



**AltaLink Management Ltd.**

**South and West of Edmonton Area Transmission Development  
Harry Smith Development**

**July 28, 2016**

**Alberta Utilities Commission**

Decision 20987-D01-2016

AltaLink Management Ltd.

South and West of Edmonton Area Transmission Development

Harry Smith Development

Proceeding 20987

Applications 20987-A001 to 20987-A011

July 28, 2016

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## **1            Decision summary**

1.        In this decision, the Alberta Utilities Commission must decide whether to approve AltaLink Management Ltd.'s (AltaLink) applications to construct and operate the South and West of Edmonton Area Transmission Development - Harry Smith Development. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission approves the Harry Smith Development preferred transmission line routes and preferred substation location, subject to the following condition:

- Prior to construction of new transmission lines 1043L and 1139L, AltaLink must file a report with the Commission indicating whether the transmission lines will impact the Parkland Airport's obstacle limitation surface under TP312 Aerodrome Standards and Recommended Practices, 4th Edition and 5th Edition. The report shall include structure heights, locations, and ground elevations used in the analysis. The Commission will then decide if further process is necessary.

2.        In reaching the determinations set out in this decision, the Commission has considered all relevant materials comprising the record of this proceeding, including the evidence, argument, and reply argument provided by each party. Accordingly, references in this decision to specific parts of the record are intended to assist the reader in understanding the Commission's reasoning relating to a particular matter and should not be taken as an indication that the Commission did not consider all relevant portions of the record with respect to that matter.

## **2            Introduction**

3.        On October 30, 2015, AltaLink filed applications with the Commission, pursuant to sections 14, 15, 19, 21 and 34 of the *Hydro and Electric Energy Act*, for approval to construct and operate the South and West of Edmonton Area Transmission Development - Harry Smith Development and connect it to the Alberta Interconnected Electric System (the Harry Smith Development or the project).

4.        The applications for the Harry Smith Development were registered as Proceeding 20987.

5.        On March 29, 2016, AltaLink filed an amendment to its applications to include an application to alter the existing Stony Plain 434S Substation by replacing its telecommunications tower.

6.        A number of interested parties who own, reside or have an interest in land within the vicinity of the Harry Smith Development expressed concerns with the applications. As a result, the Commission held a public hearing in Edmonton from May 10, 2016 to May 12, 2016.

### 3 Background

#### 3.1 Applications overview

7. On February 28, 2013, pursuant to Section 35(1) of the *Electric Utilities Act*, the Alberta Electric System Operator (AESO) directed AltaLink to prepare and submit a facility application to the AUC to meet the need identified in the AESO's needs identification document (NID) application. On September 1, 2015, after the Commission approved the AESO's NID application in Decision 2014-126<sup>1</sup> and NID Approval U2014-183,<sup>2</sup> the AESO issued to AltaLink a notice to file a transmission facility application pursuant to Section 35(1) of the *Electric Utilities Act*.

8. As stated above, AltaLink filed facility applications with the AUC on October 30, 2015, registered as Proceeding 20987, pursuant to sections 14, 15, 19, 21 and 34 of the *Hydro and Electric Energy Act* to meet the need identified by the AESO. The applications for the Harry Smith Development sought approval to:

- Construct a new substation designated as Harry Smith 367S Substation.
- Construct two new 138-kilovolt (kV) transmission lines, designated as 446L and 453L, between Harry Smith 367S Substation and existing Acheson 305S Substation.
- Construct one new 138-kV transmission line, designated as 452L, between Harry Smith 367S Substation and Stony Plain 434S Substation.
- Alter existing Transmission Line 739L and:
  - Redesignate the portion of Transmission Line 739L between the connection point with Transmission Line 452L and the Stony Plain 434S Substation as Transmission Line 452L.
  - Salvage existing Transmission Line 739L from the connection point with Transmission Line 452L and Acheson 305S Substation.
  - Redesignate the portion of Transmission Line 739L between Stony Plain 434S Substation and Carvel 432S Substation as Transmission Line 790L.
- Redesignate Transmission Line 739AL as Transmission Line 790AL.
- Alter Acheson 305S Substation by adding two 138-kV circuit breakers, expanding the substation and re-terminating Transmission Line 739L (connecting Devon 14S, Blackmud 155S and Acheson 305S substations) in a new bay.
- Construct new 240-kV Transmission Line 1043L between Harry Smith 367S Substation and existing Transmission Line 1043L.

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<sup>1</sup> Decision 2014-126: Alberta Electric System Operator, South and West Edmonton Area Transmission System Reinforcement Needs Identification Document, Proceeding 2303, Application 1609123, May 5, 2014.

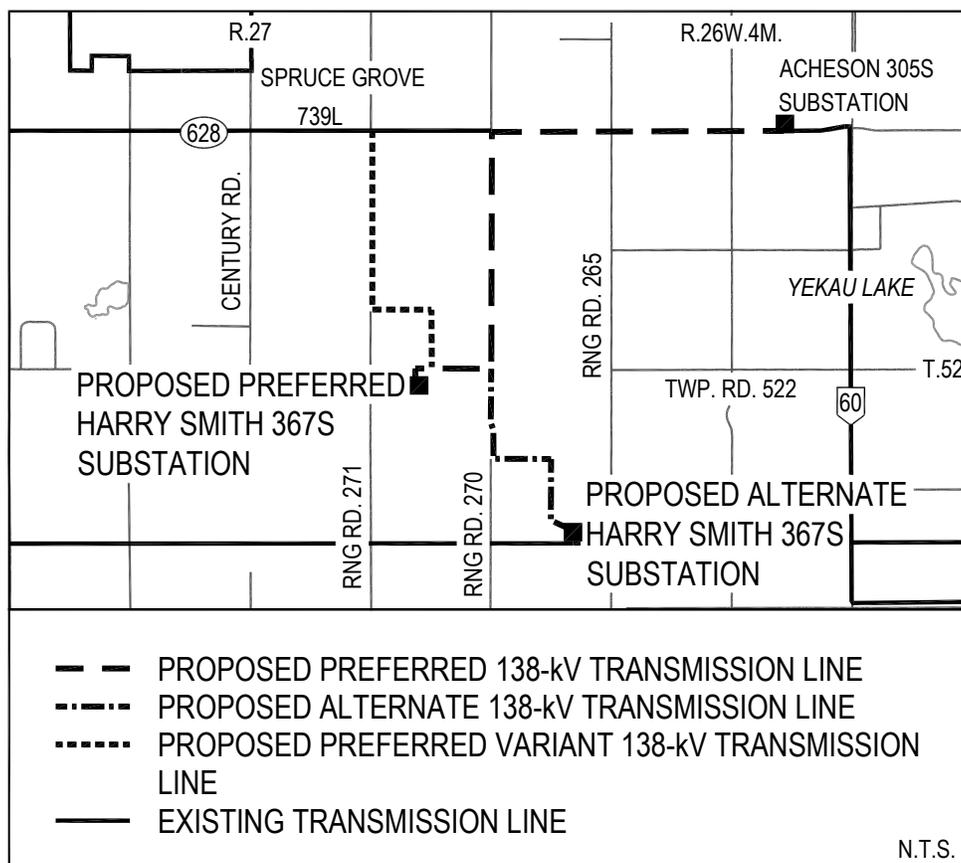
<sup>2</sup> Needs Identification Document Approval U2014-183, Proceeding 2303, Application 1609123, May 5, 2014.

- Construct new 240-kV Transmission Line 1139L between Harry Smith 367S Substation and existing Transmission Line 1043L and redesignate AltaLink’s portion of existing Transmission Line 1043L between the connection point and Petrolia 816S Substation as Transmission Line 1139L.
- Alter the existing Stony Plain 434S Substation by replacing the existing 15-metre tall wood telecommunications tower located outside the substation fenceline with an 18-metre steel telecommunications tower located within the substation fenceline.

9. In its applications, AltaLink proposed a preferred route, a preferred variant route and an alternate route for the Harry Smith Development’s proposed transmission lines.

10. AltaLink proposed two substation locations which it referred to as the preferred and alternate substation locations. The proposed preferred Harry Smith 367S Substation would be connected to the Alberta Interconnected Electric System by either the preferred route or the preferred variant route. The preferred Harry Smith 367S Substation location would be in the northwest quarter of Section 12, Township 52, Range 27, west of the Fourth Meridian. The proposed alternate Harry Smith 367S Substation would be connected to the Alberta Interconnected Electric System by the alternate route. The proposed alternate Harry Smith 367S Substation location would be in the northeast quarter of Section 6, Township 52, Range 26, west of the Fourth Meridian.

11. The following map shows AltaLink’s proposed route options for 138-kV transmission lines 452L, 446L and 453L:



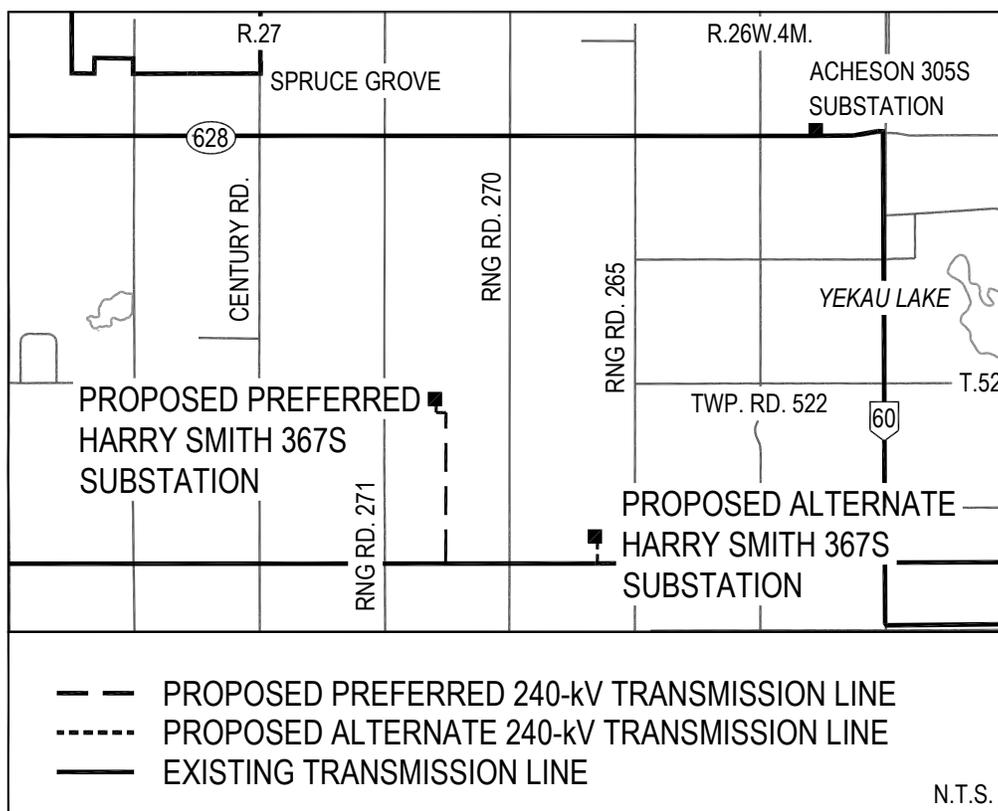
12. For the 138-kV portion of the preferred route, transmission lines 452L, 446L and 453L were proposed to share triple-circuit monopole structures. The transmission lines would commence at the preferred Harry Smith 367S Substation location, and generally parallel Range Road 270 until they reached Highway 628. The structures would be either located on private property or in the road allowances of Range Road 270 and Highway 628. A 20-metre right-of-way would be required for transmission lines 452L, 446L and 453L where the structures were proposed on private land. Where the structures were proposed to be located one metre into the road allowance, there would be a 10-metre right-of-way on adjacent private property.

13. The preferred variant route would be sited in the same locations as the preferred route with an additional route segment along Range Road 271. Transmission lines 446L and 453L were proposed to share double-circuit monopole structures commencing at the preferred Harry Smith 367S Substation location, and would generally parallel Range Road 270 until they reached Highway 628. Transmission Line 452L was proposed on its own single-circuit monopole structures along Range Road 271 (the Pioneer Road) until it reached Highway 628. AltaLink would acquire a 20-metre right-of-way for the double-circuit 446L and 453L transmission line. An additional 20-metre right-of-way would be required for Transmission Line 452L. Where structures for both transmission lines 446L and 453L as well as Transmission Line 452L would be located one metre into the road allowance of Range Road 270 and Range Road 271 respectively, AltaLink would require a 10-metre right-of-way on adjacent private property.

14. For the 138-kV portion of the alternate route, transmission lines 452L, 446L and 453L were proposed to share triple-circuit towers. The alternate route would commence at the alternate Harry Smith 367S Substation location, and generally parallel Range Road 270 until it reached Highway 628. The structures would either be located on private property or in the road allowance of Range Road 271. Similar to the preferred route options, a 20-metre right-of-way for transmission lines 452L, 446L and 453L would be required where these transmission lines would be sited on private property. Where the structures would be located within the road allowance, AltaLink would require a 10-metre right-of-way on adjacent private property.

15. For all proposed routes, Transmission Line 452L would connect with Transmission Line 739L and ultimately connect to the Stony Plain 434S Substation. Transmission lines 446L and 453L would connect to the Acheson 305S Substation. Construction of transmission lines 446L and 453L would require salvaging of a portion of Transmission Line 739L and replacing it with double-circuit structures to house transmission lines 446L and 453L. The portion of Transmission Line 739L being salvaged would depend on whether the preferred, preferred variant or alternate routes were approved.

16. AltaLink proposed one route option for the preferred and preferred variant route for the 240-kV transmission lines 1043L and 1139L (the 240-kV preferred route). One route option was also proposed for the 240-kV portion of the alternate route. Each of the 240-kV transmission lines would connect the proposed Harry Smith 367S Substation to the existing portion of Transmission Line 1043L. The following map shows AltaLink's proposed route options for transmission lines 1043L and 1139L:



17. For both the preferred and alternate 240-kV routes, transmission lines 1043L and 1139L were proposed to be constructed using single-circuit H-frame structures. The new rights-of-way for the transmission lines 1043L and 1139L would be a total of 60 metres wide (one 30-metre right-of-way for each transmission line).

### 3.2 Notice of applications and hearing

18. The Commission issued a notice of applications for Proceeding 20987 on November 13, 2015. 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 Spruce Grove Examiner on November 20, 2015, and on the AUC website. In the notice of applications, the Commission directed any person who had concerns about or objections to the applications, or who wished to support the applications, to file a statement of intent to participate by December 18, 2015. The notice also informed interested persons that an information session would be held by AUC staff on December 9, 2015.

19. The Commission issued a notice of hearing on February 8, 2016. The notice was mailed directly to residents, market participants, agencies and other interested parties in the vicinity of the project. The notice was also published on the AUC website. It informed interested persons that a hearing was scheduled to commence on May 10, 2016, and outlined the process schedule leading up to the hearing.

20. On March 29, 2016, AltaLink filed an amendment to its applications. On April 6, 2016, the notice of hearing was reissued to the new stakeholders potentially affected by the amendment.

