



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

**AltaLink Management Ltd.
Facility Applications**

Wainwright Transmission Reinforcement

April 28, 2017

Alberta Utilities Commission

Decision 21857-D01-2017: Wainwright Transmission Reinforcement

Alberta Electric System Operator
Needs Identification Document Application
Application 21857-A001

AltaLink Management Ltd.
Facility Applications
Application 21857-A002 to 21857-A004

Proceeding 21857

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1 Decision summary

1. In this decision, the Alberta Utilities Commission must decide whether to approve a needs identification document application from the Alberta Electric System Operator and facility applications from AltaLink Management Ltd. to construct and operate a new single-circuit 138-kilovolt (kV) transmission line and to alter the Wainwright 51S Substation. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission finds the Alberta Electric System Operator's assessment of the need to be correct and that approval of the project and its Preferred Route are in the public interest having regard to the social, economic, and other effects of the project, including their effect on the environment.

2 Introduction

2. The Alberta Electric System Operator (AESO) filed an application with the Alberta Utilities Commission, pursuant to Section 34 of the *Electric Utilities Act*, seeking approval of the need to modify the Wainwright 51S Substation to an in-out configuration and to add a new single-circuit 138-kV transmission line from the existing transmission line 704L to Wainwright 51S Substation. The application was registered on July 27, 2016 as Application 21857-A001.

3. AltaLink Management Ltd. (AltaLink) filed facility applications with the Commission for approval to construct the facilities to meet the need identified by the AESO. AltaLink applied to alter Wainwright 51S Substation and to construct approximately 26 kilometres of single-circuit 138-kV transmission line (the project). The applications, filed pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, were registered on August 31, 2016 as applications 21857-A002 to 21857-A004.

4. 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 (NID) 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 21857.

3 Background

5. On September 30, 2016, the Commission issued a notice of applications for Proceeding 21857. The notice was mailed directly to residents, market participants, agencies and

other interested parties in the vicinity of the project. The notice of applications was also published in the Wainwright Star on October 7, 2016, and on the AUC website.

6. The Johnston Group is a group of landowners in the vicinity of the proposed transmission line that oppose the project and filed a statement of intent to participate in the proceeding. The group consists of William and Edna Johnston, Janice and K. Greg Liboiron, and Michelle and Jeremy Allen. On November 10, 2016, the Commission issued a ruling granting standing to the Johnston Group.¹

7. The Commission issued a notice of hearing on December 16, 2016. The notice was mailed directly to residents, market participants, agencies and other interested parties in the vicinity of the project. The notice was published in the Wainwright Star on December 23, 2016 and on the AUC website. It informed interested persons that a hearing was scheduled to commence on February 22, 2017, and outlined the process schedule leading up to the hearing.

8. On February 2, 2017, the AESO filed a motion asking the Commission to confirm that there is no need for the AESO to attend or present witnesses at the oral hearing for this proceeding and to approve its NID application without further process. The AESO stated that no party had provided any information to dispute the AESO's assessment of the need for the transmission development described in its application.

9. On February 13, 2017, the Commission ruled that it was not necessary for the AESO to attend or present witnesses at the hearing as no objections to the need for the project or the AESO's motion were received. However, it also indicated that it was not prepared to approve the AESO's application at the time.

10. The hearing commenced on February 22, 2017, in Wainwright, Alberta before a Commission panel comprised of Panel Chair Anne Michaud and Acting Commission Member Kate Coolidge.

11. The hearing concluded with oral argument and reply argument on February 23, 2017. The Commission considers February 23, 2017 to be the date of the close of record for Proceeding 21857.

4 The process for new transmission development in Alberta

12. Except in the case of critical transmission infrastructure, two approvals from the Commission are required to build new transmission capacity in Alberta. First, an approval of the need for expansion or enhancement to the Alberta Interconnected Electric System, pursuant to Section 34 of the *Electric Utilities Act*, is required. Second, a permit to construct and a licence to operate a transmission facility, pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*, must be obtained.

13. The AESO, in its capacity as the independent system operator established under the *Electric Utilities Act*, is responsible for preparing a NID and filing it with the Commission for approval pursuant to Section 34 of the *Electric Utilities Act*.

¹ Exhibit 21857-X0056, AUC Ruling on standing of the Johnston Group.

14. In Decision 2004-087, the Commission's predecessor, the Alberta Energy and Utilities Board (Board), 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.²

15. Facility applications are prepared by the transmission facility owner assigned by the AESO. AltaLink is the transmission facility owner in the service territory in the Wainwright area. The transmission facility owner files the facility application with the Commission for consideration. The Commission may approve or deny the application, or approve the application subject to terms or conditions.

5 AESO NID application

16. The AESO submitted that FortisAlberta Inc., the distribution facility owner for the Wainwright area, requested system access service to improve distribution reliability in the area.

17. FortisAlberta Inc. indicated that in the event of an outage on transmission line 704AL, there could be up to 25 megavolt-ampere (MVA) of unsupplied load in 2015 and this could grow to 38.9 MVA by 2025.

18. The AESO proposed that the request could be met by converting the existing Wainwright 51S Substation connection from a T-tap to an in-and-out configuration, and would require:

- adding a 138-kV transmission circuit that would connect Wainwright 51S Substation to the existing transmission line 704L
- adding two 138-kV circuit breakers to the Wainwright 51S Substation

19. The AESO conducted power flow and voltage stability analyses to assess the effect the project would have on the Alberta Interconnected Electric System. The AESO identified several thermal and voltage criteria violations that occurred under certain category B conditions under the existing transmission system and submitted that real-time operational practices and remedial action schemes can be used to mitigate these issues.

