



Alberta Electric System Operator

240-kV Transmission System Development in the Area Northwest of Fort McMurray

Needs Identification Document

June 18, 2012

The Alberta Utilities Commission

Decision 2012-167: Alberta Electric System Operator

240-kV Transmission System Development in the area Northwest of Fort McMurray
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Application No. 1607880

Proceeding ID No. 1570

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1 Introduction

1. The Alberta Electric System Operator (AESO) filed a needs identification document (NID) application, registered on November 10, 2011, as Application No. 1607880, with the Alberta Utilities Commission (AUC or the Commission) in accordance with Section 34 of the *Electric Utilities Act*, requesting approval of the need for the development of a 240-kilovolt (kV) transmission loop (the project) in the area northwest of the city of Fort McMurray where currently no transmission infrastructure exists. The project would establish a looped system that facilitates customer connections and serves load growth in the area in both the near-term and long-term.

2. The AESO requested approval of its proposed preferred project to be developed in two phases, namely:

Phase one to be completed by the third quarter of 2013 consisting of the following:

- Construct a new 240-kV switching substation, designated as NW FMM South, located south of existing Dover 888S substation and near existing 240-kV transmission line 9L57 where the proposed substation would be connected to the existing transmission line by an in/out configuration.
- Construct a new 240-kV switching substation, designated as NW FMM North, located west of existing 240-kV double-circuit transmission line 9L08/9L09.
- Construct approximately 50 kilometres of new double-circuit 240-kV transmission line to connect the proposed NW FMM North substation to existing transmission line 9L08 with an in/out configuration.

Phase two to be completed by the second quarter of 2015 consisting of the following:

- Construct approximately 80 kilometres of new 240-kV transmission line using double-circuit structures, with conductor on only one side, connecting the proposed NW FMM South substation with the proposed NW FMM North substation.

2 Process

3. The Commission issued first and second round information requests to the AESO on December 21, 2011, and January 11, 2012, respectively. The AESO responded to both rounds of information requests on January 23, 2012. The Commission issued a third round of information requests to the AESO on February 7, 2012, and received its responses to the requests on April 3, 2012.

4. The AESO also filed an amendment to its NID application on April 5, 2012, in response to the Commission's information request AUC-AESO-5.

5. The Commission issued a notice of application on April 25, 2012, to all postal code addresses where the AESO identified potential transmission system development areas, including government agencies, organizations, First Nations, Métis groups and market participants in the area northwest of Fort McMurray. Additionally, the notice was published in the Fort McMurray Connect, Fort McMurray Today and Slave River Journal newspapers on May 4, 2012, May 2, 2012 and May 1, 2012, respectively. The notice stated that anyone wishing to express their objections to, concerns about, or support of the application, must make a written submission to the Commission by May 16, 2012. The Commission did not receive any submissions from interested parties in response to the notice.

3 Discussion

6. The AESO stated that the NID application was prepared in response to several requests for transmission system access in the area northwest of Fort McMurray. The AESO forecast significant load and generation requirements for oilsands developments in the area. There are currently no existing transmission facilities in the immediate vicinity of the requested connections. Therefore, the AESO determined that an expansion of the transmission system in the area was required as soon as possible. The AESO proposed a 240-kV transmission loop through the area northwest of Fort McMurray to provide transmission system access and serve the forecast demands in both the near and long terms.

7. The AESO submitted that new customer connections will be required in the area beginning in 2013 to coincide with commencement of commercial operation. Oilsands related demand in the area is forecast to increase in the foreseeable future as new oilsands developments come on line when existing operations ramp up production and expand their lease areas.

8. The AESO forecast indicated that the load in the area would grow to between 370-megawatt (MW) to 450-MW by 2020/2021. The forecasts anticipate load growth initially in both the northern and southern portions of the study area. By 2020/2021, loads are forecasted to be in the range of 260-MW to 320-MW for the northern load zone and in the range of 100-MW to 130-MW for the southern load zone. In addition, the AESO forecast that approximately 255-MW of generation will be developed in the area by 2020/2021.

9. The AESO determined that two 240-kV switching stations designated as NW FMM North and NW FMM South would be required to meet the identified need.

10. The AESO stated that its initial assessment assumed the northern and southern load zones would be served separately by radial connections to the existing transmission system. However, it determined from system studies that radial connections would produce voltage violations in the vicinity of the proposed NW FMM South substation in 2015 under Category B contingencies.¹

¹ Category B contingency is an outage event when two transmission elements are out service simultaneously, more particularly defined in AESO Transmission Reliability Criteria Part II – Planning, dated March 11, 2005, and related subsequent amendments.

11. The AESO also assessed a 240-kV looped transmission development option to meet the identified need. Based on system reliability performance studies taking into account both the geographic locations of the proposed loads, generation additions and the existing physical constraints of the transmission facilities in the area, the AESO concluded that a 240-kV looped transmission development was required to serve the long-term transmission needs of the area.
12. The AESO proposed to develop its preferred transmission system development in two phases to meet customer requested in-service dates. Due to the size and location of the development, multiple construction seasons would be required.
13. The estimated capital cost of the project would be in the order of approximately \$180 million (+/-30%, \$2014) in 2014 and an additional \$190 million (+/-30%, \$2015) in 2015.
14. The AESO conducted a participant involvement program between May 2011 and November 2011 which provided stakeholders with project specific information and an opportunity to raise concerns on the need for the proposed transmission system development in the area. An information package was delivered to stakeholders using a postal code drop.
15. The AESO posted an overview document of the project need on its website. In addition, the AESO scheduled an open house session to be held in Fort McMurray on June 28, 2011, that was advertised in the three local newspapers; the Fort McMurray Today on June 8, 14 and 21, 2011; the Fort McMurray Connect on June 10, 17 and 24, 2011; and the Fort Chipewyan Journal on June 14 and 21, 2011. In addition, the AESO advertised its intention to file its NID application on October 7, 2011, in the Fort McMurray Connect, on October 11, 2011, in the Fort Chipewyan Journal and on October 13, 2011, in the Fort McMurray Today.
16. The AESO directed the transmission facility owner (TFO) to conduct an environmental and socio-economic assessment in accordance with AUC Rule 007: *Rules Respecting Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations* (AUC Rule 007), Section 6, NID 12. Since specific routing and siting aspects of a project are not considered in a NID, the assessment was conducted using a qualitative approach to assess the potential land impacts of only the AESO's preferred development. The TFO determined that while a potential for impacts exists, no factors were identified that would preclude the proposed development as proposed by the AESO. The AESO noted in its NID that proposed specific transmission line routes and substation locations would be addressed by the TFO in its facility proposal.
17. In conclusion, the AESO stated that it was not aware of any outstanding concerns regarding the need for the project.

4 Findings

18. The Commission reviewed the application and determined that it contains the information required by the *Electric Utilities Act*, the *Transmission Regulation* and AUC Rule 007. In this respect, the Commission had specific regard for the direction provided in subsections 38(a) through 38(e) of the *Transmission Regulation* as discussed in the following paragraphs.

19. The Commission considers that the level of detail presented by the AESO in the application was sufficient to justify the need for the proposed transmission development in the area northwest of Fort McMurray.

20. Subsection 38(a) of the *Transmission Regulation* provides that the Commission must:

- (a) have regard for the principle that it is in the public interest to foster
 - (i) an efficient and competitive generation market,
 - (ii) a transmission system that is flexible, reliable and efficient and preserves options for future growth, and
 - (iii) geographic separation for the purposes of ensuring reliability of the transmission system and efficient use of land, including the use of rights of way, corridors or other routes that already contain or provide for utility or energy infrastructure or the use of new rights of way, corridors or other routes, notwithstanding that geographic separation for the purposes of ensuring reliability of the transmission system or efficient use of land may result in additional costs,

21. The Commission is satisfied that the public interest criteria set out in subsection 38(a) have been met. The Commission believes that having a reliable electrical transmission facility infrastructure is a prerequisite to having an efficient and competitive generation market. The Commission is aware that the AESO studied the performance of the existing transmission system and the preferred transmission system development under forecasted load, generation scenarios and different system conditions.² Having regard to the foregoing, the Commission finds that the AESO has demonstrated that there is a need to upgrade the transmission system in the area northwest of Fort McMurray.

