



Alberta Utilities Commission

In the Matter of the Need for the Thornton 2091S Substation

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
Thornton 2091S Substation 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 *Thornton 2091S Substation Needs Identification Document* (Application).

1.2 Application Overview – ATCO Electric Ltd. (ATCO),² as the legal owner of electric distribution facilities (DFO) in the area south of the City of Grande Prairie (AESO Planning Area 22, Grande Cache), has requested system access service to serve new industrial loads in the area. The DFO's request includes a Demand Transmission Service (DTS) request of 17.9 MW (Phase 1) for August 17, 2016. The DFO has further indicated that it may request additional DTS increases up to a total DTS value as follows:

- 25.4 MW (Phase 2) in November 2017, and
- 42 MW (Phase 3) in August 2018.

The DFO's Phase 1 DTS request can be met by adding a new 144/25 kV point of delivery (POD) substation, designated as the Thornton 2091S substation, and two new circuits of 144 kV transmission line connecting the proposed Thornton 2091S substation to the existing transmission line 7L20 via a modified in-and-out configuration (the "Proposed Transmission Development", as further described in Section 2.2). The scheduled in-service date for the Proposed Transmission Development is August 17, 2016.

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.

² In this Application, ATCO acts as both the legal owner of distribution facilities (DFO) and the legal owner of transmission facilities (TFO) as applicable to its specific business functions.

Thornton 2091S Substation Needs Identification Document

This Application describes the need to respond to the DFO's request for system access service, and is limited to the Phase 1 DTS request. The AESO will address any future DTS increases, when requested, in separate needs identification documents.³

Having followed the AESO Connection Process,⁴ the AESO has determined that the Proposed Transmission Development provides a reasonable opportunity for the DFO to exchange electricity. The AESO, in accordance with its responsibility to respond to requests for system access service, submits this Application to the Commission for approval.^{5,6}

1.3 AESO Directions to the TFO – During the AESO Connection Process, the AESO issued various directions to ATCO, as the legal owner of transmission facilities (TFO), including direction to assist the AESO in preparing this Application.⁷

³ As further discussed in Section 2.5, the Connection Assessment studied the impact that the loads associated with the potential Phase 2 and Phase 3 DTS increases would have on the transmission system, including mitigation measures associated with Reliability Criteria violations, if any.

⁴ For information purposes, refer to note iv of Part C of this Application for more information on the AESO's Connection Process.

⁵ 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.

⁶ Note v of Part C of this Application describes the Application scope in more detail.

⁷ 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 (in this case the DFO), a reasonable opportunity to exchange electric energy and ancillary services.

The DFO, in executing its duties as defined under Section 105(1)(b) of the Act, has indicated that the Proposed Transmission Development will meet the need to serve new industrial loads in the area south of the City of Grande Prairie. The DFO has made the appropriate applications to the AESO to obtain transmission system access service.⁸

Through the AESO Connection Process, the AESO, the DFO, and the TFO have collaborated to determine the characteristics of the Proposed Transmission Development and to assess the impacts that connecting the Proposed Transmission Development, and associated Phase 1 load, would have on the transmission system. The AESO has issued directions to the TFO to prepare a Facility Proposal⁹ to meet the DFO's identified need.

2.2 Proposed Transmission Development – The Proposed Transmission Development¹⁰ includes the following major elements to address the Phase 1 DTS increase only:

1. Add a new 144/25 kV POD substation, designated as Thornton 2091S, including one 144/25 kV transformer rated at approximately 50 MVA, and two 144 kV breakers;

⁸ For information purposes, some of the duties of the DFO are described in note vii of Part C of this Application.

⁹ Also referred to as facility application, or FA, under Commission Rule 007.

¹⁰ The Proposed Transmission Development corresponds to i) Alternative 2 in the Connection Assessment, which can be found in [Appendix A](#), and ii) the proposed new Thornton POD that forms part of Alternative 4 in the DFO's Distribution Deficiency Report, which can be found in [Appendix E](#). Alternative 4 in the DFO's Distribution Deficiency Report also contemplates the addition of a second POD substation, referred to as the Gold Creek POD, which would serve industrial loads that are not associated with the Phase 1 DTS request or the potential Phase 2 and Phase 3 DTS requests. The DFO has advised that the proposed Gold Creek POD will be addressed in a separate system access service request.

Thornton 2091S Substation Needs Identification Document

2. Add two new circuits of 144 kV transmission line to connect the proposed Thornton 2091S substation and the existing transmission line 7L20 via a modified in-and-out configuration; 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.¹¹

2.3 Proposed Transmission Development Cost Estimates – 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 \$18 million (\$2015).¹² In accordance with the ISO tariff, the AESO has determined that there are no system-related costs associated with the Proposed Transmission Development.

2.4 Transmission Development Alternatives – In addition to the Proposed Transmission Development, the following transmission alternatives were examined to serve the load associated with the Phase 1 DTS request:¹³

¹¹ 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. The two new 144 kV circuits are currently estimated to have a length of approximately 2 km each. This is subject to change as routing and/or siting is finalized by the TFO. Line numbering and substation names provided here are for ease of reference and are subject to change as engineering and design progresses. Distribution facilities that may subsequently be connected to the Proposed Transmission Development are the responsibility of the DFO and are not included in the Application.

¹² Further details of this cost estimate can be found in [Appendix B](#), with an approximate accuracy level of +20%/-10%.

¹³ As further described in the DFO's Distribution Deficiency Report, the DFO also contemplates the addition of a second POD substation, referred to as the Gold Creek POD, which would serve industrial loads that are not associated with the Phase 1 DTS request or the potential Phase 2 and Phase 3 DTS requests. The DFO has advised that the proposed Gold Creek POD will be addressed in a separate system access service request.

Thornton 2091S Substation Needs Identification Document

1. Add a new POD in the Cutbank area with an in-and-out connection configuration – This transmission alternative involves adding a new 144/25 kV POD to the existing transmission line 7L20 in an area to the south of the City of Grande Prairie, referred to as the Cutbank area, using an in-and-out connection configuration. The addition of the new POD includes three 144 kV breakers, a 144/25 kV transformer rated at approximately 50 MVA, and two new circuits of 144 kV transmission line. This alternative was ruled out because of the increased transmission development (additional 144 kV breaker and remedial action scheme facilities) compared to the Proposed Transmission Alternative.¹⁴
2. Add a new POD in the Cutbank area and reconfigure the Dome Cutbank 810S substation – This involves adding a new 144/25 kV POD to the existing transmission line 7L20 between the Dome Cutbank 810S and Big Mountain 845S substations using a T-tap connection configuration. The addition of the new POD includes a 144 kV breaker, a 144/25 kV transformer rated at approximately 50 MVA, and a new circuit of 144 kV transmission line. This alternative also entails converting the existing T-tap connection configuration of the Dome Cutbank 810S substation to an in-and-out configuration, including the addition of two 144 kV breakers. The TFO has indicated that the developments at the existing Dome Cutbank 810S substation entail reconfiguring or modifying the 25 kV and 144 kV busses, mitigation of substation outages, and relocating the substation to a new greenfield site. This alternative was ruled out by the DFO and TFO due to the additional transmission facility development and the associated costs.¹⁵
3. Upgrade the Dome Cutbank 810S substation – This involves upgrading the Dome Cutbank 810S substation, including either (i) adding two 144 kV breakers and replacing the two existing 144/25 kV 10/13 MVA transformers with two

¹⁴ This transmission alternative corresponds to i) Alternative 1 in the Connection Assessment, and ii) the proposed new Thornton POD that forms part of Alternative 4 in the DFO's Distribution Deficiency Report.

¹⁵ This transmission alternative corresponds to i) Alternative 3 in the Connection Assessment, and ii) the proposed new Thornton POD that forms part of Alternative 4 in the DFO's Distribution Deficiency Report.

Thornton 2091S Substation Needs Identification Document

144/25 kV transformers, each rated at approximately 50 MVA, or (ii) adding a 144 kV breaker and a third, higher capacity 144/25 kV transformer rated at approximately 50 MVA. The TFO has indicated that the developments at the existing Dome Cutbank 810S substation entail reconfiguring or modifying the 25 kV and 144 kV busses, mitigation of substation outages, and relocating the substation to a new greenfield site. This alternative was ruled out by the DFO and TFO due to the additional transmission facility development and the associated costs.¹⁶

4. Add a new POD in the Gold Creek area – This two-phased alternative involves adding a new 144/25 kV POD in an area to the south of the City of Grande Prairie, referred to as the Gold Creek area.¹⁷ This entails adding a new POD to the existing transmission line 7L20 via an in-and-out connection configuration. The first phase of this transmission alternative includes the addition of one 144/25 kV transformer rated at approximately 50 MVA and three 144 kV breakers. The second phase of this alternative includes the addition of a second 144/25 kV transformer rated at approximately 50 MVA. The DFO determined that the distribution line lengths required to serve some of the new industrial loads are too long to meet the DFO's minimum acceptable voltage levels. This transmission alternative was ruled out by the DFO because it cannot serve all of the new industrial loads.¹⁸

The Proposed Transmission Development was selected as the option with the least transmission development and because it provides operational flexibility.¹⁹ The

¹⁶ This transmission alternative corresponds to i) Alternative 4 in the Connection Assessment, and ii) Alternative 3 in the DFO's Distribution Deficiency Report.