### 3.3 Participants in the proceeding

21. Pursuant to Section 9(2) of the *Alberta Utilities Commission Act*, the Commission must hold a hearing on an application if it determines that persons who have registered in the proceeding have demonstrated that they have rights that may be directly and adversely affected by the Commission’s decision on the applications filed. A person who demonstrates the potential for direct and adverse effect is said to have “standing”. On January 18, 2016,<sup>3</sup> and February 11, 2016,<sup>4</sup> the Commission issued rulings on the standing in relation to Proceeding 20987. The Commission granted standing to the Pioneer Road Group (PRG), the Parkland Airport Development Corp. (PADC), and the Gilgen Group. Each of the parties is discussed below.

#### 3.3.1 The PRG

22. The PRG consists of landowners, residents, families, and a business, who own, reside on, or rent lands within 800 metres of the Harry Smith Development:

**Table 1. Members of the PRG**

Name	Legal land location
Bromley, Dian	NE 14-52-27-W4M
Johnston, Mark	NE 14-52-27-W4M
Keltie, Bruce	NE 14-52-27-W4M
Keltie, Donald	NE 14-52-27-W4M
Keltie, Gene	NE 14-52-27-W4M
Keltie, Harlee	NE 14-52-27-W4M
Keltie, Roxanne	NE 14-52-27-W4M
Lewis Farms Ltd. (Ken, Corrie, Jack and Sandy Lewis)	N 1/2 1-52-27-W4M SW 12-52-27-W4M NE 6-52-27-W4M
Netzlaff, Art and Jacquie	SE 14-52-27-W4M
Ross, Lorraine	SW 24-52-27-W4M NW 13-52-27-W4M
Ross, Donald	SW 24-52-27-W4M NW 13-52-27-W4M
Trueman, Margaret	NE 14-52-27-W4M
Trueman, Ashley	NE 14-52-27-W4M
Trueman, Shauna	NE 14-52-27-W4M

23. Members of the PRG are generally located along the preferred variant route, with the exception of Lewis Farms Ltd. (Lewis Farms). Specifically, members of the PRG have interests in land near Range Road 271, which is also referred to as Pioneer Road. Lewis Farms owns land on the preferred route, the preferred variant route and the alternate route.

24. The PRG members’ expressed concerns about routing, residential and social impacts, property value, environmental considerations, agricultural impacts, construction impacts, land use and land development impacts, and consultation issues. These topics are addressed with more detail in their respective sections of the decision.

<sup>3</sup> Exhibit 20987-X0077, AUC Ruling on Standing.

<sup>4</sup> Exhibit 20987-X0089, AUC Ruling on Standing - 2016-02-11.

25. The PRG questioned whether AltaLink provided the Commission with sufficient information to determine if this project is in the public interest. Specifically, it questioned whether sufficient or adequate information was provided in AltaLink's materials to permit a full and satisfactory understanding of the issues at hand to adequately assess the full extent of the impacts of the project.

26. The PRG requested that AltaLink's applications for the Harry Smith Development not be approved.

27. In the alternative, the PRG requested that the Commission not approve the 240-kV preferred route and preferred substation location.

28. In the further alternative, the PRG requested that the Commission approve the 240-kV transmission line alternate route and alternate substation location.

29. In the further alternative, the PRG requested that the Commission approve the 240-kV transmission line alternate route and alternate substation location on the condition that the transmission line be buried underground as it passes the west end of the Parkland Airport.

30. In the further alternative, the PRG requested that the Commission approve the 138-kV preferred route from nodes E35 to E50.

31. At the hearing, Ken Lewis of Lewis Farms; Lorraine Ross;<sup>5</sup> Margaret Trueman, on behalf of herself and Donald Keltie; and Jacquie Netzlaff testified as the PRG landowner witness panel.

### **3.3.2 The PADC**

32. The PADC operates the Parkland Airport and opposed the Harry Smith Development. The Parkland Airport is located in the south half of Section 7, Township 52, Range 26, west of the Fourth Meridian. Its concerns were related to the single-circuit 240-kV transmission lines 1043L and 1139L of the preferred route and the triple-circuit 138-kV transmission lines 452L, 446L and 453L of the alternate route, which were proposed west of the Parkland Airport.

33. The PADC requested that the Commission deny the applications. In the alternative, the PADC requested that the Commission approve the preferred route.

34. Robert Gilgen testified as president of the PADC and on behalf of the Gilgen Group.

### **3.3.3 The Gilgen Group**

35. The Gilgen Group is comprised of Robert Gilgen and Silke Gilgen who own property off Range Road 270 north of the Parkland Airport in the northwest quarter of Section 7, Township 52, Range 26, west of the Fourth Meridian. The Gilgen Group expressed concerns with the potential health impact from electromagnetic fields and potential decrease in property value.

36. The Gilgen Group was opposed to the alternate route and requested that the Commission deny the AltaLink applications.<sup>6</sup>

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<sup>5</sup> Ms. Ross and Mr. Ross were also the executors of the estate of Lydia Ross.

<sup>6</sup> Transcript, Volume 1, pages 202-203, lines 24-8.

### 3.4 Hearing

37. The hearing commenced on May 10, 2016, in Edmonton, Alberta before a Commission panel comprised of Panel Chair Tudor Beattie, QC, and Commission members Neil Jamieson and Bill Lyttle.

38. The hearing concluded with oral argument and reply argument on May 12, 2016. The Commission considers May 12, 2016 to be the date of the close of record for Proceeding 20987.

## 4 Need

39. 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.

40. The AESO is responsible for preparing a NID and filing the NID with the Commission for approval.

41. 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 Parkland County 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.

42. In this case, the AESO filed a NID for the South and West Edmonton Area Transmission System Reinforcement. The Harry Smith Development was one component of the South and West Edmonton Area Transmission System Reinforcement. On May 5, 2014, the Commission issued Decision 2014-126 and NID Approval U2014-183, approving the need for the South and West Edmonton Area Transmission System Reinforcement Needs Identification Document as applied for by the AESO.

43. The applications for the Harry Smith Development are one of the components in the South and West Edmonton Area Transmission System Reinforcement. NID Approval U2014-183 outlines the Harry Smith Development component as follows:

The project consists of the following system developments:

1. Construct a new 240/138-kilovolt (kV) substation, to be designated as Harry Smith 367S, in the vicinity of the town of Stony Plain.
  - a. Add associated 240-kV and 138-kV transmission lines to connect Harry Smith 367S substation to existing lines 1043L and 739L and the existing Acheson 305S substation.
  - ...
5. Additional potential modifications to existing substations in the area including equipment or device changes as described in the application.<sup>7</sup>

<sup>7</sup> Needs Identification Document Approval U2014-183, Proceeding 2303, Application 1609123, May 5, 2014, pages 1-2.

44. No party to the proceeding questioned whether AltaLink's applications met the need identified by the AESO and approved in Decision 2014-126 and NID Approval U2014-183.

45. The Commission finds that AltaLink's facility applications to construct and operate the Harry Smith Development are consistent with the need identified by the AESO and approved by the Commission in Decision 2014-126 and NID Approval U2014-183.

## **5 Consultation**

### **5.1 Views of AltaLink**

46. AltaLink commenced its participant involvement program for the Harry Smith Development in May of 2013.

47. As part of its participant involvement program, which included three rounds of consultation, AltaLink sent project-specific information packages to stakeholders located within 1,000 metres of the project and held two open houses on September 24, 2013 and March 25, 2014, at the Sandhills Recreation Centre. It consulted face-to-face, by email or by telephone with more than 80 landowners, occupants, and residents on, or directly adjacent to, the Harry Smith Development's proposed sites and right-of-way boundaries. It also provided updates in response to changes to the project due to ongoing engineering and the March 2016 project amendment.

48. Overall, more than 160 landowners, occupants, and residents; local, regional, and provincial government representatives, officials and departments; industry; interest groups and associations; as well as other parties that expressed an interest in the Harry Smith Development were notified. In argument, counsel for AltaLink submitted:

Each of the landowners that AltaLink approached for consultation was consulted. No stakeholder declined to consult with AltaLink, and they were able to reach everyone, which was remarkable in this case.<sup>8</sup>

49. AltaLink stated that stakeholder issues, concerns, and input were taken into account in selecting the preferred and alternate substation locations and the proposed transmission line routes. Stakeholder input was also taken into account when choosing transmission line structure locations and identifying site-specific constraints and potential mitigation measures.

50. With respect to its consultation with the PADC, AltaLink stated that its consultation records showed that Sean Heffernan, AltaLink Senior Right-of-Way Planner, and a member of its witness panel, spoke to the PADC vice-president on or before August 8, 2013. This was in the early stages of the project's development. At that time, Mr. Heffernan provided the PADC with the project-specific information package, which included maps showing route options both along the west and the east side of the proposed Parkland Airport. Mr. Heffernan requested and received information about the plans for the Parkland Airport two days prior to the PADC closing on the sale of the land and prior to any construction occurring. In argument, AltaLink

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<sup>8</sup> Transcript, Volume 3, page 457, lines 20-24.

submitted that it continued to consult with the PADC throughout the project as shown in its project consultation materials.<sup>9</sup>

51. AltaLink also asserted that it continued to consult with Transport Canada throughout the application process; however, communication had not occurred for a while.<sup>10</sup> Mr. Heffernan testified that AltaLink would continue to consult with Transport Canada if the alternate route were to be approved.

52. Based on its participant involvement program, AltaLink submitted that it had exceeded the consultation requirements contained in the Commission's Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*.

## 5.2 Views of the interveners

53. The PRG submitted that consultation was inadequate and that AltaLink did not address its members' concerns raised during consultation.<sup>11</sup> It submitted that "AltaLink was either unable or unwilling to fully and adequately address the concerns of the group regarding the proposed project."<sup>12</sup>

54. In addition to the PRG's collective concerns about consultation, members of the PRG, namely Lewis Farms and Mr. and Ms. Netzlaff, identified specific concerns regarding AltaLink's consultation with them.

55. Lewis Farms was dissatisfied with AltaLink's consultation regarding the alternate substation location, which was proposed to be located on its property. Ken Lewis testified on behalf of Lewis Farms at the hearing. According to Mr. Lewis, AltaLink did not discuss options for the alternate substation location, which was proposed to be located on Lewis Farms' lands, in as much detail as the preferred substation location. No option to purchase the alternate substation location lands was acquired and, unlike the preferred substation location, AltaLink had not examined any reconfiguration alternatives to minimize the size of the location.<sup>13</sup>

56. Mr. and Ms. Netzlaff explained that they met with an AltaLink representative to discuss the project but there were questions that AltaLink could not answer. Ms. Netzlaff submitted that AltaLink was not clear when describing the locations and amount of tree clearing, bush removal and fence removal required on their property if the preferred variant route were to be constructed. Ms. Netzlaff testified that "[t]hey weren't clear on anything."<sup>14</sup>

57. The PADC also raised concerns with AltaLink's consultation. According to the PADC, very little consultation with it occurred after the initial meetings. AltaLink's consultation record showed that the PADC provided all plans, specifications, and promotional materials concerning

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<sup>9</sup> Transcript, Volume 3, pages 543-544, lines 12-1.

<sup>10</sup> Transcript, Volume 3, pages 543-544, lines 12-1.

<sup>11</sup> Transcript, Volume 3, page 531, lines 12-15.

<sup>12</sup> Transcript, Volume 3, page 532, lines 4-8.

<sup>13</sup> Transcript, Volume 3, page 531, lines 21-24.

<sup>14</sup> Transcript, Volume 2, page 356, lines 9-10.

the Parkland Airport's development to AltaLink. The PADC submitted that this was the end of AltaLink's consultation with it.<sup>15</sup>

58. The PADC contested that its development plans were not taken into account in AltaLink's route determination process. Instead of proposing routes that took the Parkland Airport into account, AltaLink hired an expert to draft a report which confirmed that the alternate route, if constructed, would impact the Parkland Airport. The PADC argued that there was "improper consultation" with the PADC.<sup>16</sup>

### 5.3 Commission findings

59. A participant involvement program is effective if it meets Rule 007 requirements and has allowed stakeholders an opportunity to understand the proposed transmission facility and its potential impacts. It is a mechanism for stakeholders to express their concerns about the project and to provide site-specific input in an effort to reduce the impacts of the project. However, an effective participant involvement program may not resolve all stakeholder concerns.

60. Although the Commission acknowledges the concerns expressed by interveners regarding AltaLink's consultation, it must assess the participant involvement program as a whole, in light of the nature and scope of the project.

61. For the reasons that follow, the Commission finds that potentially affected parties were provided with sufficient information from AltaLink to understand the Harry Smith Development and were given opportunities to express their concerns during the course of the participant involvement program.

62. The Commission understands, that during consultation with Mr. and Ms. Netzlaff, AltaLink had not finalized structure placement and therefore it would not have been able to provide specific answers to some inquiries. Similarly, with respect to Lewis Farms' concerns, the Commission understands that AltaLink has not conducted detailed engineering for the alternate route or the alternate substation location. The Commission considers that the fact that some project information was unknown at the time that consultation took place does not mean that effective consultation has not occurred. Rather, the Commission considers whether AltaLink made efforts to identify stakeholders concerns and to provide relevant information to stakeholders as such information became available. Based on the evidence presented on the record of the proceeding, the Commission finds that AltaLink's consultation with members of the PRG was sufficient in the circumstances and met the requirements of Rule 007.

63. The Commission accepts AltaLink's evidence that it notified and consulted with stakeholders in and around the project area and continued to send project updates to stakeholders as the project planning progressed. With regard to the PADC, the Commission is of the view that adequate information was provided to the PADC for it to understand the project and the potential impacts to the Parkland Airport.

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<sup>15</sup> Transcript, Volume 3, pages 493-494, lines 6-5.

<sup>16</sup> Transcript, Volume 3, pages 501-502, lines 21-2.

64. The Commission finds that AltaLink's participant involvement program was conducted in accordance with Rule 007 and is satisfied that, overall, the program was inclusive and comprehensive.

## **6 Electrical considerations**

### **6.1 Views of AltaLink**

65. AltaLink retained Exponent, Inc., which prepared a February 2014 report entitled "Status Report on Electric and Magnetic Field Health Research 2010-2013"<sup>17</sup> and a September 2011 report entitled "Research Developments Since the 2007 WHO Review of Extremely Low Frequency Electric and Magnetic Fields & Health."<sup>18</sup> The reports 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.<sup>19</sup>

66. AltaLink used the Corona and Field Effects program to model the expected levels of electric and magnetic field levels for the proposed 138-kV and 240-kV transmission lines in the Harry Smith Development. AltaLink predicted the following measurements:

- For the proposed single-circuit 240-kV transmission lines 1043L and 1139L for the preferred and preferred variant routes, the electric field would be approximately 2.3 kilovolts per metre at the west and east edges of the right-of-way. The magnetic field would be approximately 102.0 and 59.1 milligauss at the west and east edges of the right-of-way.
- For the proposed triple-circuit 138-kV transmission lines 452L, 446L and 453L for the preferred and alternate routes, the electric field would be approximately 1.4 and 0.4 kilovolts per metre at the west and east edges of the road allowance. The magnetic field would be approximately 39.2 and 8.9 milligauss at the west and east edges of the road allowance.
- For the proposed double-circuit 138-kV transmission lines 446L and 453L for the preferred variant route, the electric field would be approximately 0.9 and 0.0 kilovolts per metre at the west and east edges of the road allowance. The magnetic field would be approximately 43.9 and 4.9 milligauss at the west and east edges of the road allowance.
- For the proposed single-circuit 138-kV Transmission Line 452L for the preferred variant route, the electric field would be approximately 1.1 and 0.4 kilovolts per metre at the

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<sup>17</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S - Appendix P Electric and Magnetic Fields, P-2 Status Report on Electric and Magnetic Field Health Research 2010-2013, pages 31-88.