22. The Commission is also satisfied that the AESO's preferred transmission system development should provide a reliable and efficient transmission system which also has the flexibility for the future load growth and transmission system expansion.³

23. Pursuant to subsection 38(b) of the *Transmission Regulation* the Commission must:

- (b) have regard for the following matters when it considers an application for a transmission facility upgrade or expansion, or operations preparatory to the construction of a transmission facility, namely, the contribution of the proposed transmission facility:
 - (i) to improving transmission system reliability;
 - (ii) to a robust competitive market;
 - (iii) to improvements in transmission system efficiency;
 - (iv) to improvements in operational flexibility;
 - (v) to maintaining options for long term development of the transmission system;

² Exhibit 0001.00.AESO-1570, Application, Part A, Section 2.2, Section 3.4; Part B, Appendix A, Section 1.1, Section 2.2, Section 2.3, Section 2.8, Section 3 to 7; Part B, Appendix B.

³ Exhibit 0001.00.AESO-1570, Application, Part A, Section 3.1, Section 3.4; Part B, Appendix A, Section 4-6.

24. The Commission is satisfied that the criteria set out in subsection 38(b) have been met and is satisfied that the AESO's preferred transmission system development will enhance system reliability, efficiency and operational flexibility, which will consequently promote a robust competitive electric market.⁴

25. The Commission is satisfied that in developing its NID, the AESO took into account concerns regarding reliability, system efficiency and operational flexibility, and addressed those issues by means of proposing two new 240-kV substations, new transmission lines, and the reconfiguration of some exiting transmission facilities.

26. The Commission considers that the proposed transmission system development also preserves options for the long-term plan of the transmission system in the northwest of Fort McMurray area by providing capacity to meet the forecast load until 2020.⁵

27. Subsections 38(c) and (d) of the *Transmission Regulation* state that the Commission must:

- (c) take into account the long term transmission system outlook document and the transmission system plan filed with the Commission,
- (d) take into account the ISO's responsibilities under the Act and regulations.

28. The Commission reviewed the need identified by the AESO in its NID together with references in the AESO's 2011 long-term transmission system plan filed with the Commission and is satisfied that the NID and the long term plan are consistent.⁶

29. The Commission also finds that this application is reflective of the AESO's responsibilities;⁷ in particular, its responsibility to direct the safe, reliable and economic operation of Alberta's interconnected transmission system⁸ and its responsibility to plan the transmission system.⁹

30. Finally, subsection 38(e) of the *Transmission Regulation* directs that the Commission must:

- (e) consider the ISO's assessment of the need to be correct unless an interested person satisfies the Commission that
 - (i) the ISO's assessment of the need is technically deficient, or
 - (ii) to approve the needs identification document would not be in the public interest.

⁴ Exhibit 0001.00.AESO-1570, Application, Part A, Section 3.4; Part B, Appendix A, Section 4-6.

⁵ 2011 Draft AESO Transmission System Plan, Section 4.5.2.1, page 108, Section 4.5.2.2 to 4.5.2.4, pages 111 to 113, Section 4.6.1, page 130, Section 4.6.3, page 138.

⁶ 2011 Draft AESO Transmission System Plan, Section 4.5.2.1, page 108, Section 4.5.2.2 to 4.5.2.4, pages 111 to 113, Section 4.6.1, page 130, Section 4.6.3, page 138.

⁷ Exhibit 0001.00.AESO-1570, Application, Part A, Section 1.1, Section 2.1, Section 3.5, Section 3.6, and Section 3.9, and Part C.

⁸ This responsibility is set out in Section 17(h) of the *Electric Utilities Act*.

⁹ This responsibility is set out in Section 15 of the *Transmission Regulation*.

31. Having reviewed the AESO's contingency analysis, the Commission recognizes that the existing transmission system does not have adequate transmission capacities and, therefore, the capability to satisfy requests for transmission system access and forecast significant load, and generation developments in both the near and long term is limited.
32. The Commission, therefore, concludes that the 240-kV transmission system development, as proposed in the AESO's NID, is required in the area northwest of Fort McMurray to ensure the continued development of the resources in the area.
33. The Commission accepts AESO's submission that a participant involvement program has been conducted and finds that there are no outstanding public or industry objections or concerns. Furthermore, no party filed a submission in response to the notice issued by the Commission.
34. The Commission reviewed the application in light of the principles and matters it is required to consider pursuant to Section 38 of the *Transmission Regulation*. It is satisfied that no interested party has demonstrated that the AESO's assessment of the need to expand and enhance the transmission system in the area northwest of Fort McMurray is technically deficient or that approval of the NID is not in the public interest. Consequently, the Commission considers the AESO's assessment of need to be correct, in accordance with subsection 38(e) of the *Transmission Regulation*.