¹⁷ As further described in the DFO's Distribution Deficiency Report, the new POD in the Gold Creek area would also serve industrial loads that are not associated with the Phase 1 DTS request or the potential Phase 2 and Phase 3 DTS requests.

¹⁸ This transmission alternative corresponds to Alternative 2 in the DFO's Distribution Deficiency Report.

¹⁹ The DFO determined that the Proposed Transmission Development would provide operational flexibility, as discussed in the DFO's Distribution Deficiency Report at Section 4.4 and in the Recommendation section.

Proposed Transmission Development forms the basis for the cost estimates and the Connection Assessment described herein.²⁰

2.5 Connection Assessment – Studies were performed to assess the impact that the Proposed Transmission Development and the load associated with the Phase 1 (17.9 MW) and potential Phase 2 (25.4 MW) and Phase 3 (42 MW) DTS requests would have on the transmission system. The load and generation assumptions used in these analyses align with the *AESO 2014 Long-term Outlook (2014 LTO)*.

Studies to assess the Proposed Transmission Development and Phase 1

Load flow, voltage stability and short circuit analyses were conducted to assess the impact that the Proposed Transmission Development and the load associated with the Phase 1 DTS request would have on the transmission system. Load flow and short circuit analyses were conducted prior to and following connection of the Proposed Transmission Development and voltage stability analysis was performed following connection of the Proposed Transmission Development. These analyses with the Proposed Transmission Development did not indicate any Reliability Criteria violations under Category A or Category B system conditions.²¹

Supplemental studies to address potential load increases

Supplemental load flow, voltage stability, and short circuit analyses were performed to assess the impact that the load associated with the potential Phase 2 and Phase 3 DTS requests could have on the transmission system following the connection of the Proposed Transmission Development.

With the Phase 2 load, the load flow analysis indicates Reliability Criteria violations under Category B system conditions. Further analysis confirms that the potential violations associated with Phase 2 can be mitigated by system transmission

²⁰ The DFO examined and ruled out distribution-based solutions, as detailed in the DFO's Distribution Deficiency Report at Section 4 and in the Recommendation section.

²¹ The Connection Assessment is included as [Appendix A](#).

Thornton 2091S Substation Needs Identification Document

developments that are included in the AESO's transmission system plans²² (hereafter referred to as System Transmission Developments).

With the Phase 3 load and System Transmission Developments, the load flow analysis indicates Reliability Criteria violations under Category B system conditions. The analysis confirms that the potential violations associated with Phase 3 can be mitigated by additional transmission developments dedicated to the market participant, as described below.

The Connection Assessment examined one potential transmission alternative to serve the potential Phase 3 DTS request (the Potential Alternative). The Potential Alternative includes adding a 144 kV transmission line between the existing Big Mountain 845S substation and the proposed Thornton 2091S substation, and three additional 144 kV breakers to terminate i) the new 144 kV transmission line at the Big Mountain 845S substation and the proposed Thornton 2091S substation, and ii) the section of transmission line 7L20 (between the Big Mountain 845S and proposed Thornton 2091S substations) at the proposed Thornton 2091S substation. With the combination of the Potential Alternative and System Transmission Developments, the load flow analysis indicates no violations of the Reliability Criteria under Category A or Category B system conditions.

With the Phase 3 load and the combination of the Potential Alternative and System Transmission Developments, the voltage stability analysis indicates no violations of the Reliability Criteria.

With Phase 3, the short circuit analysis demonstrates that the short circuit levels at substations studied in the connection assessment will not materially change.

2.6 AESO Forecast and Transmission System Plans – [Appendix G](#) is a forecast appendix for the Northwest Region. As shown in [Appendix G](#), the predicted load growth for the Northwest Region in the 2014 LTO is generally aligned with the load to be

²² The *AESO 2013 Long-term Transmission Plan* identifies the 240 kV system transmission developments at Section 7.3.7 and in Table 7.3.7-3.

served by the Proposed Transmission Development. The 2014 LTO also recognized that the Northwest Region contains large amounts of unconventional gas potential, which could affect the load forecast. However, when the 2014 LTO was prepared, there was no information indicating to the AESO that the Grande Cache area specifically was likely to experience significant load growth.^{23,24}

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. The load associated with the Proposed Transmission Development is not considered in the *AESO 2013 Long-term Transmission Plan* for the Grande Cache planning area because, at the time, the AESO's best information did not indicate that this load was likely to develop. Future AESO needs identification documents in the Northwest Region will assume the Proposed Transmission Development will be in service for the date specified, unless new information indicates otherwise.

