AUC
Alberta Utilities Commission

Alberta Electric System Operator

Needs Identification Document Application
Central East Region Transmission System Development

February 10, 2011

The Alberta Utilities Commission
Decision 2011-048: Alberta Electric System Operator
Needs Identification Document Application
Central East Region Transmission System Development
Application No. 1606218
Proceeding ID No. 645

February 10, 2011

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Calgary, Alberta

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1 Introduction

1.1 Application

1. On May 20, 2010, the Alberta Electric System Operator (AESO) filed needs identification document (NID) Application No. 1606218 (application) with the Alberta Utilities Commission (AUC or the Commission) pursuant to Section 34 of the *Electric Utilities Act,* for reinforcement of the transmission system in the central east area of the province of Alberta (central east region).

2. The AESO stated that the central east region encompasses the east portion of central Alberta and is comprised of the following AESO transmission planning areas: Cold Lake (Area 28), Vegreville (Area 56), Lloydminster (Area 13), Alliance/Battle River (Area 36), Wainwright (Area 32) and Provost (Area 37).

3. The AESO stated in the NID that the need for transmission reinforcement in the central east region is driven by load growth in the area and the need to connect future cogeneration and wind-powered generation. The AESO stated it had received two connection requests for cogeneration projects of 255 megawatts (MW) in the Cold Lake area, and two connection requests for wind generation projects with a combined capacity of 280 MW in the Provost area. The AESO stated that its system studies indicated that the central east region transmission system is near its capacity and without any system upgrades, the present system would be unable to reliably supply projected load and connect proposed generation projects.

4. The AESO considered a set of local reinforcements[1] along with three regional transmission development alternatives in developing its central east region NID application:

- Alternative 1: Re-build the aging 138/144-kilovolt (kV) transmission line 7L50 from Battle River 757S substation to Buffalo Creek 526S substation.
- Alternative 2: Build a new 240-kV transmission line from Nilrem 574S substation to a new Vermilion area substation.
- Alternative 3: Build a new 240-kV transmission line from Hansman Lake 650S substation to Lloydminster 716S substation via a new Provost wind collector substation.

5. The AESO carried out technical, social and economic analysis for each of the aforementioned regional alternatives and the set of local reinforcements. The AESO concluded that Regional Alternative 1 was the best option and designated it as its preferred alternative. The AESO's recommended transmission development plan consisted of the developments included in Regional Alternative 1, plus the set of local reinforcements.

[1] AESO NID Application, Section 5.1, pages 30-38.

6. The AESO proposed a staged approach for the implementation of the recommended plan: stage I was proposed to be in service in 2012 and stage II was proposed to be in service in 2017.

7. Altalink Management Ltd. (AltaLink) and ATCO Electric Ltd. (ATCO) conducted land impact assessments on behalf of the AESO. Their reports were filed as part of the NID. The AESO arranged for representatives of Altalink and ATCO to give evidence at the hearing with respect to the land impact assessment.

1.2 Interventions

8. Mr. Bill Fox, an area resident, expressed concern regarding the AESO's recommendation to restore the rating of 144-kV transmission line 7L53 from Bonnyville 700S substation to Vermilion 710S substation to its rated capacity. Mr. Fox appeared at the hearing on November 30, 2010, in Vermilion, Alberta.

9. A group of interveners comprised of Betty Coulthard, Robert Coulthard, Warren Henderson, Betty Henderson and Debbie Henderson (Coulthard and Henderson Group) opposed the application and filed a written submission, but did not appear at the hearing.

10. A number of parties filed written submissions regarding the application, but did not appear at the hearing. A list of these parties is provided in Appendix 1.

1.3 Notice

11. The Commission issued a notice of application on July 7, 2010, and distributed it by way of the following:

- Mailed or emailed directly to interested parties.
- Mailed to registered land title holders within 800 metres of existing transmission lines and substations that could potentially be altered due to the proposed set of local transmission reinforcements and Regional Alternative 1 development. The land title holders were identified by using a search of the Alberta Land Titles Spatial Information System.
- Mailed through Canada Post to recipients in postal code regions identified by the AESO as areas that could be affected by all regional alternatives set out in the NID application. There were approximately 31,500 residents in this mailing list.
- Published in 12 central east region newspapers.
- Published on the AUC website.

12. The AUC held information sessions in Wainwright and Bonnyville on August 4 and August 5, 2010, as announced in the notice of application.