<sup>18</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S - Appendix P Electric and Magnetic Fields, P-3 Research Developments Since the 2007 WHO Review of Extremely Low Frequency Electric and Magnetic Fields & Health, pages 89-463.

<sup>19</sup> Exhibit 20987-X0002.03, AML SWED Harry Smith 367S Amendment - Application Blackline, page 131, paragraph 509.

west and east edges of the road allowance. The magnetic field would be approximately 44.2 and 8.9 milligauss at the west and east edges of the road allowance.<sup>20</sup>

67. All calculated electric and magnetic field levels for the project outside of the right-of-way or road allowance were predicted by AltaLink to be much lower than the guidelines developed by the International Commission on Non-Ionizing Radiation Protection for electric and magnetic fields for general public and occupational exposure.<sup>21</sup>

68. With respect to potential electric and magnetic field impacts on animals, AltaLink stated:

Overall, the studies conducted to date do not provide consistent or convincing evidence to suggest that exposure to EMF [electric and magnetic fields] results in any adverse effects on the health, behavior, or productivity of domestic or wild animals.<sup>22</sup>

69. Some members of the PRG raised concerns with stray voltage arising from the project. AltaLink explained that the stray voltage concerns generally related to small shocks experienced by livestock due to improper wiring and/or grounding practices in livestock facilities. Wes Mundy, an AltaLink EMF and electrical effects specialist, testified that stray voltage problems are primarily related to distribution systems and on-farm wiring, both of which rely on the earth as a path for the electrical current to flow. Unbalanced loading on electrical panels, the use of distribution system neutrals and/or wiring problems can cause a current to flow into the earth at the load service point.

70. Transmission systems operate as balanced three-phase systems and do not rely on the earth as a return path for their currents, making ground currents associated with transmission lines negligible. AltaLink explained that high-voltage transmission lines were found to influence induced voltage only where long sections of on-site farm wiring or distribution lines are built very near, and parallel to, the transmission lines, resulting in currents being induced on to the neutrals of these facilities. AltaLink stated that there are effective and proven mitigation measures available to address stray voltage issues, should any such situations arise.

## 6.2 Views of the interveners

71. Some members of the PRG and the Gilgen Group raised general concerns with the potential effects of electric and magnetic fields from the Harry Smith Development on human and animal health.

72. Lewis Farms raised stray voltage and shock concerns with the 240-kV preferred route on its bull operations. Mr. Lewis explained that there were two existing transmission lines on Lewis Farms' land and one on its neighbour's land to the south. These transmission lines are located on the south end of the project area, including the existing portion of Transmission Line 1043L, which serves as the preferred route's connection point for the proposed transmission lines 1043L and 1139L. Mr. Lewis testified that Lewis Farms has learned enough from the existing transmission lines to know that it is not that interested in the project being near its livestock

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<sup>20</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S - Appendix P Electric and Magnetic Fields, P-2 Status Report on Electric and Magnetic Field Health Research 2010-2013, pages 17-29.

<sup>21</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S - Appendix P Electric and Magnetic Fields, page 3, paragraph 4.

<sup>22</sup> Exhibit 20987-X0152, AML Reply Evidence, PDF page 12, paragraph 46.

operation. Mr. Lewis explained that the existing transmission lines have caused stray voltage, including issues related to the grounding system of Lewis Farms bull operations' electric fence. AltaLink committed to work with Lewis Farms, as required, if Lewis Farms continued to experience issues regarding stray voltage.

### 6.3 Commission findings

73. The Commission finds that AltaLink provided evidence on the topic of the health effects of electric and magnetic fields that was uncontroverted by any other person with relevant expertise in this field. The Commission finds that the results of AltaLink's computer modelling of the electric and magnetic field levels associated with the Harry Smith Development to be credible. The predicted levels at the edge of the right-of-way are well below the International Commission on Non-Ionizing Radiation Protection exposure guidelines for the general public of 4.2 kilovolts/metre for electric fields and 2,000 milligauss for magnetic fields.

74. In addition, the Commission considers the following conclusion in the Exponent, Inc. report persuasive:

The numerous national and international scientific agencies that have reviewed this research have not concluded that exposure to ELF [extremely low frequency] EMF [electric and magnetic fields] is a cause of any long-term adverse health effect.<sup>23</sup>

75. The Commission considers the conclusion of Health Canada that exposure to electric and magnetic fields from transmission lines is not a demonstrated cause of any long-term adverse effect to human or animal health to be important. Health Canada states that:

At present, there are no Canadian government guidelines for exposure to EMFs [electric and magnetic fields] at ELF [extremely low frequency]. Health Canada does not consider guidelines for the Canadian public necessary because the scientific evidence is not strong enough to conclude that exposures cause health problems for the public.

Some national and international organizations have published health based exposure guidelines for EMFs at ELF. However, these guidelines are not based on a consideration of risks related to cancer. Rather, the point of the guidelines is to make sure that exposures to EMFs do not cause electric currents or fields in the body that are stronger than the ones produced naturally by the brain, nerves and heart. EMF exposures in Canadian homes, schools and offices are far below these guidelines (Health Canada, 2010).<sup>24</sup>

76. The Commission expects AltaLink to respond promptly to any stray voltage concerns that may arise throughout the operating life of the project. The Commission is satisfied that AltaLink will work with Lewis Farms to ground metal fences and buildings in proximity to the preferred route should it be required. AltaLink's suggestion to mitigate stray voltage, as required, is reasonable and consistent with standard practice in Alberta.

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<sup>23</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S – Appendix P Electric and Magnetic Fields, Appendix P-3, Research Developments Since the 2007 WHO Review of Extremely Low Frequency Electric and Magnetic Fields & Health, page 102.

<sup>24</sup> Exhibit 20987-X0031, AML SWED Harry Smith 367S – Appendix P Electric and Magnetic Fields, Appendix P-3, Research Developments Since the 2007 WHO Review of Extremely Low Frequency Electric and Magnetic Fields & Health, pages 123-124.

77. The Commission is of the view that stray voltages could occur on either route. Because stray voltage issues can be effectively mitigated, the Commission does not consider that this issue favours the choice of either the preferred, preferred variant or alternate route.

78. The Commission is of the view that the preferred, the preferred variant, and alternate routes are acceptable from an electrical consideration perspective.

## **7 Environment**

### **7.1 Views of AltaLink**

79. AltaLink assessed the potential effects of the Harry Smith Development on the environment. AltaLink stated that it implemented a staged approach to integrate environmental considerations into the development, design and construction of the Harry Smith Development. AltaLink submitted that environmental considerations were factored into its route determination process in order to avoid effects on the environment.

80. The Environmental Specifications and Requirements (ESR)<sup>25</sup> document submitted in support of the applications for the Harry Smith Development, described the environmental protection mitigation measures and plans to be applied prior to, during, and following the project's construction to reduce its environmental effects. Prior to construction, the ESR would be updated to reflect the conditions of any subsequent regulatory approvals obtained for the project.

81. CH2M Hill Energy Canada Ltd. (CH2M) assisted AltaLink in the route determination process and was engaged to conduct environmental evaluations of the proposed routes. CH2M prepared an environmental evaluation report<sup>26</sup> for the project that described the environmental setting of the project area including terrain and soils, vegetation, water resources and wildlife. The environmental evaluation report reviewed the potential adverse effects of the project on these environmental components using a desktop level review with support from some select field reconnaissance work. At the hearing, Mark Van Wyk testified on behalf of CH2M regarding the Harry Smith Development's environmental effects.<sup>27</sup>

82. AltaLink would require its engineering and construction contractor to develop a construction environmental management plan for the Harry Smith Development before the start of construction that meets the requirements of the ESR. In addition, a post-construction reclamation plan would be developed prior to construction in accordance with the requirements set out in the ESR, to define areas that would require additional site-specific reclamation actions, and to describe the process for implementation of such actions.

83. AltaLink also stated that it would complete environmental monitoring and reporting during construction to verify that specific mitigation measures identified in the ESR are being

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<sup>25</sup> Exhibit 20987-X0086, AML IR Responses to AUC (1-12), Environmental Specifications and Requirements, pages 21-43.

<sup>26</sup> Exhibit 20987-X0028, AML SWED Harry Smith 367S - Appendix M Environmental Evaluation.

<sup>27</sup> Exhibit 20987-X0174, AML Direct Evidence - Mark Van Wyk. On April 4, 2014, CH2M acquired TERA Environmental Consultants. Mark Van Wyk stated he was responsible for the environmental evaluations and reports and information prepared by CH2M and TERA Environmental Consultants in the applications.

followed. AltaLink's long-term monitoring during operation of the project would be conducted in accordance with various plans and standards, including an avian protection plan, vegetation management standards, waste handling and disposal standards, polychlorinated biphenyls and oil management standards.

84. AltaLink submitted that the project would comply with the applicable sections of the *Environmental Protection Guidelines for Transmission Lines* document, the *Alberta Environmental Protection and Enhancement Act*, the *Water Act*, the *Agricultural Pests Act*, the *Weed Control Act*, the *Wildlife Act*, and the *Canada Migratory Birds Convention Act*, the *Fisheries Act* and the *Species at Risk Act*.

85. AltaLink notified and consulted Alberta Environment and Parks (AEP) about the Harry Smith Development. According to AltaLink, AEP had not identified specific concerns with the Harry Smith Development. AltaLink stated that it would continue to consult with AEP throughout the planning and implementation of the Harry Smith Development to ensure mitigations implemented are appropriate.

86. AltaLink explained that the project would parallel existing linear disturbances, which would minimize habitat disturbances. AltaLink stated that bird markers would be installed in areas of high risk for avian collisions in accordance with the AltaLink Standard *AL-LIN-70010 Installing Bird Markers on New Transmission Lines*. AltaLink would consult with AEP Fish and Wildlife staff to develop appropriate mitigation measures in the event that nesting birds are identified within the project footprint, including temporary workspaces and access trails.

87. CH2M provided AltaLink with its expert opinion on which of the routes was preferable from an environmental perspective:

- From a terrain and soils perspective, the alternate route was preferable because it would be the shortest in total transmission line length, therefore, minimizing the disturbance to soils with potential constraints.
- From a vegetation perspective, the preferred route would cross the least native vegetation area and the preferred variant route would cross the most.
- From a wetlands perspective, the alternate route substation fenceline would be located within the wetland boundaries of a Class II wetland. CH2M stated that given the amount of wetland ecosystems crossed by each route and substation location option, the preferred substation location was considered to potentially have the least amount of disturbances to wetlands.
- From a wildlife perspective, the preferred route, preferred variant route and alternate route would all cross predominately agricultural lands that generally provide limited potential for wildlife habitat, specifically for species with special conservation status.

88. CH2M concluded that overall, the preferred route and the alternate route and substation locations would have less potential for environmental impacts compared to the preferred variant route, which would be the least favourable route option. CH2M further concluded that all route and location options in the Harry Smith Development were considered to be environmentally

satisfactory assuming that the mitigation measures identified in the ESR are implemented and all the regulatory requirements identified in the ESR are met.

89. CH2M also reviewed AltaLink's amendment to the Harry Smith 367S Substation and determined that the reduction in the substation size and fenceline relocation would not materially change any of its previous findings.

90. On February 26, 2014, the Harry Smith Development received conditional *Historical Resources Act* approval from Alberta Culture and Tourism on the understanding that any historic structures impacted by the project would be documented prior to construction.

91. On March 22, 2016, AltaLink submitted an application for *Historical Resources Act* direction for the preferred substation site size reduction and telecommunications structure replacement at Stony Plain 434S Substation. AltaLink had not received approval or a requirement to complete a historical resources impact assessment for the project amendment. AltaLink stated that construction activities would not commence until it secured *Historical Resources Act* approval. In the event historical or cultural resources are discovered during construction activities, AltaLink stated that it would engage in immediate consultation with Alberta Culture and Tourism to develop site-specific mitigation measures.

92. CH2M further reviewed the potential impacts of the preferred variant route in response to the concerns raised by Mr. and Ms. Ross about the natural forest grove located on their lands. CH2M classified the grove as a patch of remnant forest. As stated above, for the preferred variant route, tree clearing would be required for the 20-metre right-of-way along the south edge of the northwest quarter of Section 13, Township 52, Range 27, west of the Fourth Meridian, and for 10 metres along the west side of Range Road 271 in the northeast quarter of Section 14, Township 52, Range 27, west of the Fourth Meridian. Additional tree clearing may also be necessary to create temporary construction workspace in these areas.

93. CH2M stated that the surrounding landscape contained a mosaic of agricultural land uses and areas of remnant forest and shelterbelts. The clearing would reduce the amount of treed habitat available for nesting birds and other wildlife. CH2M submitted that impacts on vegetation were expected to be reduced through the implementation of the mitigation measures outlined in the ESR. The proposed mitigation measures included: avoiding tree clearing and construction during the migratory bird nesting period, or conducting an area search for evidence of nesting prior to clearing; and revegetating the site through natural recovery or seeding, as determined by AltaLink's environmental advisor and the construction environmental management plan.

94. If the Commission were to approve the preferred variant route, CH2M submitted that additional ground-based field surveys would be completed, which would provide further, more detailed information on the land.

95. In response to concerns from Mr. and Ms. Netzlaff about tree and vegetation removal, AltaLink committed to limiting vegetation removal in this area. Specifically, vegetation removal would be limited to a five-metre-by-five-metre area where the one structure on their property

would be located. Further, no vegetation clearing on Mr. and Ms. Netzlaff's property would be required for stringing the transmission lines.<sup>28</sup>

## 7.2 Views of the interveners

96. No intervener submitted expert evidence on the Harry Smith Development's potential environmental impacts.

97. Several landowners expressed general concerns over the environmental impacts of the project during construction. Specific environmental concerns expressed included the presence of wildlife in the area and removal or trimming of shelterbelts and trees on or near their lands.

98. Ms. Ross testified that the natural forest grove located on her family's lands would be impacted by the preferred variant route. Ms. Ross explained that she studied aerial maps of the area and noted that this natural forest grove was unique since it was the biggest spruce forest in the area. Mr. and Ms. Ross have plans to designate part of their lands as a completely natural spruce forest timber grove as a preserved natural animal and forest community. She stated that her family was researching ways to protect the grove. Ms. Ross testified that "[...] our deepest wish is to have this protected, and cutting down trees on either side and diminishing its uniqueness and largeness would be catastrophic indeed."<sup>29</sup> Mr. and Ms. Ross have observed deer, moose, a bear and nesting birds in the natural forest grove.

99. As stated above, Mr. and Ms. Netzlaff were concerned with the environmental impacts from tree and vegetation removal on their property as well as the resulting impacts to the birds, deer, moose, bears, coyotes and other wildlife who inhabit a natural grove located on their lands.

100. Members of the PRG also raised concerns about the project's effects on birds near the preferred variant route.

## 7.3 Commission findings

101. The Commission accepts the work conducted by CH2M and considers it sufficient given the nature of the project lands. Further, the Commission accepts the conclusion reached by CH2M that the potential environmental impacts would be of a limited nature and that with the appropriate mitigation measures implemented, all route options are satisfactory from an environmental perspective.