2.7 Transmission Dependencies – The Proposed Transmission Development is not dependent on the AESO's plans to expand or enhance the transmission system. However, as shown in the Connection Assessment and in Section 2.5 of this Application, the Phase 2 DTS request would be dependent on System Transmission Developments. The potential Phase 3 DTS request would be dependent on System Transmission Developments and the Potential Alternative.

When the AESO receives system access service requests for the Phase 2 and Phase 3 DTS increases, the AESO will classify the costs of the associated transmission developments in accordance with the ISO tariff. Based on information available at this

²³ Section 6.3 of the 2014 LTO discusses the Northwest Region, which includes the Proposed Transmission Development area.

²⁴ The Connection Assessment modelled the loads in the study area by adding the Phase 1, Phase 2, and Phase 3 loads, as applicable to each study scenario, while maintaining the regional load for the Northwest Region as forecast in the 2014 LTO.

time, the AESO expects that there would be no system-related costs associated with Phase 2 and Phase 3.

2.8 AESO Participant Involvement Program – The AESO directed the TFO to assist the AESO in conducting a participant involvement program (PIP), in accordance with requirement NID14 and Appendix A2 of Commission Rule 007. Between July and September 2015, the TFO and the AESO used various methods to notify occupants, residents, landowners, government bodies, agencies and stakeholder groups (collectively, the Stakeholders) in the area where the AESO has reasonably determined that transmission facilities could be installed to implement the Proposed Transmission Development. Additionally, the AESO notified the public in the area where transmission facilities could be installed to implement the Proposed Transmission Development, of its intention to file this Application with the Commission for approval. No concerns or objections have been raised regarding the need for the Proposed Transmission Development.²⁵

2.9 Information Regarding Rule 007, Section 6.1 - NID13 – The AESO has been advised that the TFO’s Facility Proposal addresses the major aspects listed in Commission Rule 007, Section 6.1 - NID13.²⁶ In consideration of that 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 Commission Rule 007, Section 6.1 – NID13.

2.10 Confirmation Date – In the event that the proposed facilities are not in-service six months following the proposed in-service date, in this case February 17, 2017, 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

²⁵ Further information regarding the AESO’s PIP for this Application is included in [Appendix C](#).

²⁶ Please refer to the letter included as [Appendix D](#) of this Application.

described in this application approval continues to be the ISO's preferred technical solution.²⁷

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 System Access Service Request;
- the DFO's Distribution Deficiency Report;
- the Connection Assessment;
- 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 electricity. In consideration of these factors, the AESO submits that approval of this Application is in the public interest.

²⁷ Detailed project schedule can be found in the TFO's Facility Application.

3 Request to Combine this Application with the Facility Proposal 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.²⁸ 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 the *Hydro and Electric Energy Act* and Section 6 of Commission 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 both, 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 DFO'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.

²⁸ The AESO understands that the TFO intends to file a Facility Proposal relating to this Application to be titled *Thornton Substation Project*.

4 Relief Requested

4.1 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.

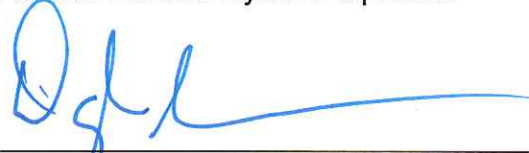
4.2 In the event that the proposed facilities are not in-service six months following the proposed in-service date, in this case February 17, 2017, the AESO will inform the Commission in writing if the need to expand or enhance the transmission system described in this application continues and if the technical solution described in this application approval continues to be the ISO'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 the new 144/25 kV substation, as follows:

- A. Add a new 144/25 kV substation, designated as Thornton 2091S, including one 144/25 kV transformer rated at approximately 50 MVA, and two 144 kV breakers;
- B. Add two new circuits of 144 kV transmission line to connect the proposed Thornton 2091S substation and the existing transmission line 7L20; 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 16th day of October 2015.

