APPENDIX A OVERVIEW OF AESO CONNECTION PROCESS

A.1 The AESO Connection Process

The AESO is the sole provider of system access service on the transmission system.[1] All market participants requesting connection to the Alberta transmission system that require either the expansion or enhancement of the capability of the transmission system are required to follow the AESO Connection Process. This process, which consists of six gated stages, sets out the necessary requirements to facilitate the requested connection. All requirements defined in each stage must be met before proceeding to the next stage.[2] In Stage 3 of the AESO Connection Process, a needs identification document is prepared that describes the need to respond to the market participant's request for system access service. In Stage 4 of the AESO Connection Process, this needs identification document is submitted to the Alberta Utilities Commission (Commission) for approval.

As connection requests advance through the AESO Connection Process, the scope of the requested transmission development may evolve as engineering progresses and study results are interpreted. Based on key activities and requirements set out in Stages 2 and 3 of the AESO Connection Process, the preferred transmission development as described in the needs identification document will be vetted and accepted by the market participant, and the AESO will have received confirmation that the preferred development is acceptable to the market participant.

A.2 The AESO Connection Process and DFO Requests

Most Alberta electricity consumers are supplied electricity at or below 25 kV and therefore are served by a local electric distribution system rather than being directly served by the transmission system.

[1] *Electric Utilities Act*, Section 28. Section 29 of the *Electric Utilities Act* states that the AESO "must provide system access service on the transmission system in a manner that gives all market participants wishing to exchange electric energy and ancillary services a reasonable opportunity to do so."

[2] For information, a general overview of the AESO connection process, which changes from time to time, is provided at: http://www.aeso.ca/connect. This link is provided for ease of reference and does not form part of this Application.

The point of connection between the high voltage transmission system and lower voltage electric distribution system is often referred to as the *point of delivery* or POD. Generally, a POD is a substation that contains one or more transformers and related equipment used to step-down voltage from 69 kV or higher to electric distribution levels of 25 kV or lower for the purpose of serving load.[3]

The AESO does not oversee electric distribution system planning. Each legal owner of distribution facilities (DFO) is responsible for distribution system planning to reliably serve its customers.[4] DFOs forecast local distribution system load growth and determine how these forecasts affect the specific loading on individual distribution system components, such as distribution feeders and transformers at individual PODs. When a DFO identifies a need to improve distribution system reliability, it must apply to the AESO for system access service. System access service requests that require expansion or enhancement of the capability of the transmission system are processed through the AESO Connection Process.

For DFO applications processed through the AESO Connection Process, the AESO usually receives a report from the DFO that describes the distribution planning studies undertaken to identify the need and that proposes the development preferred by the DFO to address the need. The DFO and TFO often collaboratively prepare this report to ensure that the proposed development is viable from a transmission facility and electric distribution system perspective.

[3] The *Electric Utilities Act,* Section 1(1)(bbb), item (v), defines transmission facilities to include "all equipment in a substation used to transmit electric energy from (A) the low voltage terminal, to (B) the electric distribution system lines that exit the substation and are energized at 25 000 volts or less…".

[4] For information, some of the duties of the DFO are described in note vii of Part C of this Application.

A.2.1 Needs Identification

Within the AESO Connection Process, and prior to submitting a needs identification document related to a DFO request for transmission service, the AESO has three primary needs identification responsibilities: (1) review the DFO's forecast for POD loading for consistency with the AESO's transmission load forecasts; (2) consider the effects of the forecasted POD loading on the immediately adjacent transmission system elements; and (3) ensure that the proposed connection configuration aligns with best utility practices.

A connection assessment may not be required when there is no load increase associated with the proposed connection. If there is a load increase associated with the proposed connection, a detailed connection assessment may be required to assess the impact of the proposed connection on the transmission system. When system studies[5] have already accounted for the increased load, the AESO may refer to those studies.[6] Alternatively, the AESO may refer to system studies or connection assessments that include the load associated with the proposed connection, which are to be filed shortly with the Commission.

A.2.2 Operational Mitigation Measures

If, after submitting a needs identification document, the transmission system supporting the POD is constrained, it may be necessary to develop temporary mitigation measures applicable to the POD, such as limiting DTS contract amounts, applying a Remedial Action Scheme (RAS), or other operational measures the AESO deems appropriate. The detailed development of operational mitigation measures is an operational matter that is usually completed just prior to energizing transmission developments (Stage 5 of the AESO Connection Process); these measures do not form part of the needs identification document application.

[5] The AESO performs regular transmission system studies as part of its ongoing responsibility to plan and operate the transmission system, in accordance with the *Transmission Regulation*, Section 10(1), and develops and adjusts long-term plans every two years. The AESO will apply for approval of the need for the appropriate developments in a timely manner.

[6] The *AESO 2013 Long-term Transmission Plan* has been posted on the AESO website.

The AESO also develops rules to address broader transmission constraints that may arise. Creating these rules is managed through the ISO Rules process that requires in-depth consultation with DFOs and TFOs, as well as any other affected market participants.[7] These rules are created and amended as a result of broad area growth, existing transmission deficiencies, or AESO/TFO operational requirements. They are not created and amended as a result of growth at a single POD or of an increase in the transmission capacity of a POD.

A.3 AESO Connection Process Conclusions

In consideration of its three primary responsibilities in the AESO Connection Process, the AESO has reached conclusions regarding the DFO's request for system access service and the proposed transmission development. These conclusions are found in Sections 2.5 and 2.6 of the Application.

[7] The AESO's duty to direct the safe, reliable and economic operation of the interconnected electric system is set out in Section 17(h) of the *Electric Utilities Act*. The AESO's power to make rules respecting the operation of the interconnected electric system is set out in Section 20(1)(c) of the *Electric Utilities Act*. The AESO's duty to make rules and establish practices respecting the operation of the transmission system and the management of transmission constraints that may arise from time to time is set out in Section 17 of the *Transmission Regulation.*