
558S Substation and Transmission Line Development**

PART A - APPLICATION

1 Introduction

1.1 Application – Pursuant to section 34(1)(c) of the *Electric Utilities Act* (EUA) and in accordance with the further legislative provisions set out in the recitals, the Alberta Electric System Operator (AESO) applies to the Alberta Utilities Commission (Commission) for approval of the Eyre 558S Substation and Transmission Line Development Needs Identification Document (NID), as more specifically described herein.

1.2 Application Scope – This NID has been prepared in response to the request by FortisAlberta Inc. (the Distribution Facility Owner, or DFO) for transmission supply to serve a confirmed load increase at the TransCanada Corporation's Lakesend East Pump Station (the *end-user*) as part of the Keystone XL Pipeline, located in the Lakesend area. Service is requested commencing March 31, 2012. This NID describes the need to respond to the DFO's request and demonstrates that the manner in which transmission supply is proposed to be developed is consistent with AESO's responsibilities to plan the transmission system to provide efficient, reliable and non-discriminatory system access service and arrange for the timely implementation of required transmission system expansions and enhancements, all in the public interest.¹

1.3 AESO Directions – In the process of establishing need and preparing the NID, the AESO issued various directions to the incumbent transmission facility owner, AltaLink Management Ltd. (TFO)², including, pursuant to subsection 35(1) of the EUA,

¹ This NID is directed solely to the question of the need for expansion or enhancement of the capability of the transmission system. Any reference to existing Customers or other parties and/or the facilities they may, or may wish to, own and operate is not intended to associate this NID with any other application for regulatory or other approval that are the responsibility of such Customer or other party.

² ATCO Electric Ltd. has also been directed by the AESO as a small part of the proposed development affects transmission facilities owned by ATCO within AltaLink's service territory. Reference to the TFO throughout this NID refers to AltaLink, unless otherwise indicated.

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to prepare a transmission facility proposal (Facilities Application or FA) to meet the need identified. As per section 39 of the EUA and section 14 of the *Transmission Regulation* (TReg), the AESO has relied on work conducted by the TFO to prepare this application.

2 Need Overview and Proposed Development

2.1 Duty to Respond to Request for System Access Service – The AESO, pursuant to its responsibilities under section 29 of the EUA, must provide system access service on the transmission system in a manner that gives market participants a reasonable opportunity to exchange electricity. The market participant, the DFO in this case, has determined that it is unable to serve the end-user's confirmed load increase utilizing existing 25kV distribution infrastructure, and has requested that the AESO arrange for the appropriate transmission expansion. Through the AESO connection process, the DFO, AESO and the TFO have collaborated in determining the proposed development to meet the identified need.

2.2 Proposed Development – The proposal to meet the DFO request involves developing the necessary transmission facilities to serve the confirmed load increase.

The transmission facilities are generally proposed to include the development of a new substation designated Eyre 558S, including 144/6.9kV 20/26.6/33.3 MVA LTC transformer, associated substation infrastructure and, approximately 16 km of 138 kV single-circuit transmission line tapping existing circuit 7L224. Details and configuration of equipment required for the proposed development will be more specifically described in the TFO's FA and/or determined as further detailed engineering progresses and DFO operating requirements are finalized. The AESO also notes that distribution facilities that may be subsequently connected to the 558S substation are the responsibility of the DFO and are not included in this application.

2.3 Proposed Development Cost – Preliminary TFO planning estimated the capital cost of the proposed substation and transmission line to be in the order of \$12.7 Million

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(+20%/-10%, \$2009). The estimated cost is generally comprised of the costs to engineer, procure and construct transmission facilities consistent with the proposed development, as described in paragraph 2.2.³

The AESO and TFO considered connection options to the Alberta Interconnected Electric System (AIES) via either the 138kV and 240kV network. Connection via the 240kV network was ruled out as it would be a higher costs development. Three connection arrangements via the 138kV network were considered. The proposed development involves the shortest transmission line development (16 km) and is hence the least cost alternative considered.