5 Decision

35. Pursuant to Section 34(1) (c) of the *Electric Utilities Act* and Section 38(e) of the *Transmission Regulation*, the Commission approves the AESO's NID as filed and grants the AESO the approval set out in Appendix 2 – 240-kV Transmission System Development in the Area Northwest of Fort McMurray – Needs Identification Document, Approval No. U2012-271 – June 18, 2012 (Appendix 2 will be distributed separately).

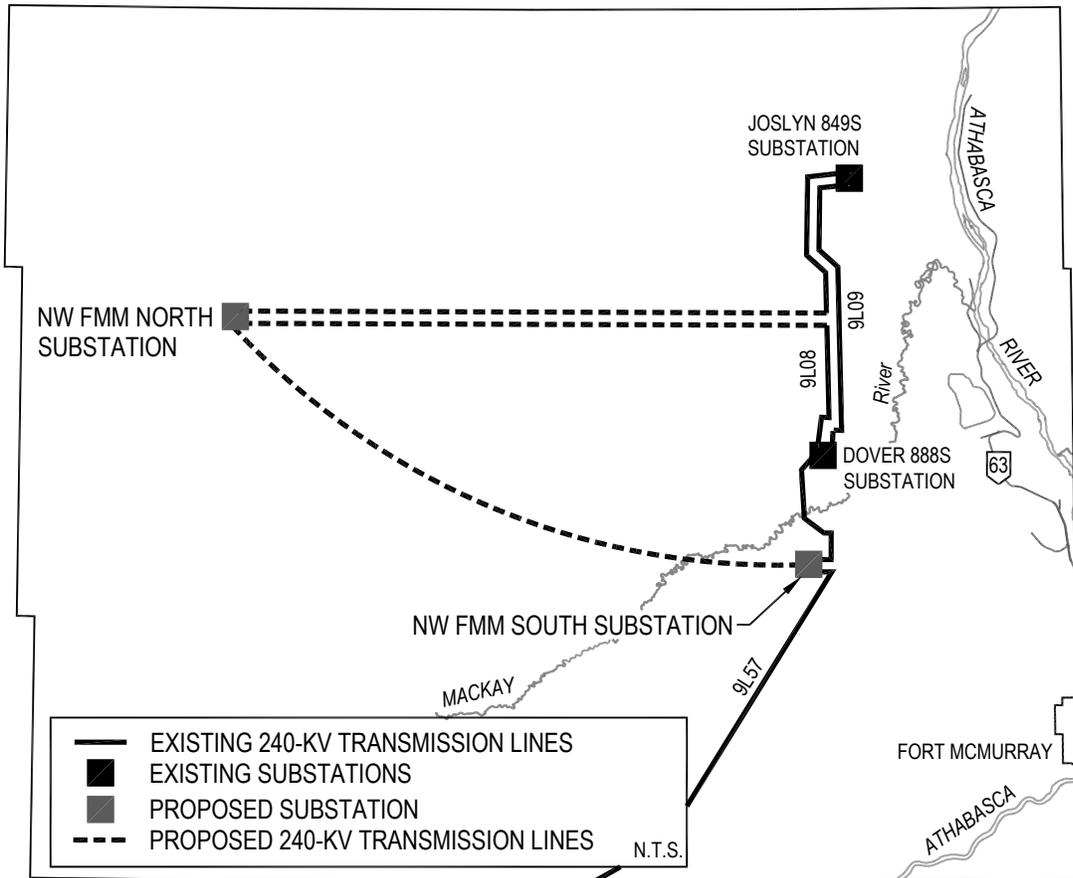
Dated on June 18, 2012.

The Alberta Utilities Commission

(original signed by)

Neil Jamieson
Commission Member

Appendix 1 – 240-kV Transmission System Development in the Area Northwest of Fort McMurray



This map only contains a simplified representation of the system configuration. It does not indicate the geographical locations of the existing and proposed facilities.