20. The AESO submitted that upon completion of the project, most of the performance issues identified in the existing system assessment would also occur and that two of the thermal criteria violations that occurred under category B conditions would intensify. The AESO submitted that

² Alberta Energy and Utilities Board Decision 2004-087: Alberta Electric System Operator Needs Identification Document – Southwest Alberta 240-kV Transmission System Development Pincher Creek – Lethbridge Area, Addendum to Decision 2004-075, Application 1340849, October 14, 2004, page 12.

real-time operational practices and existing remedial action schemes could continue to be used to mitigate these issues. The AESO concluded that the project would not materially affect the performance of the Alberta Interconnected Electric System.

21. The AESO submitted that the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*, Section 6.2.1 – NID15(2) are addressed by AltaLink’s facility application and that in the event the project is not in service by September 1, 2018, the AESO will inform the Commission if the need to enhance the transmission system remains and if the technical solution proposed by the AESO continues to be its preferred solution.

22. The AESO directed AltaLink to file a facility application with the AUC for the facilities identified to meet the need and to assist the AESO in conducting a participant involvement program for its NID application. No concerns or objections were raised regarding the need for the project.

5.1 Commission findings

23. The Commission finds that the NID application filed by the AESO contains all the information required by the *Electric Utilities Act*, the *Transmission Regulation* and Rule 007.

24. No interested party demonstrated that the AESO’s assessment of the need is technically deficient or that approval of the NID application is not in the public interest. Therefore, the Commission considers the AESO’s assessment of the need to be correct, in accordance with Subsection 38(e) of the *Transmission Regulation*, and approves the AESO’s NID application.

6 AltaLink facility applications

25. AltaLink proposed to alter Wainwright 51S Substation by adding two 138-kV circuit breakers and expanding the fenceline of the substation approximately 15 metres to the north and two metres to the west.

26. AltaLink also proposed to construct approximately 26 kilometres of single-circuit 138-kV transmission line that would connect Wainwright 51S Substation to existing transmission line 704L.

27. The proposed line and the south portion of transmission line 704L would be designated as transmission line 704L. The existing transmission line 704AL and the north portion of transmission line 704L would be redesignated as transmission line 408L. AltaLink proposed a Preferred Route, an Alternate Route, as well as a Preferred Variant Route and an Alternate Variant Route for the new transmission line.

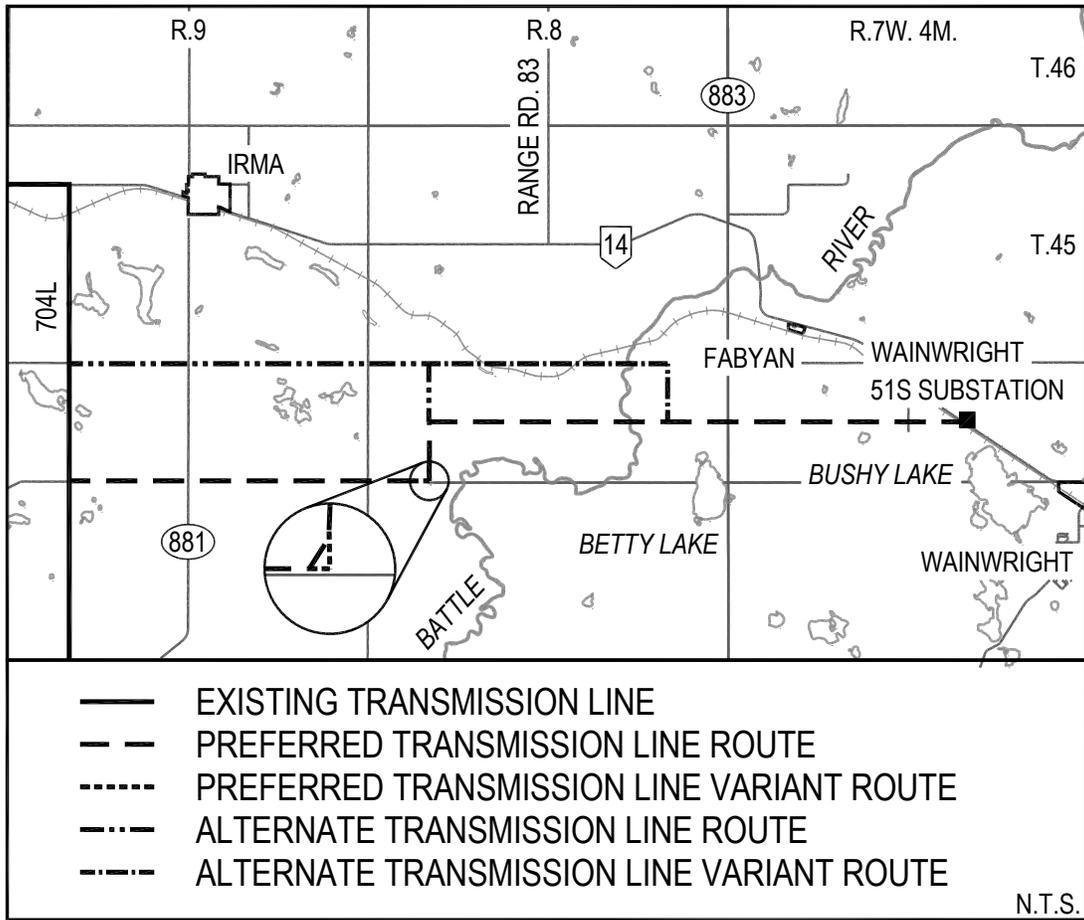


Figure 1 – AltaLink’s proposed transmission line routes

6.1 Consultation

28. AltaLink conducted a participant involvement program that began in October 2015 through which it notified more than 525 stakeholders including landowners, residents, encumbrance holders, Crown leaseholders, agencies and industry. In addition, AltaLink consulted with parties that were directly adjacent or within 100 metres of the substation or right-of-way boundaries.

29. AltaLink's participant involvement program consisted of two rounds of consultation that included notifying stakeholders followed by one-on-one consultation. AltaLink also held open houses for the project in Wainwright on November 24, 2015 and April 7, 2016.

