



## **Alberta Electric System Operator**

### **Goose Lake to Chapel Rock Southern Alberta Transmission Reinforcement Needs Identification Document Amendment**

**January 27, 2014**

**The Alberta Utilities Commission**

Decision 2014-004: Alberta Electric System Operator  
Goose Lake to Chapel Rock Southern Alberta Transmission  
Reinforcement Needs Identification Document Amendment  
Application No. 1609122  
Proceeding ID No. 2349

January 27, 2014

Published by

The Alberta Utilities Commission  
Fifth Avenue Place, Fourth Floor, 425 First Street S.W.  
Calgary, Alberta  
T2P 3L8

Telephone: 403-592-8845  
Fax: 403-592-4406

Website: [www.auc.ab.ca](http://www.auc.ab.ca)

## Contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
<b>2</b>	<b>Background</b> .....	<b>2</b>
	2.1 The process for new transmission development in Alberta .....	2
	2.2 Prior Southern Alberta Transmission Reinforcement needs identification document approvals .....	2
<b>3</b>	<b>Discussion</b> .....	<b>6</b>
	3.1 Views of the applicant.....	6
	3.2 Views of other parties .....	11
<b>4</b>	<b>Findings</b> .....	<b>14</b>
<b>5</b>	<b>Decision</b> .....	<b>16</b>
	<b>Appendix 1 – Proceeding participants</b> .....	<b>17</b>
	<b>Appendix 2 – Abbreviations</b> .....	<b>19</b>

## List of tables

<b>Table 1</b>	<b>Land Impact Assessment Comparative Metrics</b> .....	<b>10</b>
----------------	---	-----------

## Table of figures

Figure 1: SATR NID Figure 8.1-2 Pincher Creek Area Development Concept .....	3
Figure 2: SATR NID Conceptual Map Showing Development Plan Alternative 1A .....	4
Figure 3: Original Fidler NID Pincher Creek Area Development Concept.....	5
Figure 4: Chapel Rock Connection Alternatives .....	7



## **1 Introduction**

1. The Alberta Electric System Operator (AESO) filed an application pursuant to Section 34 of the *Electric Utilities Act* with the Alberta Utilities Commission (AUC or the Commission) seeking to amend the Southern Alberta Transmission Reinforcement (SATR) needs identification document (NID) approval, Approval No. U2013-460.<sup>1</sup> The application was registered on December 14, 2012 as Application No. 1609122 and designated as Proceeding ID No. 2349.

2. The AESO requested AUC approval to replace the references to Crowsnest substation with Chapel Rock 491S substation; amend the reactive power equipment to be installed at Chapel Rock 491S substation; and replace the new 240-kilovolt (kV) double-circuit transmission line from Goose Lake 103S substation to Crowsnest substation with a new 240-kV double-circuit transmission line from Goose Lake 103S substation to Chapel Rock 491S substation either via Fidler 312S substation (Alternative 1) or via Castle Rock Ridge 205S substation (Alternative 2). The AESO proposed that Alternative 2, via Castle Rock Ridge 205S substation, be the preferred alternative.

3. The Commission requested additional information from the AESO on April 9, 2013. The AESO responded on April 23, 2013.

4. On May 23, 2013, the Commission issued a notice of hearing scheduling an oral hearing on August 26, 2013.

5. The Commission issued a process letter on August 20, 2013, indicating that it had come to its attention that some parties whose rights may be directly and adversely affected by decisions made respecting the application may not have received the Commission's notice of hearing. As a result, the Commission reissued notice of the hearing, rescheduling it to November 12, 2013.

6. On October 21, 2013, the AESO submitted a letter advising that after consulting with several parties, it did not believe that an oral hearing was needed and that it was therefore requesting that the November 12, 2013 oral hearing be cancelled.

7. On October 21, 2013, the Commission issued a letter to registered parties inviting submissions on whether the Commission should cancel the hearing and consider the application through a written process. The Commission received responses from the Livingstone Landowners Group, TransCanada Energy Ltd. and Powerex Corp. These parties either supported

---

<sup>1</sup> Needs Identification Document Approval No. 2013-460, Application No. 1608846, Proceeding Id No. 2001, October 28, 2013.

the AESO's request or expressed no objection to it. Accordingly, there being neither a demand, nor any ostensible or overarching need, for an oral hearing to determine the application, the Commission cancelled the hearing scheduled for November 12, 2013, and directed a written process allowing parties until November 15, 2013 to submit final argument and until November 25, 2013 to submit any reply argument.

## 2 Background

### 2.1 The process for new transmission development in Alberta

8. One of the Commission approvals required to build new transmission in Alberta, other than critical transmission infrastructure, is an approval of the need for expansion or enhancement to the system pursuant to Section 34 of the *Electric Utilities Act*. A permit to construct and a licence to operate a transmission facility are also required pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*, but an application for such has not yet been filed with the Commission.

9. The AESO, in its capacity as the independent system operator (ISO) established under the *Electric Utilities Act*, is responsible for preparing a needs identification document and filing it with the Commission for approval pursuant to Section 34 of the *Electric Utilities Act*. In Decision [2004-087](#), the Commission's predecessor, the Alberta Energy and Utilities Board (EUB), described the NID process as follows:

It is the Board's view that section 34 contemplates a two-stage consideration of an NID. In the first stage, the Board must determine whether an expansion or enhancement of the capability of the transmission system is necessary to alleviate constraint, improve efficiency, or respond to a request for system access...

If it is determined that expansion or enhancement of the system is required to address constraint, inefficiency, system access requests, or any combination thereof, the Board must then assess, in the second stage, whether enhancement or expansion measures proposed by AESO are reasonable and in the public interest.<sup>2</sup>

### 2.2 Prior Southern Alberta Transmission Reinforcement needs identification document approvals

10. The AESO filed its SATR NID application with the AUC on December 30, 2008. The AESO's SATR NID application had described potential locations of the transmission facilities by "swaths" that the AESO defined as "possible areas for 240-kV development." In the AESO's SATR NID application, Figure 8.1-2 showed the system development concept for the Pincher Creek area. Figure 8.1-2 is reproduced below as Figure 1.

---

<sup>2</sup> EUB Decision 2004-087, Southwest Alberta 240 kV Transmission System Development Addendum to Decision [2004-075](#), pages 13-14.