Alberta Electric System Operator



Doyle Sullivan, P. Eng.
Director, Regulatory Transmission

PART B – APPLICATION APPENDICES

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

APPENDIX A **Connection Assessment** – [Appendix A](#) contains the *Connection Engineering Study Report for AUC Application, ATCO Electric Ltd., ATCO Thornton New POD* 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 DFO engaged a consultant to conduct the connection assessment (Study). The AESO defined the Study scope, and provided the system models and Study assumptions. The AESO also reviewed this report and its conclusions, and finds the Study acceptable for the purposes of assessing the impacts of the Proposed Transmission Development on the transmission system.

APPENDIX B **TFO Capital Cost Estimates** – [Appendix B](#) contains detailed cost estimates corresponding to the Proposed Transmission Development. These estimates have been prepared by the TFO at the direction of the AESO, to an approximate accuracy level of +20%/-10%, which exceeds the accuracy required by Commission Rule 007, NID11.

APPENDIX C **AESO PIP** – [Appendix C](#) contains a summary of the PIP activities conducted regarding the need for the Proposed Transmission Development. Copies of the relevant materials distributed during the PIP are attached for reference.

APPENDIX D **Information Regarding Rule 007, Section 6.1 - NID13** – [Appendix D](#) contains a letter provided by the TFO confirming that the seven major aspects of Commission Rule 007, NID13 will be addressed within the TFO's Facility Proposal.

APPENDIX E **DFO Need for Development Report** – [Appendix E](#) contains the DFO's *Distribution Deficiency Report, Thornton POD Grande Prairie District* that provides information in support of the DFO's request for system access service, including describing the need for development.

APPENDIX F **AESO Transmission Planning Criteria – Basis and Assumptions** – The AESO has revised the *Transmission Reliability Criteria, Part II*

Thornton 2091S Substation Needs Identification Document

Transmission System Planning Criteria, Version 0, dated March 11, 2005 primarily to remove criteria that are now included in the Transmission Planning (TPL) Standards.²⁹ [Appendix F](#) contains the *Transmission Planning Criteria – Basis and Assumptions*, Version 1, which includes the applicable thermal and voltage limits in support of the TPL standards. Planning studies that are included in this Application meet all the performance requirements of the specified TPL standards (TPL-001-AB-0, TPL-002-AB-0, and specified contingencies associated with TPL-003-AB-0).

[APPENDIX G](#) **AESO Northwest Region Forecast Appendix – [Appendix G](#)** contains a forecast appendix that has been prepared by the AESO and that presents results from the 2014 LTO for the Northwest Region. It provides seasonal historical and forecasted loads, as well as generation assumptions for the region. The forecast appendix also includes commentary on the characteristics and growth for the region.

²⁹ TPL Standards are included in the current Alberta Reliability Standards.

PART C – REFERENCES

- i. **AESO Planning Duties and Responsibilities** – Certain aspects of AESO 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.³⁰ 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 to meet its distribution planning needs, 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 [the DFO in this case] wishing to exchange electric energy and ancillary services a reasonable opportunity to do so.”
- iii. **AESO Planning Criteria** – 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: <http://www.aeso.ca/rulesprocedures/17006.html>.³¹

In addition, the AESO’s *Transmission Planning Criteria – Basis and Assumptions* is included in [Appendix F](#).
- iv. **AESO Connection Process** – For information purposes, the AESO Connection Process, which changes from time to time, is generally described at: <http://www.aeso.ca/connect>³²

³⁰ 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.

³¹ This link is provided for ease of reference and does not form part of this Application.

³² This link is provided for ease of reference and does not form part of this Application.

Thornton 2091S Substation 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 TFO has also been directed by the AESO under Section 39 of the Act to prepare a proposal to provide services to address the need for the Proposed Transmission Development. 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.
- vii. **Duties of owners of electric distribution systems** – The duties of DFOs to make decisions about building, upgrading and improving their electric distribution systems are described in Section 105(1)(b) of the Act. The DFO, being responsible for electric distribution system planning, determines its need for transmission system access service based on its own distribution planning guidelines and criteria. While the DFO’s plans are considered during the AESO Connection Process, the AESO, in executing its duties to plan the transmission system, does not oversee electric distribution planning or the development of specific DFO planning criteria. The AESO does, however, review the DFO forecasts that are submitted to the AESO, which may be considered in the preparation of the AESO’s corporate forecasts.
- viii. **Capital Cost Estimates** – The provision of capital costs estimates in the Application is for the purposes of relative comparison and context only. The AESO’s responsibilities in respect of project cost reporting are described in the *Transmission Regulation*, including Section 25, and ISO Rule 9.1.