2.4 Customer Commitments – Consistent with the end-user’s scheduled load requirements, the DFO has indicated that it is prepared to sign a contract for Demand for Transmission Service (DTS) for the Eyre 558S substation prior to energization of the proposed facilities, and contractual arrangements between the AESO and DFO will be made prior to energization. It is noted that at the time of submission, and while subject to modifications upon completion of final contract arrangements, the AESO’s preliminary assessment is that the proposed facilities meet the AESO’s current definition of standard facilities. There is no system component identified within the proposed development.

2.5 AESO Participant Involvement Program – The AESO directed the TFO to assist the AESO in conducting a Participant Involvement Program (PIP), in accordance with AUC Rule 007, NID13 and Appendix A. The TFO and the AESO utilized various methods to notify stakeholders of the need for transmission development to serve the Lakesend East pumping station. The AESO has received no indication of concern from any party regarding the need for the proposed substation and transmission line either during or following the PIP conducted between April and June of 2010.

³ The proposed development resides in AltaLink’s service territory, but will be connected to an ATCO owned asset. Thus there is a small cost incurred by ATCO (\$0.2M) in addition to the costs incurred by AltaLink (\$12.5M).

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2.6 Environmental and Socio-Economic Overview – The AESO understands that in identifying the preferred transmission line route and substation site, the TFO has considered potential environmental effects. As potential environmental effects are related to siting, routing and on-going operations of the proposed substation and transmission line, the AESO has not undertaken a separate land and environmental assessment of the sort contemplated in Commission Rule 007, Section 6.1 – NID12. The AESO also understands that the TFO’s FA will contain information regarding potential environmental effects, and measures to be taken to mitigate potential effects related to the siting of the proposed Eyre 558S substation and routing of the 138kV transmission line connecting to the existing network.

2.7 AESO Connection Assessment – All anticipated Keystone and Keystone XL pipeline loads were included in the load forecast utilized in the Hanna Region Transmission Development (HRTD) NID⁴. The Hanna region is defined in the HRTD as comprising the Hanna (Area 42), Wainwright (Area 32), Alliance/Battle River (Area 36), Provost (Area 37) and Sheerness (Area 43) planning areas. The proposed Keystone XL pipeline runs from the Hardisty area of Wainwright via the Provost and Hanna areas of Alberta. The HRTD need assessment studies indicated that the existing system is near capacity and will not be able to supply forecasted loads including the Keystone and Keystone XL pipeline loads. Nor has the system the capacity to integrate potential wind developments forecasted for this region. The HRTD studies identified existing system thermal over loads and voltage deficiencies under normal and emergency conditions.

To address the above deficiencies and provide system access for wind projects while meeting the forecasted load demand, the AESO filed the HRTD NID for the Hanna Region. As part of the HRTD NID, the AESO conducted both steady state and transient analysis which included the ultimate loads for both Keystone and Keystone XL loads along with other load and area wind generation increases forecasted for 2012. The

⁴ The AESO recently received AUC approval for the Hanna Region Transmission Development (HRTD) NID (Proceeding ID.278, Application No. 1605359).

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recommended transmission plan in the HRTD NID will meet the service requirements of Keystone XL pipeline pump stations. It may be noted that the HRTD plan modeled Keystone XL loads at nearby substations since the exact service connection was unknown at the time of its preparation. The study results and conclusions presented in HRTD remain valid and applicable to the proposed service connection for Eyre substation. None of the Keystone XL pump stations will be used for shipping product prior to completion of critical elements of the Hanna Region Transmission Development project.

2.8 Approval is in the Public Interest – Having regard to sections 29 and 34 of the EUA, information obtained from consultations, estimated costs, and approved system reinforcements to be carried out as part of the Hanna Area Transmission Reinforcement Development, it is the conclusion of the AESO that the proposed Eyre 558S substation and transmission line development, meets the identified need and the DFO's requirements in a manner that is reasonable, and is consistent with the AESO's duties to plan 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. As such, the AESO believes the approval of the Eyre 558S Substation and Transmission Line Development NID is in the public interest.