30. Mr. Johnston expressed dissatisfaction with the consultation process that AltaLink conducted. He felt that AltaLink was indifferent towards his concerns and that there was no way that AltaLink would change its decision on the selection of the Preferred Route, stating that "the only opinion that mattered was the one that AltaLink wanted" and that "AltaLink was only out to talk to us because they were forced to."³

31. AltaLink submitted that it had consulted extensively with the Johnstons and had listened to and attempted to address their concerns. This included proposing taller structures near their residence to mitigate the visual effects, sending a technical team to measure electric and magnetic field levels at their property, and giving serious consideration to the Johnstons' proposal to site the line in parallel to transmission line 704AL, which ultimately became the Alternate Variant Route.

32. In response to concerns from the Johnstons, AltaLink also considered a route on the south side of Township Road 451 in order to increase the distance from the Johnston residence. AltaLink rejected this route because it would require two additional angle structures, additional tree clearing and would create new impacts whereas impacts associated with transmission line 61L already exist on the north side of the road.

6.1.1 Commission findings

33. The Commission described how it judges the effectiveness of a public consultation program in Decision 2011-436:

The Commission acknowledges that even a very effective consultation program may not resolve all intervenor concerns. This is not the fault of the applicant or the intervenor; it merely reflects the fact that the parties do not agree. With this in mind, the Commission will consider a consultation program to be effective if it meets AUC Rule 007 requirements and has allowed intervenors to understand the project and its implications for them, and to meaningfully convey to the applicant their legitimate concerns about the project.⁴

³ Exhibit 21857-X0094, Direct Evidence of the Johnston Group, PDF page 10.

⁴ AUC Decision 2011-436, Heartland Transmission Project, Proceeding 457, Application 1606609, November 1, 2011, paragraph 284.

34. The Commission considers that AltaLink's inclusion of the Alternate Variant Route at the Johnstons' request and its attempt to mitigate visual impacts in front of their home is strong evidence that AltaLink took the Johnstons' concerns seriously and made a real and meaningful attempt to mitigate those concerns.

35. The Commission finds that the participant involvement program undertaken by AltaLink meets the requirements of Rule 007. It is of the view that the participant involvement program was sufficient to communicate to potentially affected parties the nature and details of the project and some of the potential impacts of the project, and is also satisfied that the participant involvement program provided potentially affected parties the opportunity to ask questions and express their concerns.

6.2 Transmission line route options

36. AltaLink described its route selection as occurring in a staged process that consisted of conceptual, preliminary, detailed, and final siting stages. Throughout this process, AltaLink considered potential environmental, social, and economic effects to identify routes with low overall impacts.

37. AltaLink identified a study area, based on the locations of transmission line 704L, Wainwright 51S Substation, CFB Wainwright, with the goal of minimizing the length of the transmission line required unless additional line length would offset any impacts of the increased length. AltaLink identified existing linear disturbances and no-go areas, such as urban areas, airport setbacks, and large water bodies, in order to develop preliminary routes. Preliminary routes were presented to stakeholders in the first round of consultation, and AltaLink subsequently refined and evaluated these results in more detail in light of the additional information gathered during consultation.

38. AltaLink subsequently identified Preferred, Preferred Variant, and Alternate routes that it presented to stakeholders in a second round of consultation. It further refined these routes after the second round of consultation, and included an Alternate Variant Route based on the suggestions of Mr. Johnston.

39. AltaLink considered a double-circuit option that would consolidate the proposed transmission line with the existing 704AL Transmission Line. It discussed this option with the AESO and FortisAlberta Inc. and concluded that this would result in a less reliable solution and result in significantly higher costs. In order to avoid outages to the Wainwright 51S Substation, AltaLink would have to build a temporary line in order to use the existing alignment for transmission line 704AL or locate the double-circuit line in a new location.

40. Transmission line 61L is an existing 69-kV transmission line that was approved to be decommissioned and salvaged on January 25, 2017 in Decision 21810-D01-2017.⁵ AltaLink proposed to use the alignment for transmission line 61L for a significant portion of some of its proposed routes, as discussed below.

41. All of AltaLink's routes share a proposed routing for the eastern part of the project coming out of the Wainwright 51S Substation. The routes would follow the existing alignment of

⁵ Decision 21810-D01-2017, AltaLink Management Ltd. - Transmission Lines 61L and 61AL Removal, Proceeding 21810, Applications 21810-A001 to 21810-A003, January 25, 2017.

transmission line 61L. The Preferred Route, Preferred Variant Route, and Alternate Route continue along the alignment of transmission line 61L for another 5.7 kilometres, while the Alternate Variant Route travels north to parallel the existing transmission line 704AL. Further to the west, the Preferred and Preferred Variant routes run to the south, while the Alternate Route joins the Alternate Variant Route to the north to parallel transmission line 704AL for another 9.6 kilometres.