102. The Commission understands that AltaLink is subject to and will comply with relevant sections of the *Environmental Protection and Enhancement Act*, the *Environmental Protection Guidelines for Transmission Lines*, and other relevant statutes, regulations, rules and guidelines listed in the facility applications.

103. The Commission expects that prior to construction, AltaLink will complete any additional wildlife, vegetation, wetland, aquatic resources, and soil surveys and studies to the satisfaction of AEP, and implement any additional mitigation measures that are recommended based on the results.

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<sup>28</sup> Transcript, Volume 3, page 486, lines 20-25.

<sup>29</sup> Transcript, Volume 2, page 347, lines 21-24.

104. AltaLink has prepared an ESR and has proposed the implementation of many mitigation measures for environmental impacts. The Commission accepts AltaLink's representations in the applications and related evidence that it will implement those mitigation measures in good faith and to the extent practical. The Commission recognizes AltaLink's statements that following the completion of the remaining environmental studies and surveys, should the project be approved, it will finalize the ESR and provide the final version to its construction contractor prior to construction.

105. The Commission finds that no expert evidence regarding environmental effects was presented that contradicted the evidence presented by AltaLink. The Commission is of the opinion that all applied-for routes are viable from an environmental impact and biophysical perspective.

106. The Commission accepts the evidence provided by CH2M on behalf of AltaLink and finds that the preferred route and alternate route and substation locations would have less potential for environmental impacts compared to the preferred variant route. In this respect, the Commission notes that the preferred variant route crosses substantially more land.

107. Overall, the Commission finds that with the diligent application of the proposed mitigation and monitoring measures put forward by AltaLink, the environmental effects from construction and operation of the project will be adequately mitigated regardless of the route selected. Accordingly, the Commission finds that the project is in the public interest from an environmental perspective.

## **8 Property value and visual impacts**

### **8.1 Views of AltaLink**

108. AltaLink retained Serecon Inc. (Serecon) to evaluate the project's impacts on property values. To do this, Serecon reviewed the rural and industrial market within Alberta to find examples of properties impacted by 138-kV transmission lines and to complete an analysis to determine if the project would have a negative impact on these properties' market values.

109. Serecon's first report entitled "Impact of 138 kV Transmission Line on market value of Industrial Properties",<sup>30</sup> would be applicable to certain properties located in the northern portion of the project area, within the Acheson industrial area.

110. As a part of its reply evidence, AltaLink filed a second report authored by Serecon entitled "138 kV Transmission Line and Rural Property Values" which evaluated the effects of the 138-kV transmission line on rural residential property values. In its report, Serecon used a paired sales analysis to estimate the effects of a 138-kV transmission line on agricultural and country residential properties. Serecon described a paired sales analysis as follows:

A Paired Sales Analysis is often used to determine the asking price for a property, or the market value of the property that is to be offered for sale. Characteristics of the property in question are compared to other properties that have recently sold in the same area. The

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<sup>30</sup> Exhibit 20987-X0032, Appendix Q-2, 138 kV Transmission Lines and Rural Property Values, September 2015, PDF page 55.

selling prices of the other properties are considered when estimating a market value for the property that is about to be offered for sale. Positive or negative adjustments are considered to reflect differences in location, soil and topography, access, etc., as well as for the amount of time that has elapsed since the other properties were sold, depending on market conditions. By comparing the subject property to other properties that sold in the same area, with the only difference being a 138 kV HVTL [high-voltage transmission line], the difference in the property values is attributed to the presence of the 138 kV HVTL.<sup>31</sup>

111. Specifically, based on a calculated average of the differences of 33 paired sales, the study determined that there would be minimal difference between the sale price of the subject properties and the sale price of the comparable properties.<sup>32</sup> Further, Serecon's past studies also found that, where an impact is found, it tended to diminish with distance from the transmission line because the potential negative impacts of the transmission line would, in part, be dependent on its visibility.

112. At the hearing, Don Hoover appeared on behalf of Serecon and testified regarding the project's expected impacts on area property values. Mr. Hoover explained that all of Serecon's studies support the conclusion that where there is a 138-kV transmission line across the road from residences, the road acts as a buffer and, as such, there is no corresponding decrease in property value.

113. For the preferred variant route, the transmission line was proposed to be situated across the road from the nearest PRG member's residential property. On the alternate route, the transmission line would cross the road immediately before reaching Mr. and Ms. Gilgen's home.

114. Serecon responded to concerns raised by Mr. and Ms. Ross that their rental income would diminish if the preferred variant route were to be approved. At the hearing, Mr. Hoover stated that he inspected the property from the adjacent road and was of the opinion that there will be no impact to the rental of the land or house due to the project. Mr. Hoover testified that the reason for Serecon's conclusion was that the transmission line would be across the road from the property and there is a row of trees between the road and the property which would provide a visual screen. Further, the condition and the age of the house supported the view that there would be no impact to its value from construction of a 138-kV transmission line in this location.

115. Taking into account all of the above, Serecon's second report found that the project's 138-kV transmission lines would have little or no discernible impact on property values in rural areas.

116. With respect to the 240-kV preferred route that would traverse property owned by Lewis Farms, Serecon indicated that it did not expect Mr. Lewis' residential property value to be impacted. Also, given that the land traversed was used for agriculture, Serecon held that there would be no impact to its value once the income from the annual structure payments was taken into account.

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<sup>31</sup> Exhibit 20987-X0154, AML Reply Evidence - Appendix 02 Serecon 138 kV Study, page 6.

<sup>32</sup> Exhibit 20987-X0152 AML Reply Evidence, page 11, paragraph 41.

117. AltaLink explained to stakeholders with visual concerns that these impacts are reviewed as part of its route selection process. AltaLink stated that line-of-sight from residences within close proximity of proposed transmission line routes and substation locations were evaluated in identifying low impact routes and locations. AltaLink further stated that it provided stakeholders a visual representation of the proposed towers and substation in its participant involvement program. AltaLink indicated that it is prepared to work with landowners to attempt to minimize the visual impact of specific tower locations from their residences by moving towers along the right-of-way where possible, depending on span requirements, and environmental and physical constraints.

118. AltaLink stated that the preferred variant route double- and single-circuit structures would also be smaller than the triple-circuit structures for the preferred and alternate route, and as such, would be expected to have less visual impact. However, having two sets of transmission lines means a greater number of structures, which may increase the visual impact.

119. For the preferred variant route, AltaLink confirmed that tree clearing would be required for the forest grove near the properties owned by Mr. and Ms. Ross and Mr. and Ms. Netzlaff because the trees were not compatible with the transmission line.<sup>33</sup>

## 8.2 Views of the interveners

120. The PRG raised concerns regarding adverse impacts to the value of their homes and land as a result of the project.<sup>34</sup> Members of the PRG also raised concerns with visual impacts.

121. The PRG argued that visual and aesthetic impacts in a rural setting are important to its members. Impacts to views and sightlines from homes and properties, even if the transmission line were not to be located on the landowners' property, were also concerns.

122. Mr. and Ms. Ross stated that they were concerned with the visual impacts of the project. They had plans to rebuild their existing home or build a new home on the northeast side of their quarter. They indicated that they had not received approvals from Parkland County.

123. Mr. and Ms. Netzlaff were concerned with impacts to the view from their residence. They stated "[o]ur view from our home and property is breathtaking and the lines will take this away."<sup>35</sup> They added that the transmission line would depreciate the visual quality of the natural forested grove on their property.

124. Lewis Farms also was concerned with the visibility of the transmission line from its bull pen, which is the location of its yearly bull sales.

125. Mr. and Ms. Gilgen expressed concerns related to a decrease in property value for their residence located near the alternate route.

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<sup>33</sup> Transcript Volume 1, page 101, lines 6-11.

<sup>34</sup> Exhibit 20987-X0116.02, Submissions of the Pioneer Road Group (Amended), page 12.

<sup>35</sup> Exhibit 20987-X0117, A - Submissions of Pioneer Road Group Members, page 12.

### 8.3 Commission findings

126. The property value and visual concerns expressed by members of the PRG were related to the project's impact on their rural properties. Accordingly, the Commission finds that Serecon's report analyzing the effects of the project on rural properties to be more applicable than the conclusions presented for industrial properties outlined in Serecon's first report.

127. For the first-stage of its analysis, Serecon used a paired sales analysis to estimate the impact of the project on rural residential and agricultural properties of varying sizes. In the second-stage of its analysis, Serecon applied the property value impacts it estimated in the first stage to properties in the project area. Overall, the analysis provided by Serecon was helpful in determining if properties owned by members of the PRG would be impacted by construction and operation of the Harry Smith Development.

128. The expert evidence before the Commission on property value impacts stated that approval of AltaLink's applications will result in little or no negative property value impacts. The Commission accepts the evidence presented that factors such as visibility and being across the road from a transmission line are important elements when determining if a transmission line will impact the value of a rural residential property. The Commission appreciates that there is an element of subjectivity associated with the assessment of property value impacts, but it is of the view that the degree of subjectivity can be reduced by taking reasonable steps to ensure that property value impact assessments are drawn from comparable properties and comparable transmission lines.

129. Based on the evidence presented, the Commission is not persuaded that rural residences located across the road from the project would experience no negative impacts. In this respect, the Commission notes that Serecon's second report has been filed by AltaLink on the record of the applications that led to Decision 20924-D01-2016.<sup>36</sup> In that decision the Commission found:

The Commission considers that Serecon may have underestimated the number of properties potentially impacted by the proposed transmission lines by adopting the position that properties across the road from a transmission line or vacant properties would experience no impact.<sup>37</sup>

130. In line with the above approach, the Commission considers that there may be an impact to the value of homes located in close proximity to the transmission line.

131. With respect to the route options, the Commission finds that approval of the preferred route would result in fewer homes being closer to the transmission line than would be the case with approval of the preferred variant route. Accordingly, the Commission finds that the preferred route has less potential for any negative property value impacts than the preferred variant route.

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<sup>36</sup> Decision 20924-D01-2016: AltaLink Management Ltd.: South and West of Edmonton Area Transmission Development - Cooking Lake, Saunders Lake, Wabamun and Leduc Developments, Proceeding 20924, Applications 20924-A001 and 20924-A003 to 20924-A016, July 15, 2016.

<sup>37</sup> Decision 20924-D01-2016: AltaLink Management Ltd.: South and West of Edmonton Area Transmission Development - Cooking Lake, Saunders Lake, Wabamun and Leduc Developments, Proceeding 20924, Applications 20924-A001 and 20924-A003 to 20924-A016, July 15, 2016, page 34, paragraph 203.

132. Further, the Commission observes that there are six residences within 150 metres of the preferred route and seven homes within 150 metres of the alternate route. The Commission concludes that the preferred route is the slightly more favourable option from the perspective of minimizing property value impacts.

133. The Commission acknowledges that the imposition of new transmission structures can significantly alter a view. Transmission line structures are large, linear developments and their construction and operation often requires the removal of trees and other vegetation on public and private lands. Landscaping and trees are important features of peoples' properties and their unwanted removal can be very upsetting to landowners and neighbours alike. Further, as discussed above, two important criteria for determining negative property value impacts from a transmission line are visual impacts and the degree to which those impacts can be mitigated by trees or other vegetation.

134. The Commission recognizes that some residences along the common sections of the preferred and alternate routes would experience an increase in visual impacts associated with the construction and operation of the project. The Commission finds that the preferred variant route is the least desirable from a visual impacts perspective because it will expose more residences to transmission lines. However, the routing metrics do not show a discernible difference between the preferred route and the alternate route.

135. The Commission expects AltaLink to work with landowners to attempt to minimize the visual impact of specific transmission lines structure locations impacting their residences by moving structures along the right-of-way where possible, depending on span requirements, and environmental and physical constraints.

## 9 Noise

### 9.1 Views of AltaLink

136. AltaLink filed noise impact assessments for the Harry Smith 367S Substation preferred and alternate locations. The noise impact assessments stated that both potential locations for the Harry Smith 367S Substation were predicted to comply with the nighttime permissible sound level as defined in Rule 012: *Noise Control* for both oil natural/air natural and oil natural/air forced operating conditions, at the most impacted dwellings.

137. AltaLink stated that the maximum audible noise contribution directly under the proposed 138-kV and 240-kV transmission lines would be below eight decibels A-weighted  $L_{eq}$  (dBA  $L_{eq}$ ) and 15 dBA  $L_{eq}$  respectively in fair weather conditions, and would be significantly below the assumed ambient sound level of 35 dBA for rural areas used in Rule 012.<sup>38</sup> AltaLink stated that the audible noise contribution from the transmission lines would not be noticeable above the assumed ambient sound level of 35 dBA used in Rule 012.

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<sup>38</sup> Exhibit 20987-X0002.03, AML SWED Harry Smith 367S Amendment - Application Blackline, page 132, and Transcript, Volume 3 pages 489-490, lines 25-4.

138. Furthermore, AltaLink committed to ensuring that the project would comply with Rule 012.<sup>39</sup>

## 9.2 Views of the interveners

139. Members of the PRG raised concerns regarding potential noise impacts of the proposed development. The PRG members' concerns included that the noise from the Harry Smith Development may impact their health and the health of their livestock, and interfere with their agricultural operations and enjoyment of their properties. Some members explained they wished to avoid noise originating from transmission lines.

## 9.3 Commission findings

140. The Commission finds that the noise impact assessments submitted by AltaLink for the preferred and alternate substation locations fulfill the requirements of Rule 012.

141. The Commission finds that based on the evidence submitted by AltaLink, the proposed transmission lines will meet the noise requirements of Rule 012, as the predicted sound level of 15 dBA  $L_{eq}$  is well below the permissible sound level of 40 dBA  $L_{eq}$ .

## 10 Project costs

### 10.1 Views of AltaLink

142. In its reply evidence, AltaLink provided an update to its cost estimates for the Harry Smith Development. The estimated costs were within plus 20 per cent and minus 10 per cent accuracy. The estimated costs were as follows:<sup>40</sup>

**Table 2. AltaLink's estimated project costs**

Route option	Preferred	Preferred variant	Preferred variant @ P&L	Alternate	Alternate @ P&L
Project cost (+20/-10%)	\$115,097,096	\$112,606,109	\$114,765,588	\$114,336,643	\$122,444,737

143. AltaLink stated that the at Permit and Licence costs (@P&L costs) incorporated a time delay and included incurred and sunk costs for activities that have been undertaken on the preferred route such as engineering, procurement of construction materials, surveying, project management and construction management.

144. At the hearing, Keith Turriff, AltaLink's Manager, Lifecycle Maintenance Engineering, testified that the Commission's comparison between costs should occur using the @P&L costs. In order to effectively compare the costs of the preferred route with the costs of the preferred variant route and the alternate route, the cost impacts associated with time delays and other sunk costs should be considered.

<sup>39</sup> Transcript, Volume 3, page 489, line 23-24.

<sup>40</sup> Exhibit 20987-X0155, AML Reply Evidence - Appendix 03 Cost Tables.

145. Should the Commission approve the alternate route, there would be approximately a one-year delay, and accordingly, AltaLink included the costs associated with a one-year delay in the alternate route's @P&L costs estimate.

146. AltaLink explained that while construction of the preferred variant route was not expected to create a time delay, there were engineering materials and contracts developed for the preferred route that would be sunk costs.<sup>41</sup> The @P&L costs estimate for the preferred variant route included these sunk costs.

## 10.2 Views of the interveners

147. The PRG retained Berrien Associates Ltd., to review the Harry Smith Development's routing and prepare a report (the Berrien report).<sup>42</sup> Robert Berrien, of Berrien Associates Ltd. testified on behalf of the PRG at the hearing. Mr. Berrien questioned AltaLink's practice of completing additional design and incurring costs in its development of the preferred route prior to Commission approval. According to Mr. Berrien, sunk costs and costs associated with time delays, which form a part of the @P&L costs, may create a bias against the alternate route if this metric is used as a determining factor by the Commission. He also was of the view that some of the assumptions set out in the @P&L costs may not be valid due to a changing economy. Mr. Berrien stated that:

... I don't think it's reasonable to ask AltaLink to fully engineer two totally different lines. By the same token, it's perhaps not unreasonable that they would do some sufficient background work to allow them to proceed on either one of the routes that the Commission might decide.

But if we're going to have this true choice business of route superiority, it's incumbent upon the TFO to put forward enough evidence that allows the Commission to make a reasonable choice. So it's part of the process, and I don't think there's any way to be completely avoiding it.<sup>43</sup>

## 10.3 Commission findings

148. The Commission understands that some engineering work has been undertaken on the preferred route and that, as a result, should the Commission choose the alternate route or the preferred variant route, there would be some sunk costs.

149. AltaLink's approach of completing more detailed technical design on the preferred route is in-line with the industry practice. In deciding which costs metrics were more persuasive, the Commission takes into account that project costs are typically born by ratepayers. Consequently, for the preferred variant and alternate routes, the Commission puts more weight into the @P&L costs since they are a more accurate representation of the actual costs of the Harry Smith Development.

150. The Commission considers that the total project cost differences between the preferred routes and the alternate route are not material and finds that the Harry Smith Development's

<sup>41</sup> Transcript, Volume 1, page 139, lines 1-19.

<sup>42</sup> Exhibit 20987-X0118.01, B - Evidence of Robert Berrien and CV (Amended).

<sup>43</sup> Transcript, Volume 2, pages 439-440, lines 10-9.

costs slightly favour the preferred route and preferred route variant when the @P&L costs are factored into the analysis.

## **11 Route options**

### **11.1 AltaLink's route determination process**

#### **11.1.1 Views of AltaLink**

151. In its applications and at the hearing, AltaLink described its route determination process for the Harry Smith Development. It stated that the process was systematic, extensive and the outcome was three viable route options: the preferred route, the preferred variant route and the alternate route.

152. AltaLink stated that its route determination process considered the major aspects listed in Rule 007: potential agricultural impacts, potential residential impacts, potential environmental impacts, costs, electrical considerations, potential visual impacts, and special constraints. AltaLink's route determination process began with the identification of a study area; and then it continued by developing preliminary routes, then detailed routes, and finally the applied-for routes.

153. When determining preliminary routes AltaLink analyzed the project study area and identified areas of greater impacts and routing constraints. AltaLink stated that it did not propose routes west of the project area because of the country residential impacts.

154. AltaLink explained that the Stony Plain Indian Reserve No. 135 was a routing constraint to the east of the project area. In AltaLink's preliminary routing assessment, it considered potential routing options on the Stony Plain Indian Reserve No. 135, including routes along Highway 60. However, such options had higher anticipated costs than those located outside the reserve, as well as land access issues for initial construction of the project, and potential future expansions. AltaLink concluded that its preferred, preferred variant, and alternate routes would have lower impacts than potential routes along Highway 60.

155. In an attempt to mitigate or reduce route impacts, AltaLink proposed that the alternate route and the preferred route would be constructed on triple-circuit structures. AltaLink submitted that triple-circuit structures would reduce impacts to landowners by putting all three circuits on one set of structures.

156. AltaLink stated that the result of its route determination process was the identification of transmission line routes and substation locations with low overall impacts.

#### **11.1.2 Views of the interveners**

157. Mr. and Ms. Ross, and other members of the PRG, questioned AltaLink's route determination process. They suggested that a route along Highway 60, through the Stony Plain Indian Reserve No. 135 lands would be a more appropriate route than AltaLink's applied-for routes. In their view, a route along Highway 60 would have less of an impact on valuable agricultural lands and forested areas.

## 11.2 Harry Smith Development route comparisons

### 11.2.1 Views of AltaLink

158. The following table is AltaLink’s comparison of the route options for the Harry Smith Development:<sup>44</sup>

**Table 3. AltaLink’s comparison of preferred and alternate routes**

		Preferred	Variant	Alternate
<b>Agriculture</b>				
Length of agricultural land crossed (km)	Crop	2.7	3.7	1.2
	Pasture	1.5	1.5	0.7
	Total	4.2	5.2	1.9
<b>Residential</b>				
Number of residences within 150 m of centre line		6	9	7
Number of residences within 800 m of centre line		47	53	43
<b>Environmental</b>				
Area of surface water in or within 800 m of centre line (ha)		0	0	0
Length of surface water crossed (km)		0	0	0
Area of wetlands within 800 m of centre line (ha)		53	67	45
<b>Visual</b>				
Number of residences within 150 m of centre line (#)		See above for residences within 150 m		
<b>Special Considerations</b>				
Number of airstrips within 800 m of centre line		0	0	1
Number of wellsites within 45 m of centre line – active		0	1	0
Number of pipelines crossed		6	8	4
Length of nearest pipeline paralleled (within 45 m) (km)		5	6	3
<b>Electrical Considerations</b>				
Length of distribution line affected by the route (km)		0	0	0.4
<b>Cost</b>				
Cost (\$M)		116	114	115
Length of route (km)		9	13	7
Length of salvage of 739L/replacement with 446L/453L (km)		4	6/4	4

159. The proposed preferred and alternate substation locations are on private property currently used for agricultural purposes. Similarly, both the preferred and alternate 240-kV transmission line routes would traverse private property. In contrast, the 138-kV portions of the preferred and alternate routes would predominantly be located in road allowances. The preferred variant route would also be located predominately in road allowances but would be comprised of two separate sets of transmission lines structures along Range Road 270 and Range Road 271 to accommodate both its single-circuit and double-circuit components.

<sup>44</sup> Exhibit 20987-X0002.03, AML SWED Harry Smith 367S Amendment - Application Blackline, Table 4-1 – Comparison of Preferred and Alternate Routes, page 85. AltaLink submitted that Table 4-1 was based on the Harry Smith 367S Substation and transmission line orientations as applied for in October 2015. Due to the minor reduction in the substation site footprint, metrics were not re-calculated.

160. As described in the table above, there are six residences within 150 metres of the transmission lines along the preferred route, nine on the preferred variant route and seven on the alternate route.

161. The lengths of the preferred route, the preferred variant route and alternate route are approximately nine kilometres, 13 kilometres and 6.6 kilometres, respectively. The portion of the triple-circuit transmission line common to both the preferred and alternate routes is approximately 3.2 kilometres.

162. AltaLink submitted that the preferred route and substation location would have the lowest overall impact. For the preferred substation location, the nearest residence would be approximately 685 metres away. The preferred substation location would be sited on relatively flat terrain, away from other facilities or surface obstructions.

163. AltaLink stated that the preferred and alternate routes would have different impacts. The preferred route and substation location would have less potential residential impact compared with the alternate route and substation location, and would avoid impacting the Parkland Airport. The alternate route and substation location would have less length of 240-kV transmission line, and less total line length located on private property, and as a result would have less potential agricultural impact compared to the preferred route and substation location.

164. AltaLink submitted that where the proposed transmission lines were located in road allowances, as was proposed for the majority of the proposed routes, the loss of farmland was not anticipated to be an issue. Road allowances are publicly owned and have been established for the development of roads, gas, electric, and communications infrastructure.

165. For areas where the transmission line routes would be located on private land, AltaLink explained that landowners would be compensated at market value for easements required on their property. Additionally, compensation for the easements would be in the form of annual structure payments which would also be designed to compensate landowners for weed control, and the inconvenience of farming around the transmission line.

166. AltaLink submitted that if lands were damaged or disturbed during construction, such as through loss of use, damage to crops, compaction to soil, rutting, fence or gate damage, a one-time payment would be made to the landowner to compensate for the loss. It also advised that temporary fencing would be installed during construction if the movement of livestock was a concern to landowners.

167. With respect to the spread of weeds, AltaLink stated that it addresses concerns regarding the introduction of weeds in its planning and construction procedures. AltaLink submitted that it would comply with the *Weed Control Act* and makes all reasonable attempts to ensure that noxious weeds are controlled. It added that it would abide by its Clubroot Management Procedure and would require its contractors to develop a construction environmental management plan to ensure that the introduction of soil-borne pests and noxious weeds does not occur.

## 11.2.2 Views of the interveners

### 11.2.2.1 Views of the PRG

168. Lewis Farms is a commercial agricultural operation that grows 800 acres of seed potatoes, 3,000 acres of grain, including wheat and barley, and runs 800 purebred Simmental and Angus cows. Lewis Farms has an annual on-farm bull production sale. Its 2016 sale offered 341 bulls for sale, and had over 800 people in attendance.

169. Lewis Farms owns and rents multiple sections of land. The 240-kV preferred route and the alternate substation location were proposed on lands owned by Lewis Farms. Lewis Farms advised that its preference is for the alternate route and substation to be approved because the 240-kV preferred route would impact its bull pen and bull sale operations located in the northwest quarter of Section 1, Township 52, Range 27, west of the Fourth Meridian.

170. Mr. Lewis explained that there were two existing transmission lines on Lewis Farms' land and one on its neighbour's land to the south. Mr. Lewis testified that Lewis Farms has learned enough from the existing transmission lines to know that he objects to transmission lines being near Lewis Farms' operations.

171. Lewis Farms submitted that the preferred route would impact its seed potatoes, canola, wheat and barley crops because operating farming machinery around the structures would be burdensome. Mr. Lewis explained that his 120-foot wide sprayer would not fit through the H-frame structures for the 240-kV preferred route.

172. Mr. and Ms. Netzlaff's property is primarily a family farm where they own horses and sometimes raise cattle. Mr. and Ms. Netzlaff expressed concerns about their fences having to be rebuilt due to construction of the preferred variant route. Their concerns also included the impact to their agricultural operations and the loss of shelterbelts.

173. Mr. and Ms. Ross also raised concerns with their potato crops and their inability to aerial spray should the preferred variant route be approved.

174. Ms. Ross also expressed concerns with tree removal because the trees provide shelter to a residence on their property. Although the transmission line would be located across Range Road 271 from their property, she testified that there are only 75 feet between Range Road 271 and the residence. If the trees were removed for the preferred variant route's right-of-way, then the residence would be exposed.

175. Ms. Trueman testified on behalf of herself and her brother, Donald Keltie. Ms. Trueman advised that they use their property to farm grain and potatoes. Ms. Trueman expressed concerns with clearance under the preferred variant route since they rent the land across the road and transport equipment from their property to the rented land. Ms. Trueman also expressed concerns with the ability to aerial spray in the future and indicated that they had aerial sprayed in the past.

176. Roxanne, Gene and Harlee Keltie, Shauna and Ashley Trueman, and Mark Johnston raised additional concerns with respect the preferred variant route. They stated that their land was farmed and sprayed, and their farming operation would be negatively affected. They were strongly against tree removal and indicated their intention to subdivide the land for future generations.

177. The PRG members did not hold interest in, and were not affiliated with the PADC or the Parkland Airport. However, Lewis Farms raised concerns with planes contacting the towers or conductors of the 240-kV preferred route. The PRG's concerns with respect to the Parkland Airport are discussed further in the Parkland Airport impacts section of this decision.

178. The PRG argued that the preferred variant route was clearly inferior to the common portion of the preferred and alternate routes (from nodes E35 to E50).

#### **11.2.2.2 The Berrien report**

179. It was the evidence of Mr. Berrien that the preferred variant route is the worst of the three routes proposed in the applications. Based on AltaLink's comparison of the preferred and alternate routes, the preferred variant route was so inferior that he did not consider it to be a viable alternative. He testified that "It's a lousy route and, in my view, I don't think we should be putting it forward in any serious way."<sup>45</sup>

180. Mr. Berrien noted that more than half of the length of preferred and alternate routes shared a common route segment. Accordingly, the Berrien report primarily compared the portions of the preferred route and alternate route south of node E35. The Berrien report analyzed the route segments from a residential and agricultural perspective, and then considered issues specific to the alternate route, such as impacts to the Parkland Airport, and costs associated with siting a portion of the alternate route underground.

181. For the segment south of node E50, there would be no residences within 150 metres of the centre line for the preferred route and one residence for the alternate route. He stated that there would be an impact to that resident, but there was not enough to stimulate that resident to object to the project.

182. With respect to agricultural impacts, Mr. Berrien submitted virtually all of the land taken up by the preferred route would create agricultural impacts while virtually none of the land taken up by the alternate route would create agricultural impacts. Mr. Berrien calculated that there would be 29.5 acres of agricultural land production lost on the preferred route, compared to 6.4 acres of agricultural land production lost on the alternate route.

183. Mr. Berrien testified that impacts on the 138-kV portion of the alternate route would be non-existent because the transmission line consists of monopole structures located on the quarter section line. Further, as soon as the alternate route is near the Parkland Airport, the land use becomes primarily industrial. In contrast, the preferred route would impact prime agricultural land because the 240-kV preferred route would consist of a 60-metre right-of-way with two transmission lines on separate H-frame structures across the land owned by Lewis Farms. Mr. Berrien contested that agricultural impacts did not receive enough weight in AltaLink's assessment.

184. Mr. Berrien indicated that he was aware of the concerns expressed by the Parkland Airport. He recommended that AltaLink provide an underground option for the alternate route in an amended application, so that the Commission has a true comparison.

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<sup>45</sup> Transcript, Volume 2, page 437, lines 8-9.

185. Based on the route metrics, Mr. Berrien concluded that assuming that the impacts to the Parkland Airport are mitigated, the overall impacts of the alternate route would be less than the preferred route.

### **11.2.2.3 Views of the PADC**

186. The PADC operates the Parkland Airport in the project area and opposed the Harry Smith Development. The PADC's concerns are related to the potential impacts to the Parkland Airport. These concerns are discussed further in the Parkland Airport section of the decision.

### **11.2.2.4 Views of the Gilgen Group**

187. Mr. and Ms. Gilgen, members of the Gilgen Group, were opposed to the alternate route because of its proximity and potential impacts to their home. The alternate route would cross Range Road 270 adjacent to Mr. and Ms. Gilgen's home and yard.<sup>46</sup>

## **11.3 Parkland Airport**

### **11.3.1 Introduction**

188. The development process for the Parkland Airport began in 2013. On April 28, 2015, the Parkland Airport received certification from Transport Canada. In November 2015, the Parkland Airport expanded. The Parkland Airport has two runways designated as Runway 08 and Runway 26, which together form a 5,217-foot paved runway in an east-west configuration in the south half of Section 7, Township 52, Range 26, west of the Fourth Meridian. The Parkland Airport is comprised of its runways, aviation apron, taxiways, fuelling stations, hangars, and 107 aviation lots on 225 acres of land.

189. AltaLink retained Tetra Tech EBA Inc. (Tetra Tech) to analyse the Harry Smith Development's potential impacts on the Parkland Airport. AltaLink submitted two reports completed by Tetra Tech in support of its applications. The first report was dated in 2013 (the 2013 Tetra Tech report)<sup>47</sup> and filed with the applications in 2015. The second report was filed with AltaLink's reply evidence on May 2, 2016 (the 2016 Tetra Tech report).<sup>48</sup> Shawn Sutherland from Tetra Tech testified at the hearing.

190. The PADC, the Gilgen Group and the PRG all submitted evidence regarding the Harry Smith Development's potential impacts to the Parkland Airport's safe operation and certification. The evidence was related to the single-circuit 240-kV transmission lines 1043L and 1139L of the preferred route and the triple-circuit 138-kV transmission lines 452L, 446L and 453L of the alternate route, which were proposed west of the Parkland Airport.

191. The PADC retained JetPro Consultants Inc. (JetPro) to complete a project impact assessment on flight procedures at the Parkland Airport (the JetPro report).<sup>49</sup> Edward McDonald from JetPro and Mr. Gilgen, president of the PADC testified on the Parkland Airport's behalf.

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<sup>46</sup> Transcript, Volume 1, pages 202-203, lines 24-8.

<sup>47</sup> Exhibit 20987-X0032, AML SWED Harry Smith 367S - Appendix Q Landowner Impacts, Appendix Q-3, SWEP Aviation Airport Issues Report (Oct 2013), pages 70-77.

<sup>48</sup> Exhibit 20987-X0156, AML Reply Evidence - Appendix 04 Tetra Tech Report.

<sup>49</sup> Exhibit 20987-X0126, Written Evidence.

192. The PRG retained AirTrav Inc. (AirTrav) and Aeronautical Information Consulting who jointly drafted a report analyzing the preferred route's impacts on the Parkland Airport (the AirTrav report).<sup>50</sup> Robert Kokonis of AirTrav Inc. and Charles Cormier of Aeronautical Information Consulting testified at the hearing.

193. In order to further understand some concerns raised by parties with respect to the Parkland Airport, a discussion on general aeronautical information is provided below. Following that, the views of the parties are outlined. The views are further broken down into a discussion on the standards that were assessed, the route impacts, zoning of the Parkland Airport, and potential mitigations measures.

### 11.3.2 Aeronautical terminology

194. Transport Canada defines its role as:

Ensuring air, marine, rail and road safety, as well as the safe transportation of dangerous goods, is a huge task. Transport Canada develops and enforces safety regulations and standards; tests and promotes safety technologies; and is introducing safety management systems as a reliable and cost-effective way to prevent and manage safety risks in all modes of transportation.<sup>51</sup>

195. Transport Canada published TP312 Aerodrome Standards and Recommended Practices which establishes the minimum level of compliance required for the planning and design of airport infrastructure or level of service changes.<sup>52</sup> The 4th Edition<sup>53</sup> (TP312 4th Edition) was published in March of 1993 and the 5th Edition<sup>54</sup> (TP312 5th Edition) was published on September 15, 2015.

196. Mr. Cormier explained that TP312 is:

[...] the Bible that Transport Canada and airport operators use to safely set up and operate their airports. It includes all the standards on how to mark the runway, the lighting, the taxiway, how to put a wind sock up. And it meets international standards.<sup>55</sup>

197. TP312 4th Edition defined the following terms:

**Aerodrome.** Any area of land, water (including frozen surface thereof) or other supporting surface used or designed, prepared, equipped or set apart for use either in whole or in part for the arrival and departure, movement or servicing of aircraft and includes any building, installations and equipment in connection therewith.

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<sup>50</sup> Exhibit 20987-X0119, C - AirTrak Report, Exhibit 20987-X0120, D - Appendix 2 to AirTrak Report, Exhibit 20987-X0121, E - Appendix 3 to AirTrak Report, Exhibit 20987-X0122, F - Robert Kokonis CV, Exhibit 20987-X0123, G - Charles Cormier CV, and Exhibit 20987-X0124, H - Jacques Beaudry CV.

<sup>51</sup> Government of Canada, Transport Canada. (2016). Retrieved from <http://www.tc.gc.ca/eng/safety-our-role.htm>.

<sup>52</sup> Exhibit 20987-X0202, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 5th Edition, page 12.

<sup>53</sup> Exhibit 20987-X0201, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 4th Edition.

<sup>54</sup> Exhibit 20987-X0202, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 5th Edition.

<sup>55</sup> Transcript, Volume 2, pages 394-395, lines 22-2.

**Airport.** An aerodrome for which, under Part III of the Air Regulations, an airport certificate has been issued by the Minister.

**Threshold.** The beginning of that portion of the runway usable for landing.<sup>56</sup>

198. Many of the concerns related to the safe operation of the Parkland Airport involved the project's potential penetration into the Parkland Airport's obstacle limitation surface (OLS). An OLS is defined in TP312 4th Edition as follows:

**Obstacle Limitation Surface (OLS).** A surface that establishes the limit to which objects may project into the airspace associated with an aerodrome so that aircraft operations at the aerodrome may be conducted safely. Obstacle limitation surfaces consist of the following:

- a) Outer surface. A surface located in a horizontal plane above an aerodrome and its environs.
- b) Take-off/Approach surface. An inclined plane beyond the end of a runway and preceding the threshold of a runway.
- c) Transitional surface. A complex surface along the side of the strip and part of the side of the approach surface, that slopes upwards and outwards to the outer surface, when provided.<sup>57</sup>

199. The TP312 5th Edition modifies the definition of an OLS as follows:

... OLS consist of the following:

- Inner transitional surface. A complex surface extending lengthwise on the runway strip that extends upwards and outwards to the outer obstacle identification surface. (*Surface de transition intérieure*)
- Approach surface. An inclined plane preceding the threshold of a runway. (*Surface d'approche*)
- Take-off surface. An inclined plane beyond the end of the runway or clearway, if provided. (*Surface de décollage*)
- Transitional surface. A complex surface along the side of the runway strip and all or part of the side of the approach surface, that slopes upwards and outwards to a specified height. (*Surface de transition*)(*Surface de limitation d'obstacle*)<sup>58</sup>

200. Prior to the 2015 runway extension, the Parkland Airport was certified by Transport Canada under TP312 4th Edition with a Code 1C non-precision runway. Some of the evidence prepared by Tetra Tech, AirTrav and JetPro analyzed the project's potential impacts

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<sup>56</sup> Exhibit 20987-X0201, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 4th Edition, pages 20, 25.

<sup>57</sup> Exhibit 20987-X0201, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 4th Edition, pages 23-24.

<sup>58</sup> Exhibit 20987-X0202, AML Aid to Cross - TP312 Aerodrome Standards and Recommended Practices 5th Edition, page 19.

given that the PADC planned to upgrade the Parkland Airport's certification to a TP312 4th Edition, Code 3C non-precision runway. Further, the reports analyzed the Parkland Airport's certification as a TP312 5th Edition, AGN-IIIB non-precision runway.

### **11.3.3 Views of AltaLink**

#### **11.3.3.1 Standards assessed**

201. Tetra Tech explained that an airport is obligated to meet the standards as of the date the certification was issued. The Parkland Airport was certified on April 28, 2015, and TP312 4th Edition was in effect at this time. Also, AltaLink argued that the standards pursuant to which an airport is certified are indicated in the Airport Operations Manual, which stated that TP312 4th Edition applied to the Parkland Airport.

202. AltaLink argued that all airports in Canada are certified under either the TP312 4th Edition or an earlier edition and, Transport Canada advisories have grandfathered all existing airports so that each receives an exemption from the TP312 5th Edition requirements.

203. Tetra Tech acknowledged that it was aware of the Parkland Airport's intention to certify its newly constructed longer runway as a Code 3C non-precision runway. However, Tetra Tech emphasized that the Parkland Airport had not yet received Code 3C non-precision runway certification from Transport Canada.

204. While the JetPro and AirTrav each assessed the Parkland Airport on the basis of TP312 5th Edition, no party to this proceeding suggested that TP312 5th Edition applied to the Parkland Airport. Further, AltaLink contended that the PADC did not express a desire to certify the Parkland Airport under TP312 5th Edition. As such, AltaLink argued that the Commission should assess the project against the standards currently applicable, namely TP312 4th Edition.<sup>59</sup>

205. Tetra Tech explained that it completed its analysis using both the TP312 4th Edition and the TP312 5th Edition standards because the latter was also used in the JetPro and AirTrav reports.

#### **11.3.3.2 Route impacts**

206. The 2013 Tetra Tech report provided an analysis of the Harry Smith Development's potential impacts to the Parkland Airport, which was under construction at that time. The 2013 Tetra Tech report concluded that AltaLink's preliminary routes may impact the Parkland Airport to varying degrees.

207. Tetra Tech stated that it confirmed the 2013 Tetra Tech report calculations in 2016 with the runway threshold coordinates provided by the PADC in its Airport Operations Manual and LIDAR survey data from AltaLink for the proposed transmission line routes.

208. The 2016 Tetra Tech report performed an updated analysis of the OLS, taking into account the newly expanded Parkland Airport runway and the actual route locations.

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<sup>59</sup> Transcript, Volume 3, page 474, lines 9-16.

209. According to AltaLink, safe operation of the Parkland Airport would be unaffected by the project, because aviation safety is monitored by Transport Canada. If safety standards and regulations were not being met or if changes in operating conditions prevented an airport from meeting applicable standards or regulations, Transport Canada would not allow the operations to continue.

210. AltaLink argued that if the safety standards specified for procedures and the OLS are met, the safety margin is achieved and Transport Canada will allow operations to continue.

#### **11.3.3.2.1 Preferred route**

##### **TP312 4th Edition, Code 1C non-precision runway**

211. The 2013 Tetra Tech report determined that for the preliminary version of the 240-kV preferred route, the OLS would be 32.90 metres above the ground, for a TP312 4th Edition, Code 1C runway. AltaLink clarified that the OLS at the applied-for preferred route would be slightly higher because it would be located seven metres west of the quarter section line.

##### **TP312 4th Edition, Code 3C non-precision runway**

212. The 2016 Tetra Tech report determined that for the 240-kV preferred route, the OLS would be 26.052 metres above the ground, for a TP312 4th Edition, Code 3C non-precision runway. For these calculations, Tetra Tech used the runway threshold coordinates provided by the PADC and LIDAR data from AltaLink.

213. AltaLink argued that since JetPro agreed with Tetra Tech's OLS calculation for TP312 4th Edition, Code 3C non-precision runway and AirTrav did not do an assessment under TP312 4th Edition, Tetra Tech's calculations were uncontroverted.

##### **TP312 5th Edition, AGN-IIIB non-precision runway**

214. Tetra Tech explained that if the TP312 5th Edition standards were applied, the runway threshold would need to be moved further east due to the height of Range Road 270 west of the runway. The moved runway threshold would result in shortening the Parkland Airport's useable runway, and would alter the Parkland Airport's OLS.

215. Tetra Tech calculated the Parkland Airport's OLS for take-offs and approaches under TP312 5th Edition. Taking into account the displaced runway threshold due to the height of Range Road 270, Tetra Tech determined that the take-off OLS would pass over the 240-kV preferred route by at least 25 metres above the ground. The approach OLS would pass over the 240-kV preferred route location by at least 24 metres above the ground.

216. In its reply evidence, AltaLink committed to ensuring that the H-frame structure height for the 240-kV preferred route would be no higher than 24 metres where necessary to avoid any potential intrusion upon the OLS for the Parkland Airport.<sup>60</sup> As a result of this commitment AltaLink stated that the structures would be below the OLS for the Parkland Airport under all potential scenarios under the TP312 4th Edition and TP312 5th Edition.

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<sup>60</sup> Exhibit 20987-X0152, AML Reply Evidence, page 24, paragraph 109.

217. With the inclusion of AltaLink's commitment, Mr. Sutherland opined that there would be no impact on the operations at the Parkland Airport resulting from the 240-kV preferred route.

218. AltaLink contested the assumptions made in the AirTrav report for the preferred route's impacts on the Parkland Airport's OLS. These assumptions included AirTrav's estimated location of structures, estimated ground surface elevations and an assumption of the location of the displaced runway threshold for the Parkland Airport. AltaLink argued that Tetra Tech had utilized the correct alignment for the preferred route, LIDAR surface elevations and the displacement threshold for the runway. As such, AltaLink argued that Mr. Sutherland's calculations, endorsed by Mr. McDonald, should be accepted over the AirTrav report's calculations.

#### **11.3.3.2.2 Alternate route**

219. The 138-kV alternate route structures would range from 30 to 40 metres in height and would be located within the Range Road 270 road allowance, west of the Parkland Airport's runway.

220. Tetra Tech stated that the alternate route would have an operational impact on the Parkland Airport because the useable length of the runway would be reduced approximately in half. Tetra Tech acknowledged that a shorter runway would potentially limit the size of aircraft that could be operated at the Parkland Airport.

221. Tetra Tech stated that reducing the length of the Parkland Airport's runway would not necessarily result in a loss of its certification, but it may change the levels of service available, including the size of planes able to utilize the Parkland Airport. AltaLink contested that if the alternate route were constructed, the Parkland Airport could still be operated safely.

222. Overall, AltaLink concluded that the preferred route could be constructed with no impact on the operations of the Parkland Airport. However, it argued that all proposed routes were viable.

#### **11.3.3.3 Zoning**

223. Generally, airport operators may control development within an airport's boundaries. However, control of developments outside of an airport's boundaries that may impact the OLS would require federal zoning regulations.

224. AltaLink reviewed all titles within 2.5 kilometres to the west and east of the Parkland Airport and determined that there were no restrictions on title that would impose height limitations on properties due to the presence of the Parkland Airport. Tetra Tech confirmed that there were no federal zoning regulations for the Parkland Airport.

225. AltaLink argued that while Mr. Gilgen had indicated that the Parkland Airport was considering the option of pursuing zoning, there was no evidence presented to suggest that zoning was imminent.<sup>61</sup>

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<sup>61</sup> Transcript, Volume 3, page 544, lines 8-20.

### 11.3.3.4 Mitigation

226. In response to concerns raised by the PRG and the PADC, AltaLink investigated direct burial and concrete duct options for burying the alternate route from node E25 northward for a distance of 740 metres. The underground option that AltaLink investigated was shorter than the length that JetPro recommended and it did not include any segments south of the Parkland Airport.

227. At the hearing, Mr. Turriff testified that the costs of the underground direct burial method would range from approximately \$17 million to \$29 million (within +50 per cent/ -10 per cent accuracy) and the costs for an underground concrete duct bank would range from \$22 million to \$36 million (within +50 per cent/-10 per cent accuracy) for the same distance.<sup>62</sup> Considering these costs, AltaLink did not apply for an underground option given that the PADC had not agreed to bear those costs.

228. Mr. Turriff explained that triple-circuit underground transmission lines are uncommon. He stressed that AltaLink would need considerable time to prepare an application for an underground option because it would have to engage in detailed discussions with contractors, material vendors and the AESO.

229. CH2M reviewed AltaLink's underground investigation, and determined that the underground construction methods would be viable from a water resource and vegetation perspective. However, there would be more ground disturbance for the underground options, which could cause additional agricultural issues and soil disturbances. From a wildlife perspective, CH2M concluded that an underground option was more favourable since it would eliminate bird strikes.

230. Due to the significant incremental cost of the underground segment, AltaLink submitted that the Commission should limit its consideration to the applied-for route options.

## 11.3.4 Views of the PADC

### 11.3.4.1 Standards assessed

231. JetPro stated that Parkland Airport was certified under TP312 4th Edition; however, it would be required to adopt TP312 5th Edition when TP312 4th Edition is eventually rescinded. Accordingly, the JetPro report calculated the Parkland Airport's OLS for a TP312 4th Edition, Code 3C non-precision runway, TP312 5th Edition, AGN-IIIB non-precision runway, and AC 301-001 (Registered Aerodrome), non-precision runway up to but not including 118 ft. aircraft wingspan.

### 11.3.4.2 Route impacts

232. The PADC explained that the primary users of the Parkland Airport are the Edmonton Flying Club (Edmonton Flight College) and E-Z Air helicopters. Also, other companies and private aviators park their aircraft at the Parkland Airport, and visiting aircraft use it for stop-overs and refuelling. It argued that its business would be impacted by the Harry Smith Development.

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<sup>62</sup> Transcript, Volume 1, page 95, lines 2-9.

233. The JetPro report modelled the Harry Smith Development to determine if the transmission line and structures would affect the various instrument flight procedures for approach and departure at runways 08 and 26. The JetPro report initially outlined a number of concerns with the 240-kV preferred route on the basis of AltaLink's original structure heights and concerns with the alternate route.

#### **11.3.4.2.1 Preferred route**

234. Upon review of the 2016 Tetra Tech report and the AltaLink reply evidence, Mr. McDonald testified that the 240-kV preferred route, with structures at a maximum height of 24 metres, would have an insignificant impact to the instrument procedures developed for the Parkland Airport.<sup>63</sup> The PADC confirmed in an undertaking that there would be no violation of the Parkland Airport's OLS under TP312 5th Edition if the 240-kV preferred route structures were constructed at a maximum height of 24 metres.<sup>64</sup>

235. Mr. Gilgen contested that one metre of clearance from an OLS would not be enough in an emergency situation.

#### **11.3.4.2.2 Alternate route**

236. The PADC stated that the alternate route, with 30- to 40-metre tall 138-kV structures adjacent to the Parkland Airport, would create unacceptable impacts. The PADC estimated that the structures would be less than 20 metres from the western edge of the runway and would severely penetrate the Parkland Airport's OLS.

237. The PADC argued that the alternate route's penetration of the Parkland Airport's OLS would result in de-certification of the Parkland Airport with Transport Canada. Mr. Gilgen explained that the certification of the runway addresses the operation availability of the Parkland Airport. In times of inclement weather, if a pilot cannot locate a runway, the pilot can try again or divert to another facility. Mr. Gilgen stated that maintaining non-precision runway status is essential to ensuring that the Parkland Airport is able to host aircraft under almost all weather conditions.

238. JetPro stated that the alternate route's penetration of the Parkland Airport's OLS would preclude the Parkland Airport from achieving non-precision status on its runways. JetPro contested that these OLS penetrations would be so severe that both Runway 08 and Runway 26 would be unable to attain even non-instrument status, which is a lower status than non-precision status.

239. JetPro submitted that the construction of the alternate route would make the Parkland Airport's runway one way in and one way out. The PADC argued that in order to keep operating, the Parkland Airport's runway would have to be displaced by at least half, and potentially up to all of its length.

240. The PADC argued that an airport is nothing without its runways. It submitted that a shortened runway would cause the Parkland Airport to lose its operational capacity and the ability to host larger aircraft. The PADC emphasized that a shortened runway would be a waste

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<sup>63</sup> Transcript, Volume 1, page 189, lines 8-14.

<sup>64</sup> Exhibit 20987-X0204, Written Undertaking Responses of Parkland Airport Development Corp.

of the resources invested for creating the Parkland Airport, getting the Parkland Airport certified, and paving the runways. It submitted that this would cause a significant and material loss of business and operational availability for the Parkland Airport, which may be equivalent to the loss of the entire venture itself.

241. The PADC concluded that the alternate route would be a disastrous route for the Parkland Airport. It argued that the impacts would be so severe that the alternate route could not rationally be considered a lower-impact option than the preferred route. Instead, the preferred route, along with AltaLink's commitment regarding tower heights, is clearly the lower-impact route; and if the transmission line is to be built at all, it should be built there.<sup>65</sup>

#### 11.3.4.3 Zoning

242. Mr. Gilgen stated that Transport Canada approached the PADC in late 2015 to start the process of implementing the zoning restrictions. He explained that it was the intention of the PADC to work with Transport Canada to ensure that zoning restrictions were put in place around Parkland Airport as soon as possible.<sup>66</sup> He testified that zoning regulations for the Parkland Airport were something the PADC was considering applying for and explained that it is an approximately 20-step process.<sup>67</sup>

243. The PADC argued that zoning restrictions could potentially take years to put into place and the Parkland Airport simply had not had enough time to do so.

#### 11.3.4.4 Mitigation

244. The PADC submitted that compensation would be inadequate to mitigate the alternate route's impacts on the Parkland Airport.

245. The PADC argued that the only potential mitigation of the alternate route's impacts to the Parkland Airport would be to construct a segment underground. JetPro stated that the alternate route should be buried from a position 914 metres north of node E25 to a position 305 metres south of node E20. This distance would include an underground segment that would parallel the Parkland Airport's runways in an east-west configuration, and then proceed to the south. The length of an underground route suggested by JetPro was longer than the distance investigated by AltaLink.

246. Mr. McDonald testified that the underground segment AltaLink investigated would probably satisfy the OLS considerations, but it would not satisfy the Parkland Airport's instrument procedure design considerations, and thus, would make the Parkland Airport less effective in marginal weather conditions.<sup>68</sup>

247. The PADC explained that it would not be possible for it to bear the incremental costs of an underground route option and that AltaLink should pay the costs of mitigating the impacts that it would be creating.

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<sup>65</sup> Transcript, Volume 3, pages 503-504, lines 18-1.

<sup>66</sup> Transcript, Volume 1, page 201, lines 12-15.

<sup>67</sup> Transcript, Volume 2, page 264, lines 22-25.

<sup>68</sup> Transcript, Volume 2, pages 319-320, lines 25-10.

### 11.3.5 Views of the PRG

#### 11.3.5.1 Standards assessed

248. The AirTrav report explained the primary differences between TP312 4th Edition and TP312 5th Edition. It stated that in the TP312 4th Edition, the OLS is a single sloping surface used for both take-off and approach. However, TP312 5th Edition uses a more sophisticated method to calculate the OLS and includes graduated slopes and different dimensions for the take-off and approach surfaces.

249. The AirTrav report assumed that the Parkland Airport had a TP312 5th Edition, AGN-IIIB non-precision runway.

250. Mr. Cormier testified that because the Parkland Airport was certified under TP312 4th Edition, it may continue to meet those standards and not conform to TP312 5th Edition for a period of time. However, the PRG submitted that the Commission should consider the standards in the TP312 5th Edition because it is the most recent standard.

#### 11.3.5.2 Route impacts

251. The AirTrav report stated that an airport's OLS cannot be penetrated by obstacles, or the Parkland Airport's certification could be cancelled and its published instrument procedure may be rescinded. Mr. Cormier testified that if an obstacle is immediately under the OLS, but does not penetrate it, an airport may be operated safely.<sup>69</sup> Mr. Kokonis added that "when it comes to the OLS and how they're assessed in terms of is there a penetration of an obstruction into the OLS, either you're in or you're out."<sup>70</sup>

##### 11.3.5.2.1 Preferred route

252. The AirTrav report assessed the impacts of the 240-kV preferred route on the Parkland Airport prior to AltaLink's structure height commitment. The AirTrav report concluded that if the 240-kV preferred route was constructed with 25-metre tall structures, it could penetrate the OLS approach surface by up to 1.2 metres and the OLS take-off surface by up to two metres assuming the Parkland Airport had a TP312 5th Edition, AGN-IIIB non-precision runway. In addition, Mr. Cormier and Mr. Kokonis acknowledged that their report could have been more accurate for the reasons discussed below.

253. Firstly, the PRG contested that AltaLink had yet to determine the exact locations of the transmission line structures.<sup>71</sup> The AirTrav report used an estimated location for the preferred route. The proposed 240-kV preferred route was located farther away from the Parkland Airport than AirTrav calculated, which would result in the Parkland Airport's OLS being higher at the actual location of the 240-kV preferred route.

254. Secondly, the AirTrav report assumed the ground elevation to be the same at the Parkland Airport and along the 240-kV preferred route. The PRG argued that ground elevations at the structure locations may be higher than the elevations that were used to calculate the penetration of the OLS. According to AirTrav, the precise elevations of the locations where the

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<sup>69</sup> Transcript, Volume 2, page 400, lines 15-16.

<sup>70</sup> Transcript, Volume 2, page 400, lines 18-24.

<sup>71</sup> Transcript, Volume 3, page 526, lines 15-18.

240-kV preferred route structures would be located are required to accurately assess the potential impacts.

255. Thirdly, Mr. Cormier acknowledged that the AirTrav report's calculation of the OLS did not take into account, or adjust in any way, for clearance above Range Road 270 adjacent to the Parkland Airport.<sup>72</sup> Given that Range Road 270 would penetrate the Parkland Airport's OLS under TP312 5th Edition, the runway threshold would need to be displaced farther from the road, resulting in a shortened runway and a higher OLS at the location of the preferred route. Alternatively, the Parkland Airport may be able to institute traffic control of some kind.

256. With respect to the AirTrav report's assumptions, Mr. Cormier testified:

LIDAR is very precise. That would be excellent. And if we had -- especially if it was backed up by a surveyor that can report precisely the ground elevation and, as well, precisely the actual end of the runway because, as Robert stated earlier, there was some conflicting information about where exactly is the end of the runway today. I used the information that NAV Canada has on file.<sup>73</sup>

257. In argument, the PRG acknowledged that if AltaLink used structures than were 24 metres or less to construct the 240-kV preferred route, the penetrations into the Parkland Airport's approach and take-off OLS would be one metre less than originally calculated.

### 11.3.5.3 Mitigation

258. The PRG argued that the proposed alternate route was not a viable route option because it would place significant constraints on the Parkland Airport. Mr. Berrien argued that the alternate route, as applied for, was an unrealistic option and stated:

It's my submission, Mr. Chairman, that the placement of a power line aboveground as applied for on the alternate route is a strawman. It is absolutely unrealistic proposition to think that you're going to approve a power line that is going to go aboveground 60 metres, or whatever it might be, from the end of a runway. It just beggars the imagination that this council would even consider it. And, as such, I don't consider it to be a true or functional alternative.<sup>74</sup>

259. The PRG submitted that the alternate route must be located underground for 740 metres where it passes the west end of the Parkland Airport. The PRG argued that burial of a portion of the alternate route would eliminate intrusions by either route into the Parkland Airport's OSL.

260. Mr. Berrien stated that Parkland Airport should not pay for an underground alternate route because the Parkland Airport was there earlier.

261. Mr. Berrien questioned the validity of AltaLink's cost estimate for an underground route in the area near the Parkland Airport when compared to other underground transmission projects. Mr. Berrien submitted that it would be appropriate to send AltaLink back to investigate an underground alternate route further. The PRG argued that AltaLink's underground cost estimates

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<sup>72</sup> Transcript, Volume 2, pages 386-387, lines 24-21.

<sup>73</sup> Transcript, Volume 2, page 379, lines 7-16.

<sup>74</sup> Transcript, Volume 2, page 412, lines 3-12.

were not complete and that full cost information should have been made available to the Commission for an underground route.

262. Due to the lack of underground route option information, the PRG questioned whether AltaLink provided sufficient or adequate information to permit a full and satisfactory understanding of the issues at hand to adequately assess the full extent of the impacts of the project.

#### **11.4 Commission findings**

263. As discussed in the previous sections, in determining the public interest, the Commission must compare the respective social, economic and environmental impacts of the routes proposed by AltaLink. In determining social, economic and environmental impacts, the Commission considers routing criteria, including agricultural impacts, residential impacts, visual impacts, electrical considerations, environmental impacts and cost. The Commission also considers special constraints such as the presence of the Parkland Airport.

264. The parties to the proceeding identified the criteria they considered relevant to choosing a route and expressed their views of the relative importance of the criteria in this proceeding. Making a decision on a transmission line application is a complex process in which the decision maker considers all the evidence regarding the impacts of each route taking into account the effectiveness of mitigation measures examined in the proceeding. The Commission does not weigh routing criteria and special constraints individually. Rather, it weighs all of the criteria together, and considers both the potential impact on individuals and on the larger community.

265. The Commission finds that the routing determination process presented by AltaLink is the traditional method of balancing all relevant factors with a view to addressing any specific challenges raised in any particular area of the proposed route options. The Commission finds that the methodology adopted by AltaLink in trying to find viable routes was a reasonable one. AltaLink refined its applied-for routes as its knowledge of the project area and the project progressed. The Commission finds that AltaLink reasonably applied accepted routing principles in its assessment of the initial study area and in its identification of its applied-for route alternatives and substation locations.

266. The Commission recognizes that approval of any of the applied-for transmission lines routes may impact landowners. In the Commission's view, some concerns, such as concerns with clubroot, apply generally to all proposed routes. The Commission expects AltaLink to be conscientious to the potential for significant impacts that the spread of clubroot can cause, and expects AltaLink and its contractors to be diligent in the application of its clubroot mitigation procedures during the construction, operation, and maintenance of the project.

267. The Commission will now assess the differences in potential impacts between the applied-for routes.

268. The preferred route and the preferred variant route differ by having triple-circuit structures for transmission lines 452L, 446L and 453L, compared to double-circuit structures for transmission lines 446L and 453L and single-circuit structures for Transmission Line 452L. The Commission finds that the preferred route is better at minimizing disturbances because all three

transmission lines are confined to one location, on triple-circuit structures, for the majority of the route.

269. The preferred variant route would have more transmission line length than the preferred route and a higher potential for environmental impacts. For this reason, the Commission finds that the preferred route is superior to the preferred variant route from an environmental perspective.

270. In evaluating the impacts between the preferred route and the preferred variant route, the Commission finds that avoidance of homesites was a key factor in determining the lowest impact route. Given the location of the Harry Smith Development, AltaLink was unable to avoid homesites altogether. In the Commission's view, the preferred route is clearly superior from this perspective because of the number of residences in close proximity to the transmission lines. The preferred route has significantly fewer residences within 150 metres than the preferred variant route. When considering the factors between the preferred route and the preferred variant route as a whole, the Commission finds that the metrics reflecting proximity to residences is a distinguishing factor.

271. With respect to the remaining criteria between the preferred route and the preferred variant route, the assessment and balancing of the competing factors was challenging because the metrics in this area were nearly indistinguishable.

272. The Commission finds that the impacts of the preferred route are less than the impacts of the preferred variant route. Accordingly, the Commission finds that the preferred variant route is not the overall lowest impact route.

273. In assessing the impacts between the preferred route and the alternate route, the Commission notes that one landowner has objected to each route segment, in addition to the PADC. Lewis Farms and the Gilgen Group both appeared at the hearing, testified, and increased the Commission's understanding of their positions. For example, the Commission found the testimony of Mr. Lewis helpful in determining the potential impacts of the 240-kV preferred route on his bull operation and agricultural practices. The Commission notes that his preference was to have the alternate substation constructed on his property instead of the 240-kV preferred route.

274. The Commission finds that the preferred route would have a higher level of agricultural impacts than the alternate route due to the higher length of transmission lines located on private land used for crops and pasture. The evidence with respect to the impacts to specific agricultural operations, including Lewis Farms' business, was extensive. The Commission notes that while the Gilgen Group has objected to the alternate route, there was no additional evidence provided to the Commission with respect to the impacts of the alternate route on agricultural operations. The Commission finds that the impacts to agricultural operations are sufficient to differentiate between the preferred route and the alternate route. However, this must be weighed against other factors, including the impacts to the Parkland Airport discussed below.

275. Should the Commission find that the preferred route is the lowest impact route overall, it recognizes that Lewis Farms will be impacted and the Commission expects AltaLink to carefully

consider structure locations on Lewis Farms' land taking into account potential impacts and landowner feedback in order to minimize the impacts experienced.

276. The Commission finds that since the alternate route would have one more residence within 150 metres of the centre line, it would have slightly higher residential impacts than the preferred route. In the Commission's view, residential impacts are not a significant distinguishing factor with respect to these routes.

277. The Commission considers the special constraint of siting the Harry Smith Development near the Parkland Airport to be an important factor in determining the least impact route option.

278. The Commission heard evidence from the PADC that it may pursue federal zoning which would restrict the height of developments in and around the Parkland Airport. There is no federal zoning issued for the Parkland Airport at this time. The Commission considers the discussion regarding the future zoning around the Parkland Airport to be speculative and therefore has given this evidence little weight.

279. The Commission finds persuasive the expert evidence before it that, if approved, the alternate route would impact the Parkland Airport's current operations due to the proximity of the transmission line structures to the Parkland Airport. Tetra Tech and JetPro agreed that should the alternate route be constructed, the length of the useable portion of the runway would be reduced. Based on the evidence submitted by Tetra Tech, JetPro and AirTrav, the Commission understands that the Parkland Airport's certification may need to be amended should the alternate route be approved. This is in part because the runway would need to be significantly shortened due to the presence of the alternate route.

280. While the Commission accepts that the Parkland Airport would still be operational, the alternate route's transmission line structures would impact the size and type of planes that the Parkland Airport would be able to host. For example, some of the types of aircraft using the Parkland Airport may not be able to continue to use it. The Commission finds that if the alternate route were approved, it would create significant impacts to the operations of the Parkland Airport.

281. With respect to impacts of the 240-kV preferred route, each expert provided an opinion of whether the preferred route may impede on the Parkland Airport's OLS.

282. An OLS is defined differently in TP312 4th Edition and TP312 5th Edition. The evidence before the Commission indicated that the OLS under TP312 5th Edition is comparatively more stringent and may require the preferred route transmission line structures to be lower heights than permitted under the TP312 4th Edition. The Commission recognizes that OLS calculations were completed assuming different classifications for the Parkland Airport's runways. While the runway classification used differed, the Commission finds that these assumptions were reasonable in the circumstances.

283. The Commission finds that since the AirTrav OLS calculations contained a number of assumptions, such as the location and elevation of the project components, the calculations were not as precise as the calculations completed by Tetra Tech. The Commission finds that the OLS calculations done by Tetra Tech took into account project-specific information, including the

precise location of the transmission structures, LIDAR data, and the Parkland Airport's runway threshold.<sup>75</sup> The Commission also notes that the Tetra Tech OLS calculations were not objected to by Mr. McDonald, or the PADC.

284. Based on the record of the proceeding, the Commission accepts Tetra Tech's calculations of the Parkland Airport's OLS.

285. Regardless of whether the Parkland Airport is certified under TP312 4th Edition or TP312 5th Edition, the Commission finds that the impacts to the Parkland Airport can be effectively mitigated with the inclusion of the following condition:

- Prior to construction of new transmission lines 1043L and 1139L, AltaLink must file a report with the Commission indicating whether the transmission lines will impact the Parkland Airport's obstacle limitation surface under TP312 Aerodrome Standards and Recommended Practices, 4th Edition and 5th Edition. The report shall include structure heights, locations, and ground elevations used in the analysis. The Commission will then decide if further process is necessary.

286. The Commission also expects AltaLink to uphold its commitment to ensure that the H-frame structure height for the 240-kV preferred route would be no higher than 24 metres where necessary to avoid any potential intrusion upon the OLS for the Parkland Airport.

287. The Commission will now consider the parties submissions regarding the impacts of burying a portion of the alternate route. The Commission heard conflicting evidence from Tetra Tech and JetPro regarding the lengths of the alternate route transmission lines required to be sited underground to eliminate the impacts to the Parkland Airport. The Commission notes that Tetra Tech suggested the shortest length of the alternate route transmission lines to be located underground.

288. The Commission also heard evidence from Mr. Berrien about the potential costs of an underground option. However, given the analysis presented, the Commission finds that it can give little weight to Mr. Berrien's conclusions regarding underground costs.

289. The Commission has sufficient evidence before it to make a determination between the applied-for routes and the alternate route with an underground option. The Commission recognizes that underground triple-circuit 138-kV transmission lines are not common practice in Alberta and there would be significant additional costs associated with the size and scale of a project of this nature. Having reviewed the preliminary costs estimates associated with an underground option, which would be passed onto Alberta ratepayers, the Commission finds that the incremental costs would not make the route, on balance, a clearly superior route to the preferred route. AltaLink's costs estimate reflected the length of the transmission lines suggested by Tetra Tech, which, as noted above, was the shortest underground option identified to mitigate impacts. Accordingly, the Commission finds it unnecessary to direct AltaLink to investigate burying a portion of the transmission line near the Parkland Airport. The Commission is of the view that the evidence before it does not support the making of a finding of fact, by the

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<sup>75</sup> The Parkland Airport's runway threshold included considerations to the impacts to the Parkland Airport's OLS under TP312 5th Edition due to Range Road 270.

Commission, that the routing factors, on balance, indicate that burying a portion of the alternate route is superior to other applied-for routes.

290. While the Commission recognizes that approval of each of the routes proposed by AltaLink has associated impacts, it finds approval of the preferred route would result in fewer impacts than approval of either the alternate route or the preferred variant route. Based on the foregoing analysis, the Commission finds that approval of the Harry Smith Development's preferred route and preferred substation location, with the condition in paragraph 285 of this decision, is in the public interest pursuant to Section 17 of the *Alberta Utilities Commission Act*.

## 12 Other components

### 12.1 Views of AltaLink

291. As part of the Harry Smith Development, AltaLink applied to alter existing Transmission Line 739L and to:

- Redesignate the portion of Transmission Line 739L between the connection point with Transmission Line 452L and Stony Plain 434S Substation as Transmission Line 452L.
- Salvage existing Transmission Line 739L from the connection point with Transmission Line 452L and Acheson 305S Substation.
- Redesignate the portion of Transmission Line 739L between Stony Plain 434S Substation and Carvel 432S Substation as Transmission Line 790L.

292. AltaLink applied to redesignate Transmission Line 739AL as Transmission Line 790AL.

293. AltaLink applied to alter the existing Transmission Line 1043L by connecting it to the new segments of transmission lines 1043L and 1139L. AltaLink applied to redesignate its portion of existing Transmission Line 1043L between the connection point and Petrolia 816S Substation as Transmission Line 1139L.

294. By Connection Order U2011-307,<sup>76</sup> AltaLink has approval to connect the existing Transmission Line 1043L to EPCOR Distribution & Transmission Inc.'s Petrolia 816S Substation. AltaLink also applied to alter Connection Order U2011-307 to reflect the new designation of Transmission Line 1139L.

295. AltaLink also applied to alter Acheson 305S Substation by adding two 138-kV circuit breakers and expanding the substation fenced area. The Acheson 305S Substation is located in LSD 3 of Section 28, Township 52, Range 26, west of the Fourth Meridian. The proposed substation would require a minor expansion of the existing substation fenceline to the east by approximately 10 metres by 65 metres. The expansion was proposed on AltaLink-owned land, and no new land acquisition would be necessary.

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<sup>76</sup> Connection Order U2011-307, Proceeding 754, Applications 1606407 and 1606409, September 30, 2011.

296. AltaLink also applied to alter existing Stony Plain 434S Substation by replacing the existing 15-metre tall wood telecommunications tower located outside the substation fenceline with an 18-metre tall steel telecommunications tower located within the substation fenceline. The Stony Plain 434S Substation is located in the southwest quarter of Section 32, Township 52, Range 27, west of the Fourth Meridian.

297. No party raised concerns specifically regarding the alterations to Transmission Line 739L, Transmission Line 1043L, the Acheson 305S Substation or the Stony Plain 434S Substation.

## 12.2 Commission findings

298. The Commission finds that there are no environmental, social or economic impacts from the alterations to Transmission Line 739L, Transmission Line 1043L, Connection Order U2011-307, Acheson 305S Substation and Stony Plain 434S Substation that would indicate that the alterations are not in the public interest. The Commission approves the alterations to Transmission Line 739L, Transmission Line 1043L, Connection Order U2011-307, Acheson 305S Substation and Stony Plain 434S Substation and the redesignations of the transmission lines.

299. TransAlta Corporation (TransAlta), pursuant to Permit and Licence 20598-D17-2016,<sup>77</sup> has approval to construct and operate a portion of the existing Transmission Line 1043L located within the boundaries of the Stony Plain Indian Reserve No. 135. Based on the record of this proceeding, TransAlta's portion of Transmission Line 1043L is still under construction. Because the Commission has approved the Harry Smith Development, TransAlta's portion of Transmission Line 1043L should be redesignated as Transmission Line 1139L. A connection order would also be required for approval of AltaLink to connect its portions of Transmission Line 1139L to TransAlta's portion of Transmission Line 1139L.

300. The Commission understands that AltaLink stated that it would submit a letter prior to November 30, 2016, to confirm when TransAlta's portion of Transmission Line 1043L may be redesignated as Transmission Line 1139L. The Commission expects AltaLink to consult with TransAlta and for the appropriate party to file new applications for the redesignation of TransAlta's portion of Transmission Line 1043L to Transmission Line 1139L and for the connection order once construction of the transmission line is complete.

## 13 Decision

301. Pursuant to sections 14, 15 19, 21 and 34 of the *Hydro and Electric Energy Act*, the Commission approves the applications and grants AltaLink the following approvals:

- Appendix 1 – New Harry Smith 367S Substation – Permit and Licence 20987-D02-2016
- Appendix 2 – Alter Acheson 305S Substation – Permit and Licence 20987-D03-2016

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<sup>77</sup> Transmission Line Permit and Licence 20598-D17-2016, Proceeding 20598, Application 20598-A002, March 10, 2016.

- Appendix 3 – Alter Stony Plain 434S Substation – Permit and Licence 20987-D04-2016
- Appendix 4 – New Transmission Line 446L – Permit and Licence 20987-D05-2016
- Appendix 5 – New Transmission Line 453L – Permit and Licence 20987-D06-2016
- Appendix 6 – New Transmission Line 452L – Permit and Licence 20987-D07-2016
- Appendix 7 – Alter Transmission Line 739L – Permit and Licence 20987-D08-2016
- Appendix 8 – Redesignate Transmission Line 790L – Licence 20987-D09-2016
- Appendix 9 – Redesignate Transmission Line 790AL – Licence 20987-D10-2016
- Appendix 10 – Alter Transmission Line 1043L – Permit and Licence 20987-D11-2016
- Appendix 11 – New Transmission Line 1139L – Permit and Licence 20987-D12-2016
- Appendix 12 – Connection Order for Transmission Line 1139L – Order 20987-D13-2016

302. The appendices will be distributed separately.

Dated on July 28, 2016.

**Alberta Utilities Commission**

*(original signed by)*

Tudor Beattie, QC  
Panel Chair

*(original signed by)*

Neil Jamieson  
Commission Member

*(original signed by)*

Bill Lyttle  
Commission Member

## Appendix 1 – Proceeding participants

<b>Name of organization (abbreviation) Company name of counsel or representative</b>
AltaLink Management Ltd. (AltaLink) B. Hunter M. Ghikas
Gilgen Group N. Ramessar M. Niven
Parkland Airport Development Corp. (PADC) N. Ramessar M. Niven
Pioneer Road Group (PRG) R. Secord Y. Cheng

Alberta Utilities Commission  Commission panel Tudor Beattie, QC, Panel Chair Neil Jamieson, Commission Member Bill Lyttle, Commission Member  Commission staff Shanelle Sinclair (Commission counsel) Allan Anderson Conrad Dalsin
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## Appendix 2 – Oral hearing – registered appearances

<b>Name of organization (abbreviation) Name of counsel or representative</b>	<b>Witnesses</b>
AltaLink Management Ltd. (AltaLink) B. Hunter M. Ghikas	M. Van Wyk S. Sutherland S. Heffernan K. Turriff C. Chen D. Hoover W. Mundy
Gilgen Group N. Ramessar M. Niven	R. Gilgen
Parkland Airport Development Corp. (PADC) N. Ramessar M. Niven	E. McDonald R. Gilgen
Pioneer Road Group (PRG) R. Secord Y. Cheng	R. Berrien L. Ross K. Lewis M. Trueman J. Netzlaff R. Kokonis C. Cormier

### Appendix 3 – Abbreviations

Abbreviation	Name in full
240-kV preferred route	preferred and preferred variant route for the 240-kV transmission lines 1043L and 1139L
2013 Tetra Tech report	AML Appendix Q-3, SWEF Aviation Airport Issues Report (Oct 2013)
2016 Tetra Tech report	AML Reply Evidence - Appendix 04 Tetra Tech Report
AEP	Alberta Environment and Parks
AESO	Alberta Electric System Operator
AirTrav	AirTrav Inc.
AirTrav report	AirTrav Inc. Expert Report
AltaLink	AltaLink Management Ltd.
AUC or the Commission	Alberta Utilities Commission
Berrien report	Submissions of the Pioneer Road Group, B - Evidence of Robert Berrien and CV (Amended)
CH2M	CH2M Hill Energy Canada Ltd.
dBa Leq	decibels A-weighted $L_{eq}$
EMF	electric and magnetic field or electromagnetic field
ESR	Environmental Specifications and Requirements
JetPro	JetPro Consultants Inc.
JetPro report	Impact Assessment - Alta Link Harry Smith Transmission Project - Upon The Instrument Flight Procedures - Parkland Airport
km	kilometre
kV	kilovolt
Lewis Farms	Lewis Farms Ltd.
NID	needs identification document
OLS	obstacle limitation surface
PADC	Parkland Airport Development Corp.
PRG	Pioneer Road Group
Rule 007	Rule 007: <i>Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments</i>
Rule 012	Rule 012: <i>Noise Control</i>
Serecon	Serecon Inc.
Tetra Tech	Tetra Tech EBA Inc.
TP312 4th Edition	TP312 Aerodrome Standards and Recommended Practices 4th Edition
TP312 5th Edition	TP312 Aerodrome Standards and Recommended Practices 5th Edition
TransAlta	TransAlta Corporation
@P&L	At Permit and Licence costs