13. A notice of hearing was issued on September 28, 2010, advising that there would be a hearing on the application on November 30, 2010. The notice of hearing was distributed as follows:

- Mailed or emailed directly to interested and registered parties.
- Published in 12 central east region newspapers.
- Published on the AUC website.

14. A notice of hearing update was issued on October 7, 2010, which clarified the filing schedule for the proceeding. The notice of hearing update was distributed in the same manner as the original notice of hearing.

1.4 Hearing

15. The hearing was held on November 30, 2010, in Vermilion, Alberta before Commissioner Tudor Beattie, QC. The Commission considers that the record for this proceeding closed on November 30, 2010. Those who appeared at the hearing are listed in Appendix 2.

2 Decision overview

16. Having considered all of the evidence before it, the Commission has, in this decision, approved the AESO NID including the set of local reinforcements associated with Regional Alternative 1 development, the preferred transmission development option. In accordance with Section 38(e) of the *Transmission Regulation*, no interested person has satisfied the Commission that the AESO's assessment of the need to expand and enhance the transmission system in the central east region is technically deficient or not in the public interest. Accordingly, the Commission considers the AESO's assessment of the need to be correct in accordance with Section 38(e) of the *Transmission Regulation.*

3 Background

3.1 The process for new transmission development in Alberta

17. Two approvals from the AUC are required to build new transmission in Alberta: an approval of the need to expand or enhance the system pursuant to Section 34 of the *Electric Utilities Act* and a permit to construct and operate a transmission line pursuant to Sections 14 and 15 of the *Hydro and Electric Energy Act*.

18. The AESO, acting as the Independent System Operator or ISO, is responsible for preparing a needs identification document (NID or needs application) for approval by the AUC pursuant to Section 34 of the *Electric Utilities Act.* In Decision 2004-087,[2] the Commission's predecessor, the Alberta Energy and Utilities Board (AEUB), described the NID process as follows:

> It is the Board's view that Section 34 contemplates a two-stage consideration of an NID. In the first stage, the Board must determine whether an expansion or enhancement of the capability of the transmission system is necessary to alleviate constraint, improve efficiency, or respond to a request for system access…
>
> If it is determined that expansion or enhancement of the system is required to address constraint, inefficiency, system access requests, or any combination thereof, the Board must then assess, in the second stage, whether enhancement or expansion measures proposed by AESO are reasonable and in the public interest.[3]

[2] EUB Decision 2004-087: Alberta Electric System Operator – Needs Identification Document Application Southwest Alberta 240-kV Transmission System Development, Addendum to Decision 2004-075, Application No. 1340849, October 14, 2004.

[3] EUB Decision 2004-087, pages 13-14.

19. Section 38 of the *Transmission Regulation* provides the following guidance to the Commission in the exercise of its jurisdiction in considering a needs application:

> **38** When considering whether to approve a needs identification document under Section 34(3) of the Act, 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,
>
> (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;
>
> (vi) to a project to which Section 27 applies to provide system access service,
>
> (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, and
>
> (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.

20. Section 34 of the *Electric Utilities Act* provides the Commission with three options for making a decision on a needs application. The Commission may approve the NID, deny the NID, or refer the NID back to the AESO with suggestions or directions for changes or additions. However, in accordance with Section 38(e) of the *Transmission Regulation*, the Commission must consider the AESO's assessment of need to be correct unless an interested person satisfies the Commission that the AESO's assessment of need was technically deficient or that approval of the NID would not be in the public interest.

21. Facility applications are prepared by a transmission facility owner (TFO) assigned by the AESO. When considering an application for a transmission facility, the Commission must consider whether the proposed transmission line is in the public interest having regard for the social and economic effects of the transmission line and the effect of the transmission line on the environment.

22. Section 15.4 of the *Hydro and Electric Energy Act* allows the Commission to consider a NID and a facility application in a combined proceeding. In this proceeding, the Commission considered only the NID because no corresponding facility application was filed by a TFO.

4 Need to enhance the central east region transmission system

4.1 Views of the AESO

23. The AESO stated that the need for transmission reinforcement in the central east region is driven predominantly by forecast load growth and the forecast development of cogeneration and wind-powered generation.

24. The AESO forecasted that the regional winter peak load would increase from 750 MW in 2009 to 1,160 MW in 2010 and 1,290 MW by 2017,[4] which would be largely due to oilsands, pipeline development and associated infrastructure.

25. The AESO stated that it had received applications for the connection of two wind power projects of approximately 280 MW in the vicinity of the Provost area as well as cogeneration of approximately 255 MW in the Cold Lake area. With the addition of these potential generation projects, the AESO predicted that the generation capacity in the central east region would increase to 1,554 MW by 2017.[5]

26. Based on its power flow analysis of the existing transmission system within the central east region for the years 2009, 2012 and 2017, the AESO concluded that the existing transmission system in the central east region would not have enough capacity to serve the projected load growth in the very near term and would not be adequate to serve the projected load growth or proposed generation development over the next 10 years.

27. The AESO concluded that the existing transmission system would not meet the required reliability criteria and argued that a combination of system upgrades and new facilities is required to meet the reliability criteria.

4.2 Views of Bill Fox

28. Mr. Fox filed no evidence in the proceeding. During cross-examination at the hearing, however, he did pose a number of questions regarding the AESO's recommendation to restore the rating of 144-kV transmission line 7L53 from Bonnyville 700S substation to Vermilion 710S substation to its rated capacity and sought clarification of what was involved with the associated line clearance mitigation.

[4] AESO NID Application, Section 2.2.1, page 10.
[5] AESO NID Application, Section 2.2.2, page 13.

4.3 Views of the Coulthard and Henderson Group

29. In its letter to the Commission dated August 11, 2010, the Coulthard and Henderson Group questioned whether additional transmission development was needed for Albertans. The group stated that it did not believe that the existing lines were in eminent danger of failure. The group also stated that Alberta's population is declining and that there is no need for the proposed line.

4.4 Commission findings

30. Pursuant to Section 38(e) of the *Transmission Regulation* the Commission must consider the AESO's assessment of need to be correct unless an interested party satisfies it that the AESO's assessment of need was technically deficient. It was the AESO's evidence that the transmission system in the central east region must be upgraded to accommodate the substantial load and generation growth forecast for that region. The Commission understands that the AESO's load forecast was premised upon the likely energy requirements of existing and future pipelines for the transport of crude oil and bitumen. The Commission finds that the AESO's process for forecasting load was generally reasonable.

31. The Commission further understands that the AESO's generation forecast was premised largely on forecast capacity of new wind-powered generation and cogeneration that are expected to be interconnected to the Alberta Interconnected Electric System (AIES) in the central east region. The Commission notes that there are currently two wind-powered interconnection applications before the AESO, for a total capacity of 280 MW, and two cogeneration interconnection applications for a total capacity of 255 MW. The Commission also notes that it recently approved a 170 MW cogeneration plant in the Cold Lake area.[6]

32. Having reviewed the AESO's contingency analysis, the Commission agrees with the AESO that the existing transmission system in the central east region does not have adequate transmission capacities, and does not have the incremental transfer out capability to satisfy the predicted load growth and generation interconnection. The Commission also accepts that one consequence of inadequate transmission capacity in the central east region will be the inability to supply increasing load demand and integrate gas-fired and wind-powered generation into the AIES without violation of the AESO reliability criteria. The Commission, therefore, concludes that increased system capacity is required to ensure the continued development of a fair, open and competitive marketplace.

33. Mr. Fox did not take issue with the need for transmission upgrades in the central east region, but wanted clarification of the AESO's proposed solution to address that need. The Coulthard and Henderson Group filed no evidence in support of their assertion that there was no need to upgrade the transmission system in the central east region and their views on this subject were not tested by cross-examination. In the Commission's view, the assertions of the Coulthard and Henderson group do not satisfy the requirements of Section 38(e) of the Transmission Regulation.

[6] AUC Decision 2010-431, Imperial Oil Resources Limited Nabiye Project – Cogeneration Plant, Transmission Facilities, and Industrial System Designation, Application No. 1605716, Proceeding ID No. 427, September 2, 2010.

34. Having regard to all of the foregoing, the Commission finds that no interested party has demonstrated that the AESO's assessment of the need to upgrade the central east transmission system was technically deficient. The Commission is also of the view that the AESO's load and generation forecasts for the central east region are reasonable and concludes that there is a need for transmission upgrades in the central east region.

5 The AESO's preferred alternative

5.1 Views of the AESO

35. The AESO stated that after it identified the need for system upgrades, it developed several planning alternatives to satisfy its reliability criteria. The next step in the process involved the evaluation by the AESO of each alternative based on technical, economic, land use and societal factors.

36. Having regard to the land impact assessments conducted for the AESO by ATCO and AltaLink, the AESO concluded that all three regional alternatives, along with the set of local reinforcements, were viable.

37. The AESO submitted that its evaluation included a comprehensive participant involvement program (PIP). The AESO explained that it used a variety of methods to notify, consult and engage residents, occupants, landowners, businesses, industry, First Nations, Métis settlements, advocacy groups as well as elected and administrative municipal and provincial officials with interests in the central east region.

38. The AESO stated that the last step of its development of the NID was to compare the key elements of each alternative on the basis of technical, economic and societal factors, and to select a preferred regional alternative.

39. The AESO concluded that Regional Alternative 1, along with the set of local reinforcements common to all three alternatives, was its preferred alternative based on the overall results of its comparative analysis.[7]

40. The AESO explained that the preferred Regional Alternative 1 would be implemented in two stages. Stage I of the development would facilitate the need for integrating generation projects in the Cold Lake area and to alleviate other system constraints. The AESO stated that stage I completion would be required on or before the fourth quarter of 2012. Stage II would enable the central east region transmission system to meet forecast load in the region and would be required by the fourth quarter of 2017.

41. The AESO submitted that the need for stage I of the proposed developments already existed based on the current active applications before the AESO for interconnections for cogeneration and wind-powered generation facilities.

42. The AESO confirmed that it did not identify any milestones or a milestone monitoring process for the second stage of development in the central east region. Instead, it stated that the technical studies showed that the Cold Lake area will be prone to voltage collapse and thermal

[7] AESO NID Application, Section 7, pages 76-78.

overloads by 2017 should stage II developments not be in place on time, and concluded that there was reasonable certainty of the need for stage II development.

5.2 Views of Bill Fox

43. As noted above, Mr. Fox filed no evidence in the proceeding, but instead cross-examined the AESO's witnesses at the hearing. The questions Mr. Fox posed related primarily to site specific routing and technical issues.

5.3 Views of the Coulthard and Henderson Group

44. The Coulthard and Henderson Group suggested that the central east transmission system development was a for-profit commercial enterprise to export power to the United States. The Coulthard and Henderson Group also raised concerns regarding the siting of lines on privately owned lands and across cultivated areas.

5.4 Commission findings

45. To ensure the ongoing efficiency of the AIES, the AESO is mandated to plan a transmission system that is flexible and forward looking, and reasonably anticipates load increases and new generation. These obligations are set out in Sections 5, 17 and 33 of the *Electric Utilities Act* and Section 38 of the *Transmission Regulation.* The AESO's obligations regarding reliability are set out in Section 15 of the *Transmission Regulation*. The AESO must make arrangements for system expansion or enhancement so that all anticipated in-merit electric energy can be dispatched without constraint under normal operating conditions.

46. The AESO's participant involvement program included hosting open houses in 11 communities within the central east region, meetings with 10 counties and municipal districts, and two postal code mail-outs within the central east region conveying information about the project. The AESO also placed newspaper ads in 12 local newspapers in central east Alberta. The Commission finds that the publically distributed materials developed by the AESO for the need application met the Commission's requirements in AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations.* Consequently, the Commission finds that the AESO satisfied AUC requirements for public involvement.

47. In accordance with Section 38(e) of the *Transmission Regulation,* the Commission must consider the AESO's assessment to be correct unless an interested person demonstrates that the AESO's assessment of need is technically deficient or that approval of the NID would not be in the public interest. In the Commission's view, the information filed by the Coulthard and Henderson Group does not meet the threshold established by Section 38(e). The Commission observes in this regard that the Coulthard and Henderson Group filed no supporting evidence to support its opinions and, because its members chose not to attend the hearing, were not examined on their opinions. In the absence of such evidence, Section 38(e) makes it clear that the Commission must consider the AESO's assessment of need for transmission upgrades in the central east region to be correct.

48. The Commission accepts that both stage I and stage II of the proposed project is required to satisfy known load and generation requirements for the central east region.

49. Having regard to the foregoing, the Commission concludes that the AESO's proposed upgrades to the transmission system are consistent with the objectives of Section 5 of the *Electric Utilities Act* and the AESO's planning duties pursuant to Section 17 of that Act.

6 Conclusion

50. The Commission has reviewed the NID application and has determined that it contains the information required by the *Electric Utilities Act*, the *Transmission Regulation* and AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations.* In this respect, the Commission had specific regard for the direction provided in Sections 38(a) through 38(e) of the *Transmission Regulation* as discussed in the following paragraphs.

51. Having regard to Section 38(a) of the *Transmission Regulation*, the Commission finds that the development of Regional Alternative 1, along with the set of local transmission reinforcements, will contribute to an efficient and competitive generation market by allowing all existing and reasonably foreseeable new electric energy generation in the central east region to be transmitted without constraint.

52. The Commission is satisfied that the criteria set out in Section 38(b) of the *Transmission Regulation* have also been met. The Commission finds that along with the set of local transmission reinforcements, Regional Alternative 1 will satisfy the AESO's transmission reliability criteria pertaining to system planning and will improve system reliability in the central east region. The Commission also finds that by providing for the interconnection of new cogeneration and wind-powered generation in the central east region, approval of the recommended plan will further contribute to the competitive electricity market in Alberta. In the Commission's view, approval of the recommended plan will contribute to system efficiency by accommodating new generation. Further, the Commission is satisfied that Regional Alternative 1, along with the set of local transmission reinforcements, will improve operational flexibility and maintain options for future development of the transmission system.

53. The Commission finds that the need identified by the AESO in the NID is consistent with that identified in its 2009 Long-Term Transmission System Plan documents which were filed with the Commission. The Commission also finds that the NID is reflective of the AESO's duties pursuant to Section 17 of the *Electric Utilities Act* and consistent with the planning requirements prescribed by Section 15 of the *Transmission Regulation* respecting AESO's responsibility to direct the safe, reliable and economic operation of Alberta's interconnected transmission system and its responsibility to plan the transmission system. This satisfies the requirement of Sections 38(c) and 38(d) of the *Transmission Regulation.*

54. Finally, with respect to Section 38(e) of the *Transmission Regulation*, the Commission concludes that no interested person has satisfied it that the AESO's assessment of the need to expand and enhance the transmission system in the central east region to address thermal overloading, increase efficiency, improve reliability, meet load demand, and to allow for the interconnection of reasonably foreseeable new generation in the region is technically deficient or not in the public interest.

55. Having regard to the foregoing, the Commission is satisfied that the NID should be approved. In coming to this decision, the Commission had specific regard for the record of the proceeding and the clear direction provided in Sections 38(a) through 38(e) of the *Transmission Regulation*. The Commission therefore, approves the NID with the preferred option, Regional Alternative 1, as filed by the AESO. The approval, which will be set out in this decision as Appendix 5 – Needs Identification Document Approval No. U2011-57 – February 10, 2011, will be distributed separately.

Dated on February 10, 2011.

The Alberta Utilities Commission

(original signed by)

Tudor Beattie, QC
Panel Chair

Appendix 1 – Proceeding participants

Name of organization (abbreviation) counsel or representative
Alberta Electirc System Operator (AESO or ISO) J. Cusano
AltaLink Management Ltd. P. Feldberg
C. A. Anderson
ATCO Electric Ltd. S. Munro
Coulthard and Henderson Group B. Coulthard R. Coulthard W. Henderson B. Henderson D. Henderson
D. Corriveau
B. Fox
R. and A. Nelson
County of St. Paul No. 19
C. Zentner

Appendix 2 – Oral hearing – registered appearances

Name of organization (abbreviation) counsel or representative	Witnesses
Alberta Electric System Operator (AESO or ISO) J. Cusano	M. Johns P. Bothwell R. Divi N. Brausen N. LeBlanc L. Papworth D. Michaud
AltaLink Management Ltd. (AltaLink) B. Hunter	
ATCO Electric Ltd. (ATCO) S. Munro	
B. Fox	

The Alberta Utilities Commission Commission Panel Tudor Beattie,QC, Panel Chair Commission Staff JP Mousseau (Commission Counsel) D. Lam J. Law

Appendix 3 – Abbreviations

Abbreviation	Name in full
AESO	Alberta Electric System Operator (also the ISO)
AEUB	Alberta Energy and Utilities Board
AIES	Alberta Integrated Electric System
AUC	Alberta Utilities Commission
ISO	Independent System Operator (also AESO)
kV	Kilovolt
MW	Megawatt
MVAr	Megavolt ampere reactive
NID	Needs Identification Document
PIP	Participation Involvement Program
TFO	Transmission Facility Owner

Appendix 4 – Central east region transmission development recommended plan (Regional Alternative 1) with potential generations