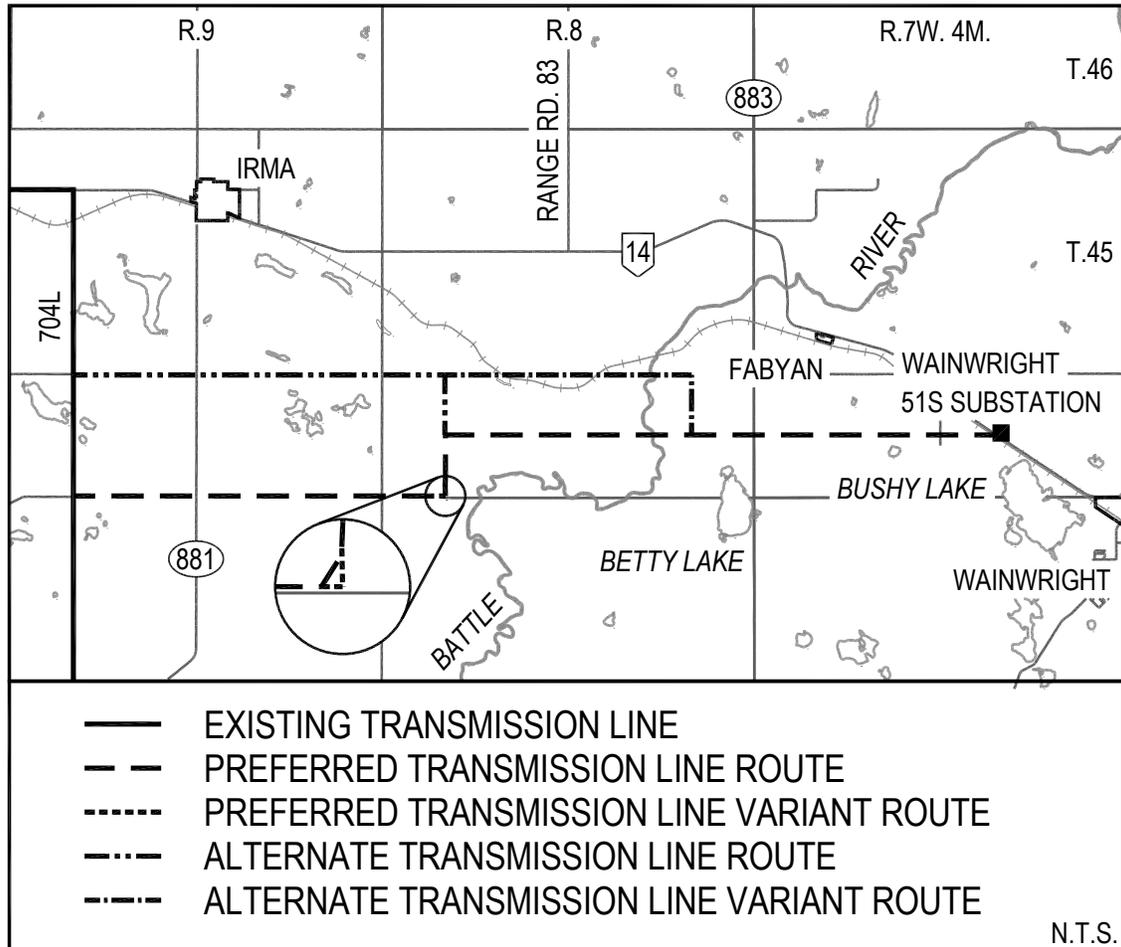


Figure 2 – AltaLink’s proposed transmission line routes

42. AltaLink summarized the various metrics of the different routes as follows:

Table 1. AltaLink's comparison of the route options⁶

		Preferred	Alternate	Alternate Variant
Agriculture				
Length of agricultural land crossed (km)	Crop	3.7	3.7	3.6
	Pasture	6.2	6.2	4.1
	Total	9.9	9.9	7.7
Residential				
Number of residences within 150 m of centreline		6	6	5
Number of residences within 800 m of centreline		23	23	23
Environmental				
Area of surface water in or within 800 m of centreline (ha)		13.9	39.9	43.0
Area of wetlands within 800 m of centreline (ha)		161.6	188.5	180.0
Treed area crossed (km)		1.4	1.4	2.8
Special Considerations				
Number of pipelines crossed		18	22	21
Number of pipelines paralleled (within 300 m)		3	4	2
Length of distribution line affected by the route (km)		2.4	0	0
Cost				
Cost (\$M)		17.7	17.8	18.6
Length of route (km)		26.0	26.1	26.1
Length of salvage of 61L/replacement with 704L (km)		13.9	13.9	8.2

43. AltaLink submitted that the Preferred Route had the potential for lower overall impacts than the Alternate Route because:

- It would avoid the placement of transmission lines on both sides of Township Road 452 for approximately 9.6 kilometres.

⁶ Exhibit 21857-X0018.01, AML Fortis Wainwright Transmission Reinforcement – Application, PDF pages 65 to 66.

- It would be further way from a Ducks Unlimited wetland complex located in the southeast quarter of Section 17, Township 45, Range 9, west of the Fourth Meridian.
- Stakeholder feedback was generally more supportive.
- It would allow for the removal of approximately 3.2 kilometres of existing transmission line 704L.⁷

44. AltaLink submitted that the Alternate Variant Route had the potential for higher overall impacts because:

- It would have higher potential environmental impacts, including additional water crossings, more native vegetation crossed and more tree clearing required.
- It would have higher potential constructability and access concerns due to the longer, steeper crossing of the Battle River Valley.
- It would have two additional rail line crossings.⁸

45. AltaLink submitted the following with regard to the comparison between paralleling a transmission line and replacing a transmission line:

AltaLink considers that replacing a retired facility on an existing route (i.e., the proposed replacement of 61L with the new transmission line) has less incremental impact on adjacent landowners than adding a second transmission line along an existing transmission line (i.e., adding a second 138 kV line along the existing 704AL line on the opposite side of the road allowance). Effectively, the latter involves constructing new facilities along a new route. Agricultural and residential land uses in proximity to retired transmission infrastructure that has been in place for many years have evolved in the presence of that infrastructure, whereas new routes (even parallel to existing transmission lines on the opposite side of a road allowance) create new impacts on stakeholders and land uses not previously exposed to a transmission line.⁹

46. AltaLink also included a Preferred Variant Route that follows quarter lines in the vicinity of the southeast quarter of Section 6, Township 45, Range 8, west of the Fourth Meridian where the Preferred Route cuts across a coulee at a diagonal. The Preferred Variant Route would result in additional tree clearing and constructability challenges and also had greater stakeholder opposition than the Preferred Route. AltaLink estimated that the Preferred Variant Route would cost approximately \$500,000 more than the Preferred Route because of additional engineering, access constraints, brushing and steep terrain.

47. The Johnston Group submitted that the Alternate Variant Route is the lowest impact route. It stated that the Alternate Variant Route would have less residential impact, having only five residences within 150 metres compared to six residences on the Preferred Route, Alternate Route, and Preferred Variant Route. The Johnston residence, in particular, would be located only 20 metres from the Preferred Route.

48. The Johnston Group identified that the Alternate Variant Route would parallel an existing transmission line for 16 kilometres while the Preferred Route does not parallel any existing

⁷ Exhibit 21857-X0018.01, AML Fortis Wainwright Transmission Reinforcement – Application, PDF page 64.

⁸ Exhibit 21857-X0018.01, AML Fortis Wainwright Transmission Reinforcement – Application, PDF page 65.

⁹ Exhibit 21857-X0082, AML Reply Evidence, PDF page 5.

transmission line. The Johnston Group submitted that this will mitigate effects to landowners such as residential and visual impacts, and will consolidate transmission line infrastructure to a single corridor which will minimize land fragmentation.

49. The Johnston Group argued that the Alternate Variant Route follows existing linear disturbances, such as developed roads and transmission lines, to a greater extent than the Preferred Route which follows more existing linear developments, such as quarter section lines and undeveloped road allowances, and emphasized the difference between a disturbance and a development.

50. The Johnston Group submitted that the Alternate Variant Route would have the least visual impact, adding that the Johnston residence would be the only residence within 150 metres of any route that would have an unobstructed view of the transmission line.

51. The members of the Johnston Group identified a range of impacts to themselves that would be avoided by selecting the Alternate Variant Route. These impacts are discussed in more detail in Section 6.3.

52. AltaLink identified that one of the residences within 150 metres of the Preferred Route is located where the Preferred Route would connect to the existing transmission line 704L, and that the existing transmission line is closer to that residence and would be removed as part of the 3.2 kilometres of transmission line that would be salvaged if the Preferred Route were approved.

53. AltaLink stated that it will be able to construct and maintain the transmission line along the Johnston Group members' properties from the road allowance and would not require additional rights-of-way from the Johnston Group members.

6.2.1 Commission findings

54. The Commission finds that the route selection process employed by AltaLink to develop the applied-for routes was reasonable and consistent with good routing practices. The Commission considers that each of the routes proposed is viable and observes that all of the routes share similar characteristics or attributes.

55. All of the alternatives proposed are similar in length and do not differ materially in cost. The majority of routes either parallel or replace an existing transmission line and are located within road allowances to minimize impacts to landowners. Further, the routes have similar agricultural impacts, none of which appear to be material.

56. Similarly, the Commission is satisfied that the residential impacts of each route are consistent: the preferred and alternate routes each have six residences within 150 metres and 23 residences within 800 metres, whereas the Alternate Variant Route has five residences within 150 metres and 23 residences within 800 metres. The more discrete residential impacts that are specific to particular locations along the transmission line are discussed in the subsequent section.

57. The metrics provided by AltaLink reveal some differences between the routes from an environmental perspective. Those differences are further explored in the section below on environmental impacts.

6.3 Landowner impacts

58. The Johnston Group raised concerns with electric and magnetic fields, noise, property value, visual impacts, safety, public access and future development.

6.3.1 Electric and magnetic fields

59. AltaLink retained Exponent, Inc., which prepared a report entitled Status Report on Electric and Magnetic Field Health Research 2010-2013.¹⁰ The report concluded that there is no evidence to suggest that extremely low frequency electric and magnetic fields are a cause of any long-term effects to human, plant, or animal health. AltaLink noted that the World Health Organization, Health Canada and other agencies have also reviewed extremely low frequency electric and magnetic field research and have come to the same conclusion.

60. AltaLink modelled the expected levels of electric and magnetic field levels for the proposed transmission line and determined that they would be significantly lower than the international guidelines for human exposure levels.

61. AltaLink measured the magnetic field outside the Johnstons' residence in 2016 to be between 0.4 and 0.8 milliGauss (mG) and submitted that the levels were similar to typical levels measured in homes. AltaLink also calculated the magnetic field levels at a distance of 20 metres from the proposed transmission line and concluded that the field would be at most 2.5 mG using conservative modelling assumptions and stated the conditions necessary for this level would only be expected to occur for a few hours a year. AltaLink stated that this is well below the international guidelines for human exposure of 2,000 mG.

62. Mr. Johnston expressed concerns about the health effects of electric and magnetic fields, submitting that the proposed transmission line would be only 20 metres from his home and would carry much higher loads than the existing transmission line 61L.

63. The Liboiron also voiced concerns about the health effects of electric and magnetic fields, indicating concerns about their grandchildren visiting the property and that their cattle tended to stay away from water near the existing power line.

6.3.2 Noise

64. AltaLink did not complete a noise impact assessment for the project. It stated that no continuous noise sources were part of the project, and that the audible noise levels from the proposed transmission line would be significantly below the assumed ambient sound level for rural areas.

65. Mr. Johnston testified that the existing transmission line 61L makes a considerable amount of noise and that because the new transmission line will carry more load, it will result in increased noise.

6.3.3 Visual impacts

66. The Johnstons submitted that with the Preferred Route only 20 metres from their house, there would be a significant visual impact, as they would see the transmission line from their

¹⁰ Exhibit 21857-X0037, AML Fortis Wainwright Transmission Reinforcement - Appendix O Electrical Considerations Information, Appendix O-2.

living room, kitchen and sun room. They stated that the current transmission line is bad enough but that the new transmission line would be taller and much worse.

67. The Johnston Group submitted that the Johnston residence would be the only residence within 150 metres of any route that would have a completely unobstructed view of the transmission line.

68. The Allens expressed that the transmission line would ruin the natural beauty of their land.

69. The Johnston Group argued that the visual impacts of the Alternate Variant Route could be mitigated by matching the structures with the structures of transmission line 704AL.

70. AltaLink submitted proposed additional measures to mitigate the impact on the Johnston property that included locating the structures where they would minimize visual impact and using taller structures to increase the elevation of the line where it crosses the Johnstons' viewscape.

6.3.4 Property value

71. AltaLink provided a report from Serecon Valuations Inc. (Serecon) entitled 138 kV Transmission Lines And Rural Property Values.¹¹ In this report, Serecon attempted to quantify the effects of a 138-kV transmission line on rural property values by performing a paired sales analysis. The report concluded that 138-kV transmission lines do not have a negative impact on rural property values in most instances. The report indicated that some factors may lead to a property having a greater potential for impact to property value. These were summarized as:

- Bareland property values have been less sensitive to 138-kV transmission lines than improved property values.
- Country residential and smaller property values are more sensitive to 138-kV transmission lines than agricultural and larger property values.
- Property values with parcels that have single-pole structures are less sensitive to 138-kV transmission lines than parcels with H-Frame structures.
- Parcels where the transmission line is located in a right-of-way over the property are more sensitive to 138-kV transmission lines than parcels where the transmission line is in the road allowance.¹²

72. AltaLink submitted that there will be minimal impact to the Johnstons' property value because the transmission line will be located in a road allowance and use single-pole structures, and because the Johnston property is a large agricultural property that is adjacent to an existing transmission line.

¹¹ Exhibit 21857-X0038, AML Fortis Wainwright Transmission Reinforcement - Appendix P Landowner Impacts, Appendix P-2.

¹² Exhibit 21857-X0038, AML Fortis Wainwright Transmission Reinforcement - Appendix P Landowner Impacts, Appendix P-2, PDF page 69.

73. The Johnstons submitted that the Preferred Route would have a negative effect on the value of their property. They believe that with the removal of transmission line 61L, the value of their property would increase and that replacing it with a larger 138-kV transmission line would have the opposite effect and actually decrease their property value. They submitted that people do not want to buy land with a transmission line so close to the property.

6.3.5 Other

74. The Johnston Group raised concerns about the risks of fires caused by the transmission line. It submitted that the existing transmission line had been the cause of a fire in the past.

75. The Johnstons expressed significant concern about the safety of the transmission line and the potential for the line or a structure to break and cause harm to them or damage to their property. They emphasized that the transmission line would be only 20 metres from their house.

76. AltaLink stated that the transmission line will be designed and constructed in accordance with all applicable guidelines and standards to operate safely and reliably, which are intended to prevent fires and other types of failures such as conductor breakage or pole failures. AltaLink submitted that the transmission line would incorporate a number of technical advances relative to transmission line 61L that would “all but eliminate the risk of fires”.¹³

77. The Liboiron and Allens expressed concerns that the transmission line would create additional access to their land for trespassers and recreational vehicles.

78. AltaLink submitted that where the Preferred Route and Preferred Variant Route are adjacent to Johnston Group members’ properties, they are located either in government road allowances or on private property to which AltaLink has acquired the right-of-way. It stated that it will not be creating any additional access to the lands owned by the Johnston Group that does not already exist. AltaLink added there is already a developed road allowance that leads to the Allen property and that the Preferred Route would span a treed valley from the west that would not result in any new access to the Allen property.

79. The Liboiron submitted that the transmission line would restrict their ability to develop their lands.

80. AltaLink submitted that the transmission line will be located in municipal road allowances and that the setback requirements for road allowances by the Municipality of Wainwright are equal to or exceed the setback requirements of the transmission line. AltaLink added that the members of the Johnston Group have not provided any evidence of concrete development plans and that the Commission has not given weight to conceptual developments in the past.

¹³ Transcript, Volume 2, page 277, line 4.

6.3.6 Commission findings

81. AltaLink's expert evidence on the topic of the health effects of electric and magnetic fields was uncontroverted by any other experts. Further, the Commission finds that the results of AltaLink's computer modelling of the electric and magnetic field levels associated with the transmission line are credible and accepts them.

82. The Commission is satisfied that the project meets the requirements of Rule 012: *Noise Control* based on the evidence submitted by AltaLink. It accepts that no continuous noise emitting components are being added as part of the project and finds that audible sounds produced by the project will be well below the permissible sound levels for rural areas as required by Rule 012.

83. The Commission acknowledges AltaLink's attempts to mitigate the visual impacts of the Preferred Route on the Johnston residence. The Johnstons indicated that their primary concern is about the safety hazard and that AltaLink's proposals to use taller structures and larger spans may increase this concern.

84. The Commission finds that Serecon's identification of specific factors that may result in a larger impact to property value was helpful because it allowed the Commission to assess individual aspects of the transmission line routing and design and individual aspects of a specific property rather than relying on broad conclusions about property value impacts. The Commission recognizes that the transmission line will predominantly use single-pole structures and will be located in road allowances and that these factors will mitigate the effects to property value. It also had regard for the fact that the proposed line would replace an existing transmission line that has been in front of the Johnston residence for more than 70 years.

85. However, given the proximity of the Johnston residence to the Preferred Route, the Commission is not prepared to accept that there will be no impact. It must consider the potential impacts to property value in light of the fact that if the Alternate Variant Route were approved, the Johnstons would have no transmission line in front of their property. Although the Commission finds that the Johnston property might experience an increase to property value in the absence of any transmission line, according to the evidence filed by Serecon, such an increase, if any, would be minimal.

86. The Commission accepts that AltaLink will design and construct the transmission line to applicable guidelines and standards and that this practice will mitigate the potential for any safety hazards, including conductor breaks, structure failures, and fires.

87. There is no evidence before the Commission to suggest that the transmission line will result in increased access to the Allens' or the Liboiron's properties. Further, there is no evidence to suggest that the transmission line will affect the future developments of the Johnston Group given the setbacks from the road allowance and the lack of any tangible development plans.

88. Overall, the Commission finds that because most of the length of the transmission line will be sited in road allowances and will either parallel or replace an existing transmission line, any impacts to most landowners from the transmission line along this route will be minimal. However, the Commission recognizes that the Preferred Route is located in very close proximity to the Johnston residence. Notwithstanding AltaLink's proposal to reduce visual impacts at that location, compared to existing circumstances, the Johnstons will be affected by the Preferred Route from the perspectives of property value and visual impact.

6.4 Environment

89. AltaLink stated that it assessed the environmental effects of the project by implementing a staged approach that integrated environmental considerations into the design. AltaLink retained CH2M Hill Energy Canada, Ltd. (CH2M) to prepare an environmental evaluation of the project. CH2M concluded that with the implementation of appropriate mitigation measures, all of the proposed routes and the substation alteration are environmentally satisfactory.¹⁴

90. AltaLink developed an Environmental Specifications and Requirements (ESR) document that outlines the mitigation measures that AltaLink will follow so that construction of the project is undertaken in an environmentally responsible manner. AltaLink stated that it would continue to update its ESR to reflect any additional requirements prior to starting construction. AltaLink anticipates that with the implementation of mitigation measures, the environmental effects of the project will be negligible.

91. CH2M stated that from an environmental perspective, the Preferred Route would have the lowest impacts but that the environmental differences between the Preferred Route, Preferred Variant Route, and Alternate Route are nominal. It submitted that the Alternate Variant Route would have greater potential environmental effects than the other routes.

92. CH2M specifically concluded that the Preferred Route would have the least amount of native vegetation and woody vegetation clearing and would have the least amount of disturbance to wildlife, wildlife habitat and vegetation. CH2M noted that the Alternate Route would be located within 19 metres of a Ducks Unlimited wetland complex and that the Preferred Route would cross the least amount of wetland habitat area. While the Alternate Route would cross two watercourses, the Preferred and Preferred Variant routes would cross three and the Alternate Variant Route would cross eight.

93. AltaLink submitted that the Alternate Variant Route would require crossing the Gratton Creek valleys and a longer and steeper crossing of the Battle River Valley, posing greater constructability concerns, including construction on side slopes that would result in higher erosion risks. AltaLink stated that when compared to the Preferred Route, the Alternate Variant Route would also make use of more H-frame structures, as opposed to single-pole structures.

94. AltaLink submitted that Alberta Environment and Parks representatives indicated that from a land use perspective, they preferred the alignment that follows the existing transmission line 61L right-of-way (the Preferred Route).

¹⁴ Exhibit 21857-X0035.01 AML Fortis Wainwright Transmission Reinforcement - Appendix M Environmental Evaluation, PDF page 92.

95. AltaLink added that relative to the Preferred Route, the Preferred Variant Route would require additional tree clearing and construction on steeper terrain because the Preferred Route spans a coulee and avoids the treed area.

96. The Johnston Group retained Cliff Wallis of Cottonwood Consultants Ltd. to assess the environmental effects of the routes for the proposed transmission line. Mr. Wallis prepared a report entitled Environmental Considerations for the Wainwright Transmission Reinforcement Development (Cottonwood report) and agreed that all routes are viable from an environmental perspective.¹⁵

97. Mr. Wallis's report focused on comparing the different routes and, in particular, the west portion of the Preferred and Alternate routes up to where they share a common alignment. Mr. Wallis stated there is no real comparability between the Preferred/Alternate routes and the Alternate Variant Route because the Alternate Variant Route would involve new disturbance in native and semi-native habitats whereas the Preferred Route and the Alternate Route would be replacing an existing disturbance. Mr. Wallis stated that if AltaLink had replaced transmission line 704AL with a double-circuit transmission line, there would have been no significant differences between the route options.

98. Mr. Wallis indicated that when comparing the west portion of the routes, the Preferred Route and Preferred Variant Route have provincial level environmentally significant areas (ESA) and aquatic ESAs that will be impacted. He noted that the quarter sections with ESAs that the Alternate Route would traverse along the western portion do not have features that would be affected by the transmission line.

99. Mr. Wallis submitted that paralleling existing transmission lines is an important consideration because it reduces land fragmentation. Mr. Wallis stated that the Alternate Route parallels an existing transmission line for a considerable distance while the Preferred Route does not parallel any length of transmission line.

100. Mr. Wallis concluded that the Alternate Route is preferable to the Preferred Route from an environmental perspective. Further, he submitted that because the Alternate Variant Route shares an alignment with the Alternate Route for the west portion, consideration should be given to the Alternate Variant Route although the environmental metrics favour the other route options for the central portion. He stated that with the mitigations proposed by AltaLink, the non-treed nature of much of the Alternate Variant Route, and the fact it parallels an existing transmission line for most of its length, the impacts of the Alternate Variant Route to biodiversity should be kept to an acceptable level.¹⁶

101. Mr. Wallis added that further consideration should be given to using a double-circuit transmission line to replace the existing transmission line 704AL.

¹⁵ Exhibit 21857-X0068, Intervener Evidence - Johnston Group, PDF page 17.

¹⁶ Exhibit 21857-X0094, Direct Evidence of the Johnston Group, PDF page 3.

102. AltaLink argued that the Cottonwood report did not take into account the fact that 3.2 kilometres of transmission line 704L would be removed if the Preferred Route were approved. AltaLink stated that this segment is situated near several wetlands, crosses one large wetland in Section 7, Township 45, Range 9, west of the Fourth Meridian, and that its removal would be beneficial from an environmental perspective.¹⁷

103. AltaLink submitted that the Cottonwood report's focus on the western portion rather than on the central portion of the transmission line routes excludes the most important comparison. It emphasized that the replacement of an existing line relative to a new disturbance that parallels a second line is a significant factor in reducing environmental impacts.

6.4.1 Commission findings

104. The Commission is satisfied that with the implementation of the proper mitigation measures, the environmental effects of the project will be minimal and that all routes proposed by AltaLink are viable from an environmental perspective.

105. The Commission finds that the Alternate Variant Route has the potential for the greatest environmental impacts, and recognizes that it will result in increased tree clearing, additional watercourse crossings, and greater environmental impacts associated with the steeper crossing of the Battle River Valley.

106. The Commission acknowledges the argument of the Johnston Group that consolidating the transmission line into one corridor may reduce fragmentation, but finds that in this instance, replacing an existing transmission line will ultimately mitigate the environmental impacts of the transmission line more effectively than paralleling an existing transmission line in a new alignment.

107. The Commission considers the fact that Cottonwood did not do a detailed evaluation of the central portion of the routes to be a significant omission. It finds that Mr. Wallis' reasoning that there was a "lack of real comparability between the Alternate Route Variant which involves new disturbance in native and semi-native habitats and the Preferred/Alternate Route ... which involves replacement of an existing line with minimal new disturbance"¹⁸ to be a clear indicator of the greater environmental impacts of the Alternate Variant Route.

108. The Commission finds that the Preferred Route and the Alternate Route are similar from an environmental perspective, and that the additional salvage of 3.2 kilometres of transmission line and the fact the Preferred Route will cross fewer wetlands indicates that the Preferred Route is slightly favoured in terms of the environment.

109. Further, because of the increased tree clearing and the construction on steeper terrain, the Commission finds that the Preferred Variant Route has greater environmental impacts than the Preferred Route.

6.5 Approved route and substation

110. The Commission is satisfied that the facility applications are consistent with and meets the need identified in the NID application.

¹⁷ Transcript, Volume 2, page 266, lines 7-12.

¹⁸ Exhibit 21857-X0068, Intervener Evidence – Johnstone Group, PDF page 43.

111. The Commission considers that the Preferred Route will have the least overall impacts on area residents and the landscape, and finds that siting the transmission line in the alignment of the existing transmission line 61L will mitigate the impacts of the transmission line more effectively than paralleling an existing transmission line in a new alignment along the Alternate Variant Route. The Commission also agrees that landowners and the environment have adapted to having a transmission line along that alignment and that replacing transmission line 61L with the proposed transmission line will better mitigate impacts to landowners and to the environment.

112. The Commission also finds that the Preferred Route, which has the lowest estimated cost, has the least environmental impacts of the routes, and that it will have lower impacts than the Preferred Variant Route because of its lower costs and will have less effect on the environment, including reduced tree clearing.

113. The Commission recognizes that approval of the Preferred Route will result in continued visual impacts for the Johnstons and that its ongoing presence adjacent to their property may have property value implications. However, the Commission finds that AltaLink has proposed effective steps to mitigate those impacts to the extent possible with the use of larger structures and a commitment to locate the poles where they will minimize visual impact in front of the Johnston residence.

114. As mentioned earlier, the Johnstons also expressed concerns with their own health and safety given the proximity of their home to the proposed transmission line. Based on the modelling performed by AltaLink, the Commission finds that the magnetic field produced by the transmission line will be consistent with typical background levels. The Commission observes that the use of taller structures near the Johnston residence may further reduce the magnetic fields at their home given that such fields diminish rapidly with distance.

115. The Commission acknowledges the Johnstons' reluctance, at the hearing, to endorse the use of taller structures near their home because of their concern that the poles could fall and the longer length of conductor could wrap around their home. The Commission directs AltaLink to further consult with the Johnstons to confirm whether they support the use of taller structures near their home.

116. The Commission recognizes no concerns were raised with respect to the Wainwright 51S Substation alterations. It finds that there are no environmental, social or economic impacts from the proposed alterations that would indicate that the alterations are not in the public interest and consequently approves the alterations to the Wainwright 51S Substation.

117. Given the considerations discussed above, the Commission finds the project and its Preferred Route, to be in the public interest pursuant to Section 17 of the *Alberta Utilities Commission Act*.

7 Decision

118. Pursuant to Section 34 of the *Electric Utilities Act*, the Commission approves the need outlined in Needs Identification Document Application 21857-A001 and grants the AESO the approval set out in Appendix 1 – Needs Identification Document Approval 21857-D02-2017 – April 28, 2017.

119. Pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the facility applications and grants AltaLink the approvals set out in the following appendices:

- Appendix 2 – Alter Wainwright 51S Substation - Permit and Licence 21857-D03-2017.
- Appendix 3 – Alter Transmission Line 704L - Permit and Licence 21857-D04-2017.
- Appendix 4 – Transmission Line 408L - Permit and Licence 21857-D05-2017.

120. The appendices will be distributed separately.

Dated on April 28, 2017.

Alberta Utilities Commission

(original signed by)

Anne Michaud
Panel Chair

(original signed by)

Kate Coolidge
Acting Commission Member

Appendix A – Proceeding participants

Name of person or group counsel or representative
AltaLink Management Ltd. B. Hunter J. Liteplo
Johnston Group N. Ramessar

Appendix B – Oral hearing – registered appearances

Name of organization (abbreviation) counsel or representative	Witnesses
AltaLink Management Ltd. B. Hunter J. Liteplo	K. Deane I. Johnstone W. Mundy M. Van Wyk
Johnston group N. Ramessar	J. Allen M. Allen E. Johnston W. Johnston J. Liboiron K. G. Liboiron

<p>Alberta Utilities Commission</p> <p>Commission Panel A. Michaud, Panel Chair K. Coolidge, Acting Commission Member</p> <p>Commission Staff J.P. Mousseau (Commission Counsel) T. Richards</p>
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Appendix C – Abbreviations

Abbreviation	Name in full
AESO	Alberta Electric System Operator
AltaLink	AltaLink Management Ltd.
AUC or the Commission	Alberta Utilities Commission
CH2M	CH2M Hill Energy Canada, Ltd.
EMF	Electric and magnetic fields
ESA	Environmentally Significant Area
ESR	Environmental Specifications and Requirements
EUB or the Board	Alberta Energy Utilities Board
kV	kilovolt
mG	milliGauss
MVA	Megavolt-ampere
NID	Needs identification document
Rule 007	<i>Rule 007: Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments</i>
Rule 012	<i>Rule 012: Noise Control</i>
Serecon	Serecon Valuations Inc.