3 Request to Combine NID and Facilities Application for Consideration in a Single Process

3.1 The AESO understands that the TFO's FA noted in paragraph 1.3 above will be filed shortly. Given the relatively simple and straight-forward scope of the proposed development, and as contemplated by section 15.4 of the *Hydro and Electric Energy Act* and section 6 of Commission Rule 007, the AESO requests, and expects the TFO will also request, that the Eyre 558S Substation and Transmission Line Development NID be combined with the FA for consideration by the Commission in a single process. An

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evident advantage of doing so will be to enable the Commission to consider factors and information in the FA that are relevant to the issue of need.

3.2 While it is believed that the NID and the FA will be materially consistent, the AESO respectfully requests that in its consideration of both, the Commission give consideration to the fact that the two documents have been prepared separately and for different purposes. The purpose of the NID is to obtain approval for the identified need and provide a preliminary description of the preferred manner for meeting that need. In contrast, the FA will contain more detailed engineering and designs for the proposed development and seek approval for the construction and operation of specific facilities.

4 Relief requested

4.1 Having regard to the factors set out in section 38 of the TReg, and in particular, subsection 38(e), the AESO submits that its assessment of the need to meet the DFO's request is technically correct and that the proposed development to meet that need is in the public interest.

4.2 As such, and for the reasons set out herein, the AESO requests that the Commission approve the Eyre 558S Substation and Transmission Line Development NID filed in response to the DFO's request for transmission service to supply forecasted load growth and maintain distribution system reliability.

All of which is respectfully submitted this 19th day of August, 2010.

Alberta Electric System Operator

Doyle Sullivan, P. Eng.
Director, Regulatory Services

PART B – NID BACKGROUND AND SUPPORTING INFORMATION

1. AESO Planning Duties and Responsibilities – The AESO’s responsibilities with respect to the safe, reliable, and economic operation of the AES and for the promotion of a fair, efficient and openly competitive market for electricity in Alberta are set out in the EUA and the TReg. As directed by section 33 of the EUA, the AESO must forecast transmission needs for 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. Part 2 of the TReg further defines the AESO’s transmission planning duties and responsibilities. Part 3 of the TReg directs the AESO to comply with, adopt, develop, and maintain the transmission system reliability standards, agreements, criteria and directives necessary to the execution of its duties.

2. Preparation and Submission of NID – As noted in section 2.1 of Part A, the AESO must provide system access service on the transmission system in a manner that gives market participants (*customers*) a reasonable opportunity to exchange electricity. Where, as in this case, the DFO is requesting transmission supply to serve the end-user’s increasing load requirements, and in responding to the DFO’s request the AESO has confirmed the need for the requested system expansions or enhancements, the AESO must prepare and submit for Commission approval, a NID describing the need to respond to the DFO’s request, and the assessments conducted by the AESO regarding the manner proposed to address that need.

3. Direction to the TFO to Prepare a FA – Pursuant to subsection 35(1) of the EUA, the AESO may direct the TFO in whose service territory the need is located to prepare a FA to meet the need identified. The FA is also submitted to the Commission for approval. As noted in paragraph 1.3 of Part A, such a direction has been given to the TFO in this case. As further noted in Section 3 of this application, the AESO has requested that the NID and FA be combined for consideration in single process; the AESO recognizing that combining needs applications and facility applications where

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possible provides a simpler, more efficient process for participation by interested parties.

The remainder of this NID provides information in support of this filing.

4. AESO Engineering Study Report – Appendix A contains the AESO’s Engineering Study Report. The report describes the study scope, related projects and future transmission development assumptions.

5. AESO Participant Involvement Program – Appendix B contains a summary of the Participant Involvement Program (PIP) activities conducted regarding the need for the Eyre 558S Substation and Transmission Line Development; a summary of PIP results is also included. Copies of the relevant materials distributed during the PIP are attached for reference.

6. TFO Capital Cost Estimate – Appendix C contain two sets of detailed cost estimates for the proposed development. As noted in paragraph 2.3, AltaLink and ATCO have estimated separate components of the proposed development to total approximately \$12.7M. Both sets of estimates are prepared to an approximate accuracy level of (+20%/-10%), which exceeds the accuracy requirement of AUC Rule 007, NID10.

Appendices

Appendix A – AESO Engineering Study Report – Project: RP-851

Appendix B – AESO Participant Involvement Program (PIP) Summary and Materials

Appendix C – TFO Capital Cost Estimates