



**Alberta Electric System Operator  
AltaLink Management Ltd.  
ATCO Electric Ltd.**

**Buffalo Creek 526S Substation Upgrade  
Needs Identification Document and Facility Applications**

**March 4, 2010**

**ALBERTA UTILITIES COMMISSION**

Decision 2010-095: Alberta Electric System Operator, AltaLink Management Ltd.  
and ATