



**Alberta Electric System Operator
Needs Identification Document Application**

**AltaLink Management Ltd.
Facility Applications**

**Wild Rose 1 and 2 Wind Energy Interconnection
Amendment**

August 28, 2015

Alberta Utilities Commission

Decision 20496-D01-2015: Wild Rose 1 and 2 Wind Energy Interconnection Amendment

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Application 20496-A001

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Application 20496-A002 to 20496-A013

Proceeding 20496

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Fifth Avenue Place, Fourth Floor, 425 First Street S.W.
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Telephone: 403-592-8845
Fax: 403-592-4406

Website: www.auc.ab.ca

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1 Introduction

1. The Alberta Electric System Operator (AESO) filed a needs identification document application with the Alberta Utilities Commission, pursuant to Section 34 of the *Electric Utilities Act*, seeking approval to amend the Wild Rose 1 and 2 Wind Energy Interconnection Project needs identification document approval (U2011-266¹). The application was registered on May 29, 2015 as Application 20496-A001.

2. AltaLink Management Ltd. (AltaLink) filed facility applications with the Commission for approvals necessary to modify the approved facilities for the Wild Rose 1 and 2 Wind Energy Interconnection Project in order to meet the amended need. The applications, filed pursuant to sections 14, 15 and 18 of the *Hydro and Electric Energy Act*, were registered on June 1, 2015 as Applications 20496-A002 to 20496-A013.

3. Pursuant to Section 15.4 of the *Hydro and Electric Energy Act*, the AESO and AltaLink requested that the Commission consider the needs identification document application and the facility applications jointly. The Commission advised the AESO and AltaLink that the applications had been combined and were being considered jointly as Proceeding 20496.

4. On July 20, 2015, the Commission issued an information request to AltaLink to clarify application details. On August 4, 2015, AltaLink responded to the information request.

5. On July 20, 2015, the Commission issued a notice of applications for Proceeding 20496. Submissions to the Commission in response to the notice were to be made by August 7, 2015. The notice was sent directly to occupants, residents, landowners, industry and stakeholders within 800 metres of the project area. The notice was also published on the AUC website and notification was automatically emailed to eFiling users that had chosen to be notified of notices of application issued by the Commission.

6. No submissions were received by the submission deadline of August 7, 2015.

¹ Needs Identification Document Approval U2011-266: Alberta Electric System Operator – Wild Rose 1 and Wild Rose 2 Wind Energy Interconnection, Proceeding 913, Application 1606722, August 25, 2011.

2 Background

7. The Commission has approved NaturEner Energy Canada Inc.'s (NaturEner) Wild Rose 1 (WR1) and Wild Rose 2 (WR2) wind power plants, located approximately 50 kilometres southeast of Medicine Hat.^{2,3} The WR1 wind power plant will be connected to NaturEner's Wild Rose 1 547S substation.⁴ The WR2 wind power plant will be connected to NaturEner's Eagle Butte 274S substation.⁵

8. The original in-service date for the WR1 wind power plant was December 31, 2014, which was subsequently extended to December 31, 2015.⁶ The original in-service date for the WR2 wind power plant was October 13, 2013, which was subsequently extended to December 31, 2015, and then to December 31, 2016.⁷

9. The facilities needed to connect these wind power plants to the Alberta Interconnected Electric System (the electric system) were applied for by the AESO and AltaLink and the applications were collectively called the Wild Rose 1 and 2 Wind Energy Interconnection Project (the project). The project was divided into two regions, East Palliser North and East Palliser South, and consisted of the following developments:

East Palliser North:

- a new transmission line between Bowmanton 244S substation to Cypress 562S substation, designated as 1009L
- rebuild a portion of transmission line 668L in the vicinity of the Empress 394S substation
- alterations to the Cypress 562S and Bowmanton 244S substations

² Decision 2013-348: NaturEner Wild Rose 1 Energy Inc. – Amendment to Wild Rose 1 Wind Power Plant, Proceeding 2665, Application 1609685, September 13, 2013.

³ Decision 2014-099: NaturEner Wild Rose 2 Energy Inc. – Amendment to Wild Rose 2 Wind Power Plant, Proceeding 3004, Application 1610214, April 11, 2014.

⁴ Substation Permit and Licence U2010-373: NaturEner Energy Canada Inc. – New Wild Rose 1 Substation, Proceeding 268, Application 1604580, October 19, 2010.

⁵ Substation Permit and Licence U2011-252: NaturEner Wild Rose 2 Energy Incorporated – New Eagle Butte Substation, Proceeding 625, Application 1606143, August 2, 2011.

⁶ Power Plant Approval U2010-372: NaturEner Energy Canada Inc. – 2014-MW Wild Rose 1 Wind Power Plant, Proceeding 268, Application 1604580, October 19, 2010 and Power Plant Approval U2013-420: NaturEner Wild Rose 1 Energy Inc. – Alter Wild Rose 1 Wind Power Plant, Proceeding 2665, Application 1609685, September 13, 2013.

⁷ Power Plant Approval U2011-251: NaturEner Wild Rose 2 Energy Incorporated – 162-MW Wild Rose 2 Wind Power Plant, Proceeding 625, Application 1606143, August 2, 2011; Power Plant Approval U2013-383: NaturEner Wild Rose 2 Energy Inc. – 162-MW Wild Rose 2 Power Plant, Proceeding 2801, Application 1609867, August 29, 2013; and Power Plant Approval U2014-152: NaturEner Wild Rose 2 Energy Inc. – 189-MW Wild Rose 2 Wind Power Plant, Proceeding 3004, Application 1610214, April 11, 2014.

East Palliser South:

- a new system substation, designated as Elkwater 264S
- a new system transmission line to connect the Elkwater 264S substation to the electric system (in/out connection to two existing transmission lines, 1073L and 1074L, redesignated as 964L and 983L)
- a new transmission line between NaturEner's Wild Rose 1 547S substation and the Elkwater 264S substation, designated as 978L, to connect the WR1 wind power plant to the electric system
- a new transmission line between NaturEner's Eagle Butte 274S substation and the Elkwater 264S substation, designated as 1076L, to connect the WR2 wind power plant to the electric system

10. AltaLink estimated⁸ that the East Palliser North portion of the transmission project would cost approximately \$51.9 million (+20/-10 per cent, 2010) and that the East Palliser South portion of the project would cost approximately \$42.1 million (+20/-10 per cent, 2010).

11. The need for the project was approved by the Commission in Decision [2011-352](#)⁹ and the AESO was granted Needs Identification Document Approval U2011-266 (the Wild Rose needs identification document approval).

12. The facilities to meet the need were approved by the Commission in Decision [2012-074](#).¹⁰ Subsequent amendments to the facilities were approved in Decision [2012-336](#),¹¹ Decision [2013-042](#),¹² Decision [2013-386](#)¹³ and Decision [DA2013-291](#).¹⁴

3 Discussion

13. The AESO informed the Commission that NaturEner has changed the requested in-service dates for the WR1 and WR2 wind power plants such that the WR2 power plant will now be in-service before the WR1 power plant. The rescheduled in-service date for the WR2 wind power plant is September 1, 2016. The rescheduled in-service date for the WR1 wind power plant is July 17, 2017.¹⁵ Consequently, the AESO applied to the AUC to amend the

⁸ Estimates prepared in October 2010.

⁹ Decision 2011-352: Alberta Electric System Operator – Wild Rose 1 and Wild Rose 2 Wind Energy Interconnection Needs Identification Document, Proceeding 913, Application 1606722, August 25, 2011.

¹⁰ Decision 2012-074: AltaLink Management Ltd. – Wild Rose 1 and Wild Rose 2 Wind Energy Interconnection, Proceeding 913, Application 1606789, March 21, 2012.

¹¹ Decision 2012-336: AltaLink Management Ltd. – Amendments to Cassils to Bowmanton to Whitla 240-kV Transmission Lines 1034L/1035L, 964L/983L and 1073L/1074L, Proceeding 2004, Application 1608625, December 13, 2012.

¹² Decision 2013-042: AltaLink Management Ltd. – Transmission Line 964L/983L Bowmanton to Whitla, Proceeding 2189, Application 1608911, February 13, 2013.

¹³ Decision 2013-386: AltaLink Management Ltd. – Medicine Hat Area 138-kV Transmission Development, Proceeding 1879, Application 1609095, October 18, 2013.

¹⁴ Decision DA2013-291: AltaLink Management Ltd. – Time Extension for Wild Rose 1 and Wild Rose 2 Interconnection, Proceeding 2961, Application 1610157, December 18, 2013.

¹⁵ Exhibit 20496-X0063 – Amendment Application, paragraph 14.

approved project need by moving certain transmission developments between the WR1 and WR2 interconnection projects and rescinding the need for other previously approved facilities.

14. The construction of the Elkwater 264S substation would be moved to the WR2 interconnection project and subsequent modifications to the Elkwater 264S substation would be moved to the WR1 interconnection project.

15. Facilities that were required in 2013 to facilitate connecting the WR1 wind power plant to the electric system are no longer required because the 240-kilovolt (kV) transmission lines 1034L/1035L and 964L/983L have since been energized.¹⁶ Specifically, construction of 240-kV transmission line 1009L, rebuild of a portion of transmission line 668L and modification of the Cypress 562S substation would be removed from the Wild Rose needs identification document approval.

16. The AESO also applied to change the transmission line connection between the Elkwater 264S substation and the electric system such that the new transmission line would only connect to one existing transmission line, 983L, as this would require less modifications at the Elkwater 264S substation and would be a lower cost alternative.

17. A connection study was performed to assess the impact of connecting the WR1 and WR2 wind power plants to the electric system. The study demonstrated that Alberta Reliability Standards would be met with the implementation of the alteration proposed in paragraph 16.

18. Power flow analyses showed thermal constraint and voltage collapse in the Tilley 498S substation area and a minor thermal overload on transmission line 668L, under Category B contingencies (single element out of service). The pre-existing Tilley area issue is currently managed by a remedial action scheme (RAS). The AESO stated that the connection of the wind power plants to the electric system would have an immaterial effect on the pre-existing Tilley area issue and the minor thermal overload would be less than the emergency rating.

19. Analyses of Category C contingencies (two elements out of service) confirmed an existing thermal constraint on transmission line 172L; however, this constraint was not present in the study following connection of both wind power plants. Thermal constraints and voltage violations were also demonstrated in the Empress/Medicine Hat area, which may be exacerbated by the connection of the wind power plants. The AESO stated it would establish mitigation measures for Category C5 constraints as required.

20. The study also identified islanding issues, thus, the AESO's functional specifications documents directed AltaLink to install anti-islanding equipment at substations in the Medicine Hat area.

21. Lastly, the study also identified potential transient stability issues under the Category B contingency of the single-circuit transmission line 978L. The AESO stated it would develop a RAS to run back or remove either or both wind power plants from the system as constraints require. This stability issue would be alleviated once the proposed 240-kV transmission line

¹⁶ Commonly referred to as the "Cassils to Bowmanton to Whitla transmission lines" which were approved in Decision 2011-250.

between Journault 260S substation and Whitla 251S substation is energized,¹⁷ at which time the RAS would no longer be needed.

22. The AESO directed AltaLink to file a facility application with the AUC for the facilities to meet the amended needs identified and to assist the AESO in conducting a participant involvement program for its needs identification document application.

23. Accordingly, AltaLink applied for facilities to meet the changed need which included a reduced project scope, amendments to the project, and time extensions for the completion of project components as follows:

- a) Rescind approval for transmission line 1009L.¹⁸
- b) Rescind approvals for the following scope of work and reissue approvals with the scope below removed:
 - i. alteration of transmission line 668L¹⁹ routing
 - ii. circuit breaker addition at Cypress 562S substation²⁰
 - iii. alterations at Bowmanton 244S substation²¹ that included the addition of two 240-kV circuit breakers and an expansion to the fenced area of the substation
- c) Alter approved Elkwater 264S substation²² by:
 - i. reducing nine previously approved 240-kV circuit breakers to six
 - ii. adding three 240-kV motor-operated disconnect switches
 - iii. changing substation property boundary to 145 metres x 185 metres (from 130 metres x 238 metres)
 - iv. reducing the fenced substation area to 60 metres x 105 metres (as opposed to 120 metres x 100 metres)
- d) Construct a new 240-kV double-circuit transmission line, approximately 55 metres in length, that would tap into existing transmission line 983L²³ and connect to the west side of the Elkwater 264S substation. This would include redesignating the portion of

¹⁷ Southern Alberta Transmission Reinforcement Needs Identification Approval U2014-461, Stage II, paragraph 7 (“Sub “C” being Journault and “Sub D” being Whitla).

¹⁸ Transmission Line Permit and Licence U2013-632: AltaLink Management Ltd. – Transmission Line 1009L, Proceeding 2961, Application 1610157, December 18, 2013.

¹⁹ Transmission Line Permit and Licence U2013-635: AltaLink Management Ltd. – Transmission Line 668L, Proceeding 2961, Application 1610157, December 18, 2013.

²⁰ Substation Permit and Licence U2013-634: AltaLink Management Ltd. – Cypress 562S Substation, Proceeding 2961, Application 1610157, December 18, 2013.

²¹ Substation Permit and Licence U2013-457: AltaLink Management Ltd. – Alter Bowmanton 244S Substation, Proceeding 1879, Application 1609095, October 18, 2013.

²² Substation Permit and Licence U2013-636: AltaLink Management Ltd. – Elkwater 264S Substation, Proceeding 2961, Application 16010157, December 18, 2013.

²³ Transmission Line Permit and Licence U2013-36: AltaLink Management Ltd. – Alter Transmission Line 964L/983L, Proceeding 2189, Application 1608911, February 13, 2013.

transmission line 983L between Bowmanton 244S substation and Elkwater 264S substation as 1074L.

- e) Extend previously approved 240-kV transmission line 978L²⁴ by approximately 250 metres, on three new wood pole structures, in order to facilitate connection on the east side of Elkwater 264S substation (instead of the south side).
- f) Construct an access road to Elkwater 264S substation by extending NaturEner's Eagle Butte 274S substation access road to the west.
- g) Extend completion date for the following approved project components to July 17, 2017:²⁵
 - i. alter Bowmanton 244S substation by adding one 45-megavolt-ampere-reactive (MVAR) shunt reactor (which would be added to the 240-kV bus on the west side of the substation instead of adding it to transmission line 1009L on the east side of the substation) and adding one new 240-kV circuit breaker
 - ii. constructing transmission line 978L between NaturEner's Wild Rose 1 547S substation and the Elkwater 264S substation
- h) Alter approved 240-kV transmission line 1076L²⁶ route such that the line would run north/south between the Elkwater 264S substation and NaturEner's Eagle Butte 274S substation.

24. All proposed amendments, with the exception of alterations at Bowmanton 244S substation, would occur within the northeast quarter of Section 12, Township 10, Range 5, west of the Fourth Meridian (NE 12-10-5-W4) which is cultivated, privately owned land. AltaLink stated that it consulted with the landowners and the renter of this land and there were no outstanding concerns.²⁷ AltaLink intends to acquire the necessary land rights for the substation property and access road directly from the landowners.²⁸

25. AltaLink stated that it notified all other stakeholders within 800 metres of the project of the proposed amendments.

26. The Bowmanton substation is located in the northwest quarter of Section 15, Township 14, Range 4, west of the Fourth Meridian. All alterations would occur within the existing fenced area. Following completion of alterations, the Bowmanton substation would have seven 240-kV circuit breakers²⁹ and one 240-kV, 45-MVAR shunt reactor.³⁰

²⁴ Transmission Line Permit and Licence U2013-637: AltaLink Management Ltd. – Transmission Line 978L, Proceeding 2961, Application 1610157, December 18, 2013.

²⁵ Both components are part of the system development for the interconnection of the Wild Rose 1 power plant which has a scheduled in-service date of July 17, 2017.

²⁶ Transmission Line Permit and Licence U2013-633: AltaLink Management Ltd. - Transmission Line 1076L, Proceeding 2961, Application 1610157, December 18, 2013.

²⁷ Exhibit 20496-X0062, AML-AUC-2015JUL20-005.

²⁸ Exhibit 20496-X0062, AML-AUC-2015JUL20-002.

²⁹ Exhibit 20496-X0062, AML-AUC-2015JUL20-006.

27. AltaLink submitted an updated environmental evaluation as a supplement to the environmental evaluation that was submitted as part of the original application (Application 1606789). The evaluation concluded that potential effects from the project could be addressed by the implementation of mitigation measures outlined in the updated environmental specifications and requirements document which was submitted as Appendix H. The project is not anticipated to affect the long-term sustainability of any resource feature and is thus considered viable from an overall biophysical perspective. AltaLink also submitted the results of an environmental overview survey of NE 12-10-5-W4, which found that the potential for environmental issues requiring specific mitigation was low.

28. In order to accommodate the new in-service dates for the WR1 and WR2 wind power plants, construction of the proposed facilities is scheduled to commence by April 4, 2016.³¹

29. The cost estimate for the proposed amended project is \$71.773 million (+20/-10 per cent). There is a system cost of \$5.816 million for the WR1 interconnection portion of the amended project. There is no system cost for the WR2 interconnection portion.

4 Findings

30. The Commission finds that the needs identification document application filed by the AESO contains all the information required by the *Electric Utilities Act*, the *Transmission Regulation* and Rule 007: *Applications for Power Plants, Substations, Transmission lines, Industrial System Designations and Hydro Developments*.

31. No interested party demonstrated that the AESO's assessment of the need to amend the approved Wild Rose needs identification document is technically deficient or that approval of the needs identification document application is not in the public interest. Therefore, the Commission considers the AESO's assessment of the amended need to be correct, in accordance with subsection 38(e) of the *Transmission Regulation*, and approves the AESO's needs identification document application.

32. The Commission finds that the facility applications, filed by AltaLink pursuant to sections 14, 15 and 18 of the *Hydro and Electric Energy Act*, comply with the information requirements prescribed in Rule 007. The facility application is also consistent with the need identified in the needs identification document application.

33. The Commission finds that the joint participant involvement program undertaken by the AESO and AltaLink meets the requirements of Rule 007. As no objections were raised, the Commission considered that a hearing was not required pursuant to Section 9 of the *Alberta Utilities Commission Act*.

³⁰ Previous permit and licence U2013-457 corrected an error in permit and licence U2012-198 which incorrectly indicated there was a 50-MVAR shunt reactor at the substation. For further details see information response AUC.AML-014(b) in Exhibit 0035.01.AML-1879 in Proceeding 1879.

³¹ Exhibit 20496-X0063 – Amendment Application, paragraph 124.

34. The Commission finds that there are no outstanding technical, routing or noise concerns associated with the amendments proposed in the facility applications. The Commission also finds that there are no outstanding public or industry objections or concerns.

35. The Commission finds that the siting of Elkwater 264S substation in NE 12-10-5-W4 is satisfactory and, as per the original decision for the project, no environmental concerns are present.³² The Commission is satisfied that any additional environmental impacts due to the proposed amendments will be negligible.

36. Given the considerations discussed above, the Commission finds the proposed project to be in the public interest pursuant to Section 17 of the *Alberta Utilities Commission Act*.

37. The Commission also finds that it is appropriate to issue two separate permits and licences for the double-circuit transmission line 964L/983L. For this reason, although transmission line 964L has not changed as a result of this proceeding, a new licence to operate the transmission line will be issued.

5 Decision

38. Pursuant to Section 34 of the *Electric Utilities Act*, the Commission approves the amended need outlined in needs identification document Application 20496-A001 and grants the AESO the approval set out in Appendix 1 – Needs Identification Document Approval 20496-D13-2015.

39. Pursuant to sections 14, 15, 18 and 19 of the *Hydro and Electric Energy Act*, the Commission approves Applications 20496-A002 through 20496-A013 and grants AltaLink the approvals set out in Appendices 2 through 12 as follows:

- Substation Permit and Licence 20496-D02-2015 to alter and operate Bowmanton 244S substation (Appendix 2).
- Substation Permit and Licence 20496-D03-2015 to alter, construct and operate Elkwater 264S switching station (Appendix 3).
- Substation Licence 20496-D04-2015 to operate Cypress 562S substation (Appendix 4).
- Transmission Line Permit and Licence 20496-D05-2015 to alter and operate transmission line 983L between Elkwater 264S substation and Whitla 251S substation (Appendix 5).
- Transmission Line Licence 20496-D06-2015 to operate transmission line 964L between Bowmanton 244S substation and Whitla 251S substation (Appendix 6).³³

³² Decision 2012-074: AltaLink Management Ltd. – Wild Rose 1 and Wild Rose 2 Wind Energy Interconnection, Proceeding 913, Application 1606789, March 21, 2012, paragraph 193.

³³ Routing of transmission line 964L has not changed but a new licence is required since the previous licence was for the double-circuit transmission line 964L/983L which is being separated into two separate licences.

- Transmission Line Permit and Licence 20496-D07-2015 to alter, construct and operate transmission line 1076L between Elkwater 264S substation and Eagle Butte 274S substation to the north (Appendix 7).
- Transmission Line Licence 20496-D08-2015 to operate transmission line 668L between Cypress 562S substation and Empress 394S substation (Appendix 8).
- Transmission Line Permit and Licence 20496-D09-2015 to alter, construct and operate transmission line 978L between Wild Rose 1 547S substation and the east side of Elkwater 264S substation (Appendix 9).
- Transmission Line Licence 20496-D10-2015 to operate transmission line 1074L between Elkwater 264S substation and Bowmanton 244S substation (Appendix 10).
- Connection Order 20496-D11-2015 to connect transmission line 978L to NaturEner's Wild Rose 1 547S substation (Appendix 11).
- Connection Order 20496-D12-2015 to connect transmission line 1076L to NaturEner's Eagle Butte 274S substation (Appendix 12).

40. The appendices will be distributed separately.

41. The Commission rescinds AltaLink Management Ltd.'s Transmission Line Permit and Licence U2013-635 to construct and operate transmission line 1009L, pursuant to Section 10 of the *Alberta Utilities Commission Act*.

Dated on August 28, 2015.

Alberta Utilities Commission

(original signed by)

Tudor Beattie, QC
Commission Member