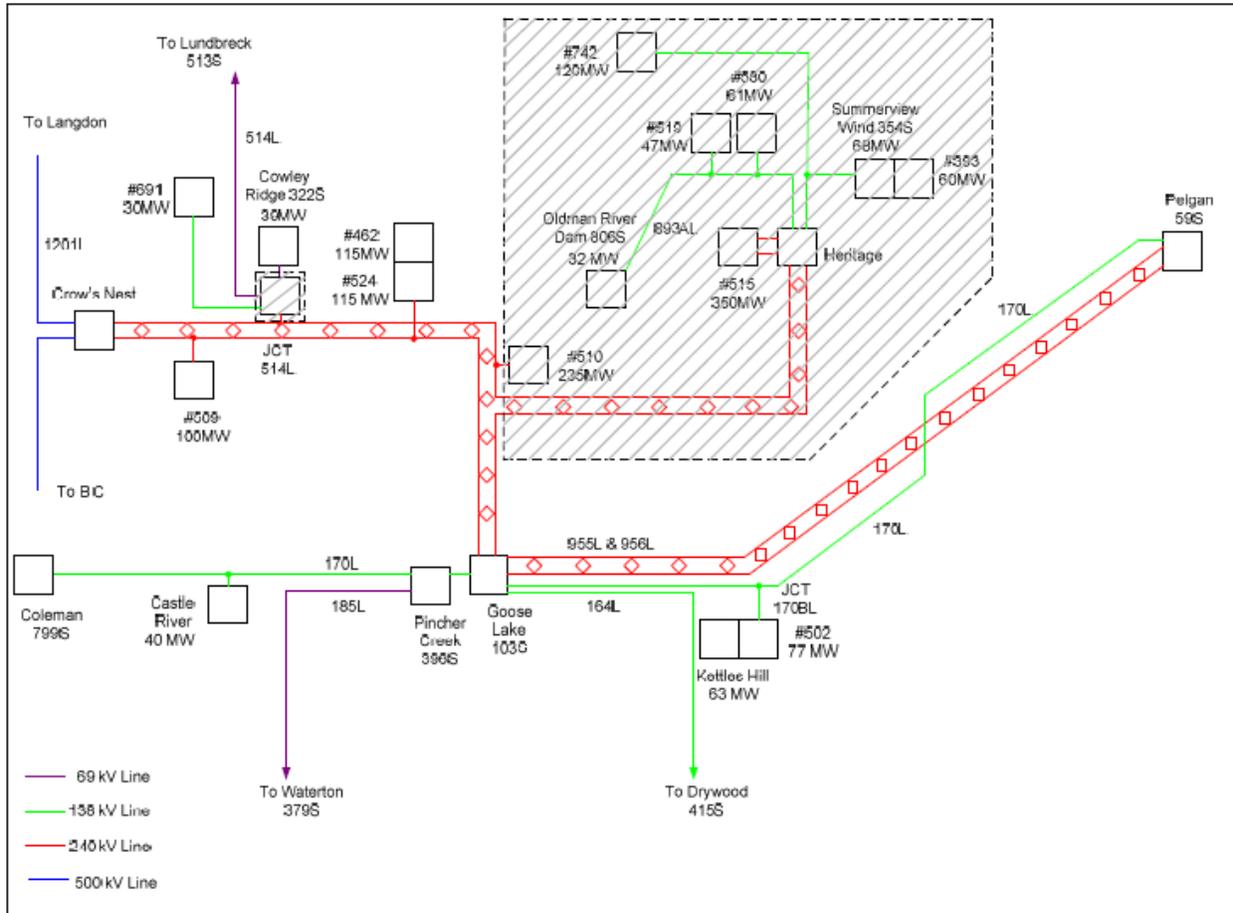


Figure 1: SATR NID Figure 8.1-2 Pincher Creek Area Development Concept<sup>3</sup>

<sup>3</sup> Exhibit 1, Application, Figure 1, page 7.

11. The Commission approved the SATR NID in Decision 2009-126<sup>4</sup> on September 8, 2009, and issued NID Approval No. U2009-340<sup>5</sup> on September 17, 2009. Decision 2009-126 not only approved the SATR NID, but also Alternative 1A, the AESOs preferred option for system development. Decision 2009-126 included a map outlining Alternative 1A, including the swaths. This map is shown below in Figure 2.<sup>6</sup>

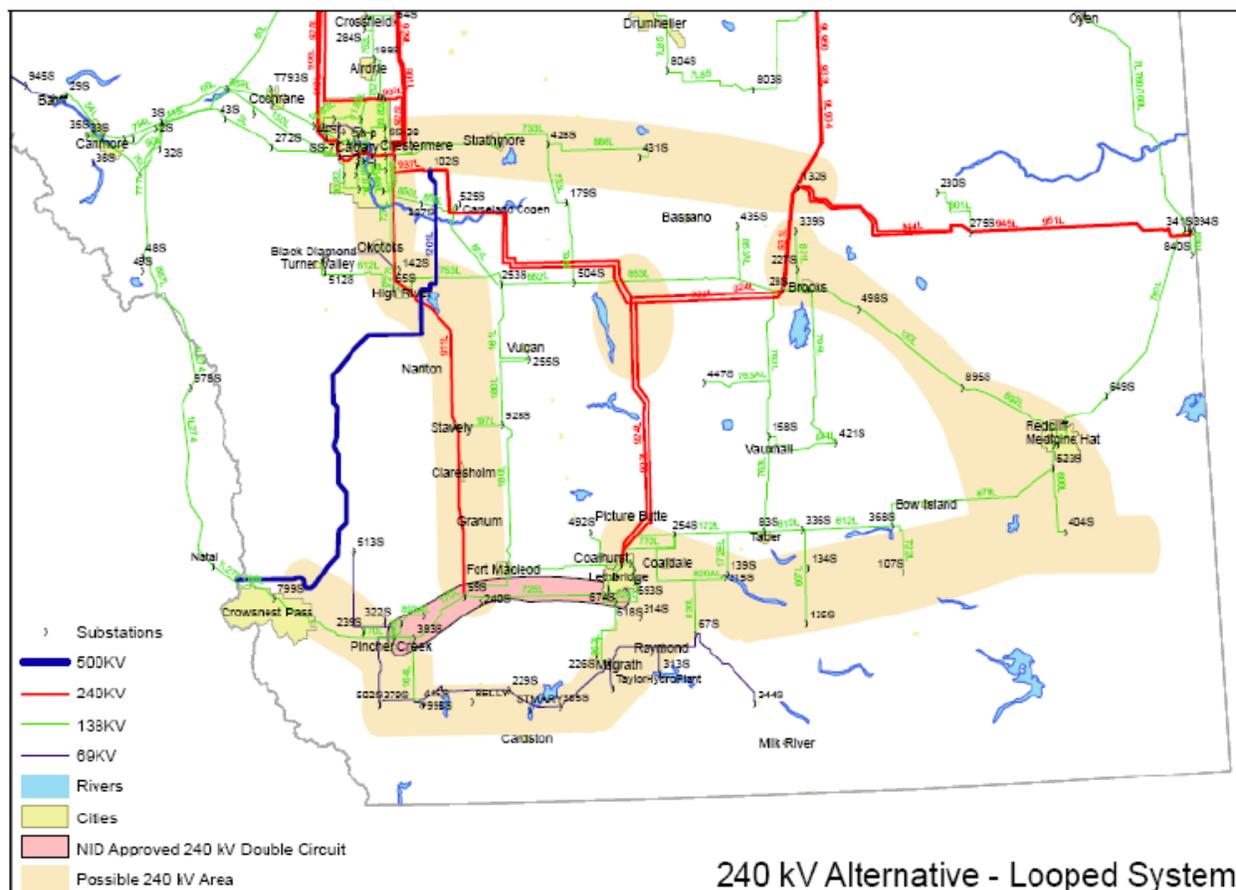


Figure 2: SATR NID Conceptual Map Showing Development Plan Alternative 1A<sup>7</sup>

12. The Commission’s decision on the SATR NID approved the system development for “a new 240-kV double-circuit transmission line connecting Crowsnest substation to Goose Lake 103S substation” and “a new 500-kV Crowsnest substation to be located near Crowsnest Pass.”

<sup>4</sup> Decision 2009-126: Alberta Electric System Operator, Needs Identification Document Application Southern Alberta Transmission System Reinforcement, Application No. 1600862, Proceeding ID No. 171, September 8, 2009.

<sup>5</sup> Needs Identification Document Approval No. U2009-340, Application No. 1600862, Proceeding ID No. 171, September 17, 2009.

<sup>6</sup> On December 7, 2009, the AESO filed its finalized milestones and monitoring process with the AUC, pursuant to the Commission’s direction in Decision 2009-126 and NID Approval No. U2009-340. The Commission approved the finalized milestones and monitoring process in Decision 2010-343 and issued SATR NID Approval No. U2010-264 on July 19, 2010. On March 15, 2011, the Commission approved amendments to the SATR NID in Decision 2011-102 and the AESO was granted NID Approval No. U2011-115 on June 7, 2011.

<sup>7</sup> Decision 2009-126: Alberta Electric System Operator, Needs Identification Document Application Southern Alberta Transmission System Reinforcement, Application No. 1600862, Proceeding ID No. 171, September 8, 2009.

13. The AESO filed Application No. 1606281 for a needs identification document for Fidler 312S substation on June 16, 2010. In this application, the AESO contemplated a new system design for the Goose Lake to Crowsnest, now referred to as Goose Lake to Chapel Rock, transmission line, which is shown in Figure 3.

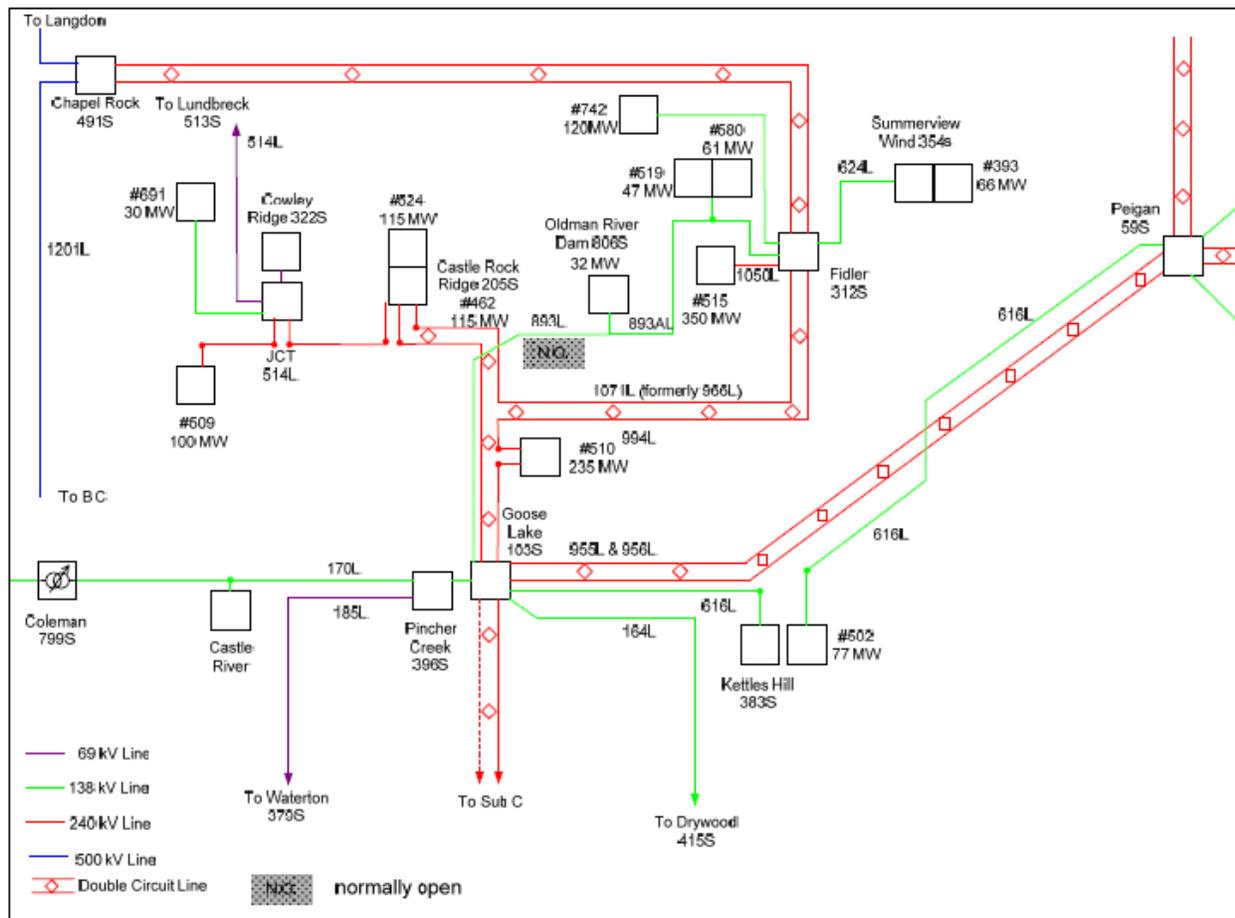


Figure 3: Original Fidler NID Pincher Creek Area Development Concept<sup>8</sup>

14. The Commission held a hearing on preliminary issues for Application No. 1606281. At the hearing “the AESO argued that the Goose Lake to Chapel Rock line should be considered the same as the Crowsnest to Goose Lake line approved in the SATR NID decision, despite the different physical location of the two lines.”<sup>9</sup> In Decision 2011-468, the Commission found that:

Because there are material differences in the transmission facilities currently proposed from those approved in the SATR NID decision – both in terms of their geographic location and electric system configuration, the Commission finds that the Goose Lake to Chapel Rock line is not the same as the Goose Lake to Crowsnest line. These differences

<sup>8</sup> Exhibit 1, Application, Figure 2, page 8.

<sup>9</sup> Decision 2011-468, Alberta Electric System Operator, Needs Identification Document, AltaLink Management Ltd. Fidler 312S Substation and 240-kV Transmission Line Interconnection, Pincher Creek Area, Determination of Preliminary Issues, Application Nos. 1606281 and 1606667, Proceeding ID No. 690, December 1, 2011.

in the transmission facilities now proposed by the AESO in the Fidler NID application require Commission approval under Section 34 of the *Electric Utilities Act*.<sup>10</sup>

15. The AESO withdrew Application No. 1606281 in response to Decision 2011-468.

16. On November 1, 2011, the Commission approved the needs identification document and facility application for Castle Rock Ridge 205S substation and transmission line 1071L/1072L from Goose Lake 103S substation to Castle Rock 205S substation.<sup>11</sup> The facilities have been constructed and are in operation.

17. On May 10, 2013, the Commission granted the AESO approval of need pursuant to Section 34 of the *Electric Utilities Act* and granted AltaLink Management Ltd. (AltaLink) permits and licences pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act* to construct and operate the Fidler 312S substation and double-circuit 240-kV transmission line 994L/1071L connecting it to the Goose Lake 103S substation.<sup>12</sup> These facilities are currently under construction.

### 3 Discussion

#### 3.1 Views of the applicant

18. On December 14, 2012, the AESO filed an application in accordance with Section 34 of the *Electric Utilities Act* requesting Commission approval of amendments to the SATR NID approval. Specifically, the AESO sought to amend paragraphs one, three and four of Stage II of the existing SATR NID, which state as follows:

1. "A new 500-kV Crowsnest substation to be located near Crowsnest Pass."
3. "New SVCs at Crowsnest, "Sub C" and Cypress 562S substations."
4. "A new 240-kV double-circuit transmission line connecting Crowsnest substation to Goose Lake 103S substation."<sup>13</sup>

19. The AESO requested that these three paragraphs be replaced with the following:

1. "A new 500/240 kV Chapel Rock 491S substation with one SVC, one shunt reactor and two shunt capacitors to be connected to the existing 500 kV 1201L in an in-out configuration."
3. "New SVCs at "Sub C" and Cypress 562S substations."
4. "A new 240-kV double-circuit transmission line connecting Chapel Rock 491S substation to Goose Lake 103S substation."<sup>14</sup>

20. The AESO considered two alternatives for the new 240-kV double-circuit transmission line from Chapel Rock 491S substation to Goose Lake 103S substation, as outlined in Figure 4

<sup>10</sup> Decision 2011-468, page 13, paragraph 68.

<sup>11</sup> Decision 2011-439, Alberta Electric System Operator and AltaLink Management Ltd. Castle Rock Ridge 205S and Transmission Line Development Needs Identification Document Application and Facility Application Nos. 1606460 and 1606668, Proceeding Id No. 778, November 1, 2011.

<sup>12</sup> Decision 2013-177, Alberta Electric System Operator, Fidler 312S substation Needs Identification Document, Application No. 1608960, AltaLink Management Ltd, Fidler 312S Substation Transmission Project Facility Application, Application No. 1608988, Proceeding Id No. 2284, May 10, 2013.

<sup>13</sup> Exhibit 1, Application, pdf page 5.

<sup>14</sup> Exhibit 1, Application, pdf page 6.

below. Alternative 1 would see the transmission line extend from Goose Lake 103S substation to Fidler 312S substation and then to Chapel Rock 491S substation, on a corridor primarily north of the Oldman Reservoir. Alternative 2 would see the transmission line extend from Goose Lake 103S substation to Castle Rock Ridge 205S substation and then to Chapel Rock 491S substation, on a corridor primarily south of the Oldman Reservoir.

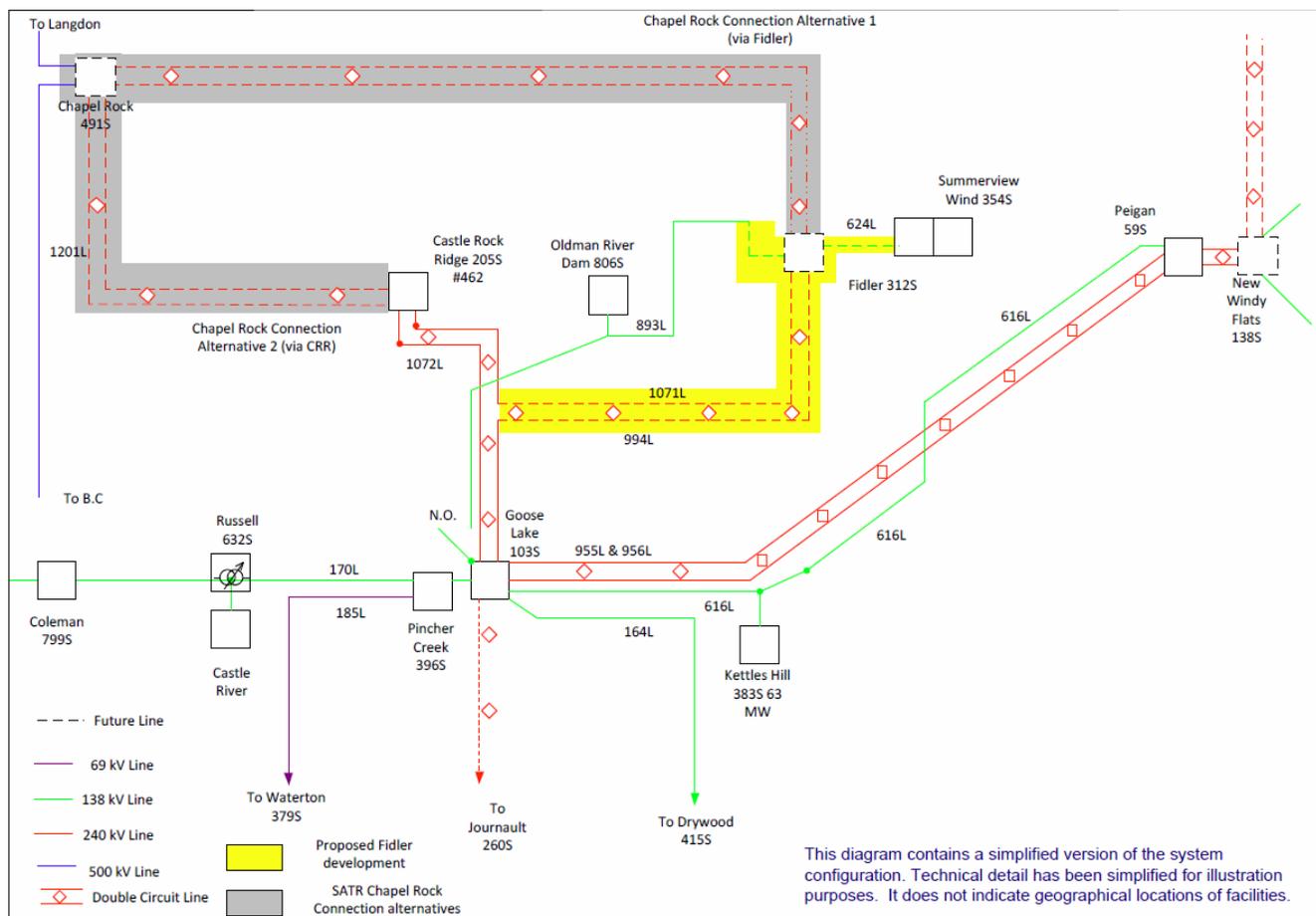


Figure 4: Chapel Rock Connection Alternatives<sup>15</sup>

21. The AESO submitted that its only location requirement for Chapel Rock 491S substation was that it be constructed close to existing transmission line 1201L. It stated that various siting considerations would be addressed, and specific siting recommendations would be made, by the transmission facility owner in its facility application. The AESO provided an August 5, 2011 letter from AltaLink, the transmission facility owner in this region, which stated that the location identified in the AESO’s original SATR application was not a suitable site for the substation.<sup>16</sup> AltaLink stated that it had identified three potential sites for the substation: a site near 4-5-3-W5M and north of Highway 3, a middle site near Chapel Rock, and a site north of the Oldman River near Maycroft.

<sup>15</sup> Exhibit 1, Application, Figure 3, page 11.

<sup>16</sup> AltaLink also noted that it understood that the location identified in the SATR application was meant for illustrative purposes only.

22. The AESO conducted the South Region Power Requirement Study in order to optimize the system reactive power. Based on this study, the AESO proposed to install (1) a +200/-100- megavolt-ampere reactive (MVAR) static voltage control, (2) two 240-kV, 100-MVAR capacitor banks, and (3) a 45-MVAR reactor at Chapel Rock 491S substation.
23. The AESO conducted technical studies, a participant involvement program and a land impact assessment to compare the two alternatives and concluded that Alternative 2, via Castle Rock Ridge substation, is its preferred configuration.
24. The AESO performed power flow, transient stability, short circuit, system losses, and transfer capability analyses to assess the transmission system performance in 2022 for both alternatives. The studies showed that both alternatives provide sufficient capacity, satisfy Alberta reliability standards, and have no adverse impact on the transmission system under Category A or Category B conditions. The AESO stated that Alternative 2 had the potential to lose up to 693 megawatts (MW) in the event of a common tower failure between Fidler 312S and the tap point on 1071L. The AESO added, however, that it would develop appropriate operating procedures to mitigate this event and ensure that Alberta reliability standards are met.
25. The Chapel Rock connection will create a second major transmission path out of the Pincher Creek area. The AESO submitted that the transfer capability out of the area would be similar under the various conditions studied with the exception of high export conditions. The AESO stated that Alternative 1 would allow an additional 220 MW of wind-generated power to be connected in the Pincher Creek area, and reiterated that both alternatives would have sufficient capacity to accommodate the existing and applied-for generation.
26. Based on its discussions with wind developers, the AESO considers that development in the Pincher Creek area is more likely to occur in the vicinity of Alternative 2. However, the AESO added that there is a large degree of uncertainty associated with future wind power development.
27. The AESO stated that AltaLink had estimated the cost of Alternative 1 to be in the order of \$331 million to \$363 million (+30/-30%, 2016\$) and the cost of Alternative 2 to be in the order of \$311 million to \$323 million (+30/-30%, 2016\$).
28. The AESO directed AltaLink to conduct a land impact assessment, including a comparative analysis of Alternatives 1 and 2. The assessment was not meant to include an analysis of specific routes or sites; however, information from the Fidler to Chapel Rock and Fidler 312S interconnection projects was utilized to compare the two alternatives. The study area for the assessment extended to the areas from Pincher Creek to Maycroft and from the Porcupine Hills to the Livingstone Range.
29. For purposes of its land impact assessment, AltaLink restricted route options under Alternative 1 to locations north of the Oldman Reservoir and route options under Alternative 2 to locations south of the Oldman Reservoir. It did so both for simplicity and to avoid unnecessary cost and duplication.
30. AltaLink noted that the location of Chapel Rock 491S substation would depend upon which of Alternative 1 or 2 was approved. It stated that the northern-most site near Maycroft would be considered only if Alternative 1 were approved. This follows from the fact that if

Alternative 2 were approved, the Maycroft site would require a longer transmission line while routing past other feasible substation sites.

31. The land impact assessment indicated that the Fidler to Chapel Rock alternative was more likely to affect the Oldman River and the Porcupine Hills. AltaLink noted that while the Porcupine Hills are not classified as an environmentally significant area, they contain species of management concern and large tracts of native vegetation.

32. The land impact assessment stated that the Castle Rock Ridge to Chapel Rock alternative had greater potential to affect the village of Cowley, the hamlets of Lundbreck and Burmis, Highway 3, and the Castle and Crowsnest rivers.

33. The land impact assessment also indicated that potential routes for Alternative 1 would be approximately 39 to 48 kilometres in length, while potential routes for Alternative 2 would be 34 to 40 kilometres long.

34. The land impact assessment further found that the overall impact to agriculture would be very similar under either alternative, with irrigation impacts likely to be minimal. Although the potential to avoid cultivated land is greater north of the reservoir (Alternative 1), such avoidance generally results in crossing more native prairie.

35. The land impact assessment observed that, while there is a higher density of residences south of the reservoir (Alternative 2), route options with comparable residential impacts exist both north and south of the reservoir. The potential to parallel existing linear infrastructure is also greater south of the reservoir; however, the assessment indicated that following existing linear infrastructure such as Highway 3 could result in increased impacts to residences. AltaLink stated that routes with lower residential impacts tend to be located in native vegetation or steeper terrain.

**Table 1. Land Impact Assessment Comparative Metrics<sup>17</sup>**

Major Aspects and Considerations		Fidler to Chapel Rock	Castle Rock Ridge to Chapel Rock
Total Right-Of-Way (R-OW) Length (km)		39-48	34-40
<b>Agriculture</b>			
Grassland Vegetation Inventory Crossed (km)	Native Vegetation	24-41	17-24
	Crop Land	2-14	7-15
	Tame Pasture	3-7	5-8
Dominant Land Suitability Class Distribution – Distance Crossed (km)	Class 2	0	0
	Class 3	10-22	12-18
	Class 4	13-17	11-17
	Class 5 & 6	7-18	1-16
Irrigated Parcels Crossed (km)		0-1	0
<b>Residential</b>			
Residences within 150 m of centre line (#)		0-1	0-12
Residences within 800 m from R-O-W edge (#)		14-50	21-333
<b>Environmental</b>			
Surface Water in or within 800 m of R-O-W edge (ha)		0-101	119-186
Sensitive Wetland Areas in or within 800 m of R-O-W edge (ha)		0	0
Parks and Protected Areas Crossed (km)		0-2	1-2
Environmentally Significant Areas Crossed (km)		2-7	1-13
<b>Other Considerations</b>			
Historical Resource Values (HRV) within R-O-W edge (#)	HRV 1	0	0
	HRV 2-3	0-1	0-1
	HRV 4-5	39-48	26-39
Paralleling Existing Linear Disturbance within 130 m of centre line (km)		0-12	7-21
Major River Crossings		0-1	2

36. The land impact assessment concluded that while both alternatives are feasible, Alternative 1 affects more native vegetation, has greater river crossing impacts, and offers less potential to parallel existing linear disturbances.

37. The AESO conducted a participant involvement program to notify stakeholders of the NID amendment application and to consult with them in this respect. The AESO's program included publishing notifications in local newspapers, distributing newsletters and project updates to stakeholders, conducting seven open houses, and holding meetings with government officials and a community organization.

38. Based on input it received from the participant involvement program, the AESO observed that more stakeholders preferred Alternative 2. According to the AESO, 58 per cent of stakeholders who attended an open house favoured Alternative 2, 17 per cent preferred Alternative 1, and 25 per cent had no response.

39. The AESO submitted that the need for transmission reinforcement, as outlined in the SATR NID, was driven predominantly by the forecast development of wind power generation and the limited capability of the transmission system to deliver that generation to the Alberta

<sup>17</sup> Exhibit 6, Land Impact Assessment for the Fidler 312S Interconnection NID and Pincher Creek to Chapel Rock SATR NID Amendment, Table 2: Comparative Metrics, pdf page 404.

Interconnected Electric System. According to the AESO, the purpose of its application is to amend specific components of the SATR NID approval. None of the amendments sought in the AESO submissions changes the need for the transmission reinforcement described in, and previously approved under, the existing SATR NID.

### 3.2 Views of other parties

40. The Livingstone Landowners Group (LLG) is a group of concerned landowners in the Livingstone/Oldman/Porcupine Hills area formed in 2004 in response to industrialization of the area. The LLG supported approval of the AESO's preferred alternative, Alternative 2. It stated that, while the application does not identify specific routes, the selection of one of the alternatives will predetermine, to a large extent, the area where the transmission line will be sited.

41. The LLG submitted that the environmental impacts of routing north of the Oldman Reservoir, as contemplated in Alternative 1, are significantly higher than those associated with routing south of the reservoir, as contemplated in Alternative 2. The LLG retained Mr. Cliff Wallis of Cottonwood Consultants to assess the potential environmental impacts of the project and analyze the two alternatives. His report found that there are significant constraints from a biodiversity perspective in the Porcupine Hills and western portions of the study area towards the Foothills west of Highway 22 and east of the Livingstone Range.<sup>18</sup> The report found that both alternatives had the potential to affect the area west of Highway 22 and east of the Livingstone Range but only Alternative 1 has the potential to affect the Porcupine Hills. The report submitted that the further north of the Oldman Reservoir the transmission line is routed, the greater impact it will have on biodiversity. He concluded that Alternative 1 is more likely to affect biodiversity adversely than Alternative 2.

42. The LLG also submitted that Alternative 2 has greater opportunities to follow existing linear disturbances and transportation corridors such as Highway 3.

43. The LLG recommended that the Chapel Rock substation be located in the southern part of the study area towards the original Crowsnest location in order to minimize the impacts on the environmentally sensitive areas adjacent to the Livingstone Range.

44. The LLG also cited the lower project costs of Alternative 2 relative to Alternative 1 as strongly supporting the AESO's preferred alternative. It stated that, because the costs of this project will be borne by Alberta ratepayers, the difference of approximately \$20 to \$40 million between the two alternatives should be a key public interest consideration favouring approval of Alternative 2.

45. The LLG submitted that no party filed evidence suggesting that Alternative 1 is superior to Alternative 2 from a land-use perspective and that Alternative 2 has the support of a broad number of stakeholders, including the Municipal District of Pincher Creek.

46. Powerex Corp. (Powerex) expressed concerns initially about the project's impact on the available transfer capability of the Alberta to British Columbia intertie, transmission line 1201L. Powerex retained Powertech Labs Inc., which provided a report that analyzed the impact the two

---

<sup>18</sup> Exhibit 35.03, Evaluation of AltaLink Management Ltd. Land Impact Assessment for the Fidler 312S Interconnection NID and Pincher Creek to Chapel Rock SATR NID Amendment.

alternatives would have on the transfer capability of the intertie. The report stated that the two alternatives would have different impacts on the transfer capability. Powerex explained that, in Alternative 1, four 240-kV circuits are connected to Fidler 312S substation, while in Alternative 2 only two circuits, 1071L/994L, which are strung on double-circuit structures, are connected to Fidler 312S substation. In the event of a failure of both 1071L/994L, referred to as a Category C5 contingency, up to 693 MW of the generation connecting to Fidler 312S substation would be lost to the system. Powerex expressed concern that the intertie would have to be derated to mitigate this potential impact. It submitted that Alternative 1 would not impose any additional thermal constraints on the intertie. For this reason, Powerex initially supported Alternative 1 and objected to Alternative 2.

47. The AESO filed reply evidence to address Powerex's concerns regarding the impact on the available transfer capability of the intertie. The AESO stated that the restoration of the intertie to its full transmission capability was the subject of another process and outside the scope of this project. However, the AESO added that it does not plan to derate the intertie transfer capability to withstand a Category C5 contingency such as a double-circuit contingency of transmission lines 1071L/994L.

48. In its final argument, Powerex stated that it was not opposed to the application, but that it wanted to ensure that the AESO had considered the potential impacts on the available transfer capability of the intertie and that the AESO would take appropriate steps to mitigate such impacts. Powerex concluded, based on the AESO's reply evidence, that potential constraints on the transfer capability of the intertie can be mitigated effectively. Powerex also submitted that the plan to install reactive power equipment in Chapel Rock 491S substation would contribute to intertie path restoration.

49. The Commission received submissions from a number of wind farm owners, operators and developers in the area. Each of Alberta Wind Energy Corp., Benign Energy Corp., Canadian Wind Energy Association, Enel Alberta Wind Inc., Eolelectric Development Inc., Renewable Energy Services Ltd. and Spratt Power Corp. expressed its support for the application. These parties stated that the project will help stabilize the regional grid, reinforce the transmission system, allow for additional wind power developments, and create paths for additional supply to load centres. The various companies stated that failure to approve the application would result in adverse effects to their individual projects as well as to future wind development projects. Enel Alberta Wind Inc. expressly supported the AESO's preferred alternative, namely, Alternative 2.

50. TransCanada Energy Ltd. expressed the reservation that the application, if approved, could have an adverse impact on the capacity and utilization of transmission line 1201L, the British Columbia intertie. It stated that significant changes have occurred to the interconnected electric system and the project since the original approval of the SATR NID and that these changes materially affect the need, timing and configuration of the project.

51. The Alberta Wilderness Association expressed concerns about the potential impacts of the project on wildlife, wild lands and wild water in the area. It identified the Oldman River and Livingstone-Porcupine Caste regions as particular areas of concern.

52. The Municipal District of Pincher Creek filed a submission supporting the preferred alternative. It submitted that existing transmission line corridors should be utilized in the development of new transmission lines.
53. Monica Field, a landowner in the project area, stated that AltaLink had previously proposed routes in her area, with the closest route located less than two kilometres from her residence. She felt that this route and other routes would ruin viewscapes both on her land and on property owned by her parents, and take away from their enjoyment of the land. Ms. Field stated that her and her family had already been profoundly affected by the 500-kV transmission line 1201L and that property values would also be influenced negatively by the project.
54. It is Ms. Field's view that the lines should be built underground; however, if they are built above ground, they should follow industrialized corridors such as existing transmission lines, roads and railways. She further stated that the transmission line route should avoid native grassland, the Livingstone watershed, and areas of high biodiversity.
55. Ms. Field expressed her concern that remarkable vistas of the mountains and foothills would be destroyed by transmission lines and wind turbines, which would have a negative impact on Alberta tourism. She identified a recent Travel Alberta commercial that featured the Livingstone Range and stated that the DU Ranchlands Cabin viewcape is a Municipal Heritage resource that will be placed on the provincial and federal registries. Ms. Field stated that it is contrary to the public interest to destroy such prime landscapes and viewscapes.
56. Debra Fenwick submitted that the approved Fidler substation and interconnection will handle the power generated from the proposed Summerview, Heritage and Castle Rock Ridge wind power plants. Ms. Fenwick stated that the existing lines currently suffice for loading in the area and that no additional transmission line should be built until construction of new wind farms begins. She stated that applications for some wind farms have been cancelled, the Highway 785 wind farm being one example. Ms. Fenwick argued that Alternative 2 would require additional costs to account for potential contingencies.
57. The AESO confirmed that two wind projects in the area, the Highway 785 and Welsch wind farms had been cancelled, but pointed out that the total existing and future generation capacity in the north Pincher Creek area would nonetheless total 992 MW.
58. The AESO explained that the process to plan, design and construct transmission lines typically takes several years to complete. It cited Section 9 of the *Transmission Regulation*, which directs it to anticipate future demand and generation so that transmission facilities will be available in a timely manner.
59. Ken and Marcia Jewett expressed their view that the transmission line should follow main highway and railway corridors such as Highway 3. They stated, with regard to agricultural, visual, residential, environmental impacts and access to the line, that following Highway 3 is the clear choice over any rural route and that large transmission lines result in extremely negative visual and environmental impacts and cause a decline in property values.
60. DU Ranchlands Corporation expressed its view that instead of building west from Goose Lake, the 240-kV connection to transmission line 1201L should be extended eastward and then proceed north to Langdon. It stated that if a 240-kV transmission line west from

Goose Lake substation were proven to be needed, it should follow existing corridors such as Highway 3 or the existing transmission line from Goose Lake to Crowsnest Pass.

61. William Yates argued that it is not in the public interest to deface scenic natural, recreational and ranching country when it is possible to route along existing major transportation corridors. Mr. Yates opposed Alternatives 1 and 2 and suggested that the transmission line should follow Highway 3 west all the way from Goose Lake substation, rather than starting at Castle Rock Ridge substation and then follow Highway 22 north.

62. Connie and Jacob Adserballe submitted that the project is not in the public interest because the potentially affected land has not been evaluated meaningfully for its aesthetic, biological and ecological attributes. They submitted that fragmenting and industrializing the area will strip it of its intrinsic worth and expressed concerns about the impacts to endangered and threatened species, rare native grasslands, world-class views, and to personal enjoyment and use of the land. Mr. and Mrs. Adserballe also submitted that the project would potentially diminish and fragment critical winter ungulate range.

63. Andy and Shona Sekella stated that AltaLink had previously proposed a substation site for the Chapel Rock substation located less than 200 metres from their home. Mr. and Mrs. Sekella said that the land was agricultural land that they needed for their ranch. They expressed health and safety concerns with respect to the project, and were of the view that there was no need for it.

64. Several interveners expressed concerns about the size of the development area and the lack of information on specific routes.

65. The AESO submitted there was no evidence that the amendments are technically deficient or contrary to the public interest. It stated that, while some interveners had questioned the need for the project, they had not raised specific issues about the amendments. The AESO added that the concerns raised by several interveners regarding routing would be considered later at the facility application stage.

#### **4 Findings**

66. The Commission has determined that the SATR NID amendment application contains the information required by the *Electric Utilities Act*, the *Transmission Regulation* and AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations* (AUC Rule 007).

67. The Commission finds that the participant involvement program conducted by the AESO as part of its process to seek NID amendments approval meets the requirements of AUC Rule 007.

68. In Decision 2009-126, the Commission found that the southern Alberta transmission reinforcement project will improve system reliability in southern Alberta and contribute to a robust competitive market by allowing the interconnection of significant new wind-powered generation.<sup>19</sup> The Commission accepts the evidence filed in this proceeding that development of

---

<sup>19</sup> Decision 2009-126, paragraph 209.

the transmission facilities in the Pincher Creek area remains necessary to expand and enhance the capability of the electrical system, to alleviate constraints and to improve efficiency. While some parties questioned the need for the project, no party satisfied the Commission that the AESO's assessment of the need for the project is technically deficient or that approval of the proposed amendments would not be in the public interest.

69. The next consideration is whether some or all of the specific amendments proposed are necessary and, in particular, whether the need for Alternative 1 or Alternative 2 should be approved.

70. The Commission finds persuasive the AESO's rationale for the addition of the new shunt reactor and two shunt capacitors to Chapel Rock 491S substation. The Commission is satisfied that the equipment is necessary to optimize system reactive power in the area.

71. Many of the concerns of the parties relate to the specific routing of the transmission line and location of the substation. Concerns such as noise, impacts on health and property values are better considered at the facility application stage when detailed routes have been determined. The Commission recognizes, however, that in selecting either Alternative 1 or Alternative 2, it is selecting a corridor within which future routes will be located and, in that sense, its decision will affect routing. Potential impacts that can be analyzed at a high level, such as some environmental impacts, must therefore be considered not only at the facility application stage, but also at this stage.

72. The AESO indicated in its evidence that Alternative 2 provides an effective and even preferable technical solution to satisfy the need for system enhancement. The Commission considers the fact that the AESO's estimated cost of Alternative 2 is some \$8 million to \$51 million lower than Alternative 1 to be an important factor.

73. The Commission finds persuasive the evidence in the land impact assessment conducted by AltaLink and the environmental assessment conducted by Mr. Cliff Wallis on behalf of the LLG and finds that Alternative 1 has a greater potential for environmental impacts. The practice of following existing linear disturbances is a well-recognized method of reducing the potential impacts of transmission lines and a factor that the Commission must consider under Section 38(a)(iii) of the *Transmission Regulation*. The LLG, as well as several individual landowners in the area, reiterated the importance of following existing linear infrastructure, such as the railway or Highway 3. The Commission finds persuasive the evidence in the land impact assessment that Alternative 2 has greater opportunities to parallel existing linear infrastructure.

74. The Commission also places considerable weight on the fact that Alternative 2 is preferred by a larger number of stakeholders than Alternative 1. This is evident from the AESO's participant involvement program as well as from the submissions received by the Commission in this proceeding.

75. The AESO indicated that it expects a greater level of future wind-power development along Alternative 2, but that future wind-power development is associated with a high degree of uncertainty. Consequently, the Commission has not placed much weight on this factor in determining this application.

76. The Commission finds no persuasive evidence that Alternative 2 is technically deficient or not in the public interest.

77. For these reasons, the Commission finds in favour of and approves Alternative 2, in which the transmission line runs from Goose Lake 103S substation to Chapel Rock 491S substation via Castle Rock Ridge 205S substation. The Commission recognizes that the first portion of this transmission line, from Goose Lake 103S substation to Castle Rock Ridge 205S substation, has already been constructed.

78. The Commission finds that routes for Alternative 2 generally should be located south of the Oldman Reservoir. It also finds that once the transmission line is west of the reservoir, routes may extend further north but that in order to reduce the length of the line, preference should be given to more southerly substation locations. Specifically, of the three previously identified potential substation sites, the northern-most site near Maycroft should not be considered.

79. Having reviewed the SATR NID amendment application and the evidence filed and submissions made by all interveners, the Commission finds that the outcomes of the AESO's proposed amendment to the SATR NID approval, including Alternative 2 as set out in the NID amendment application, do not materially change the assessment of need made in the SATR NID approval application.

80. Having regard to the foregoing, the Commission is satisfied that the amendments to the SATR NID approval are in the public interest and that the requirements of Section 34 of the *Electric Utilities Act* have been met.

## 5 Decision

81. Pursuant to Section 34 of the *Electric Utilities Act*, the Commission approves the NID amendment as detailed in this decision and grants the AESO the approval set out in Appendix 1 – Southern Alberta Transmission Reinforcement Needs Identification Document Amendment – Approval No. U2014-16 – January 27, 2014. (Appendix 1 will be distributed separately).

Dated on January 27, 2014.

### The Alberta Utilities Commission

*(original signed by)*

Anne Michaud  
Panel Chair

*(original signed by)*

Henry van Egteren  
Commission Member

*(original signed by)*

Bohdan Stephan Romaniuk  
Acting Commission Member

**Appendix 1 – Proceeding participants**

<b>Name of organization (abbreviation) counsel or representative</b>
Connie and Jacob Adserballe
AltaLink Management Ltd. Z. Lazic
Alberta Wilderness Association S. Nichols
Alberta Wind Energy Corp. M. Stachiw
Benign Energy Corp. A. Kettles
Canadian Wind Energy Association T. Levy
DU Ranchlands Corporation L. Dupret, D. & C. McKim, R. Kiel and K. McKim-Keil
Eolectric Development Inc. P. Moreau
Enel Alberta Wind Inc. M. Kehle
Debra Fenwick
Kevin Finn
Ken and Marcia Jewett
Monica Field and David Macintyre
Livingstone Landowners Group E. Dixon
Municipal District of Pincher Creek R. Milligan

<b>Name of organization (abbreviation) counsel or representative</b>
Powerex Corp. L. Manning
Renewable Energy Services Ltd. H. Knapen
Andy and Shona Sekella
Sprott Power Corp. R. Rawji
TransCanada Energy Ltd. N. Berge
William Yates

## Appendix 2 – Abbreviations

Abbreviation	Name in full
AESO	Alberta Electric System Operator
EUB	Alberta Energy Utilities Board
AltaLink	AltaLink Management Ltd.
Alternative 1	240-kV double-circuit transmission line from Goose Lake 103S substation to Chapel Rock 491S substation via Fidler 312S substation
Alternative 2	240-kV double-circuit transmission line from Goose Lake 103S substation to Chapel Rock 491S substation via Castle Rock Ridge 205S substation
AUC or the Commission	Alberta Utilities Commission
AUC Rule 007	AUC Rule 007: <i>Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations</i>
kV	kilovolt
LLG	Livingstone Landowners Group
MVAR	megavolt-ampere reactive
MW	megawatts
NID	needs identification document
SATR	Southern Alberta Transmission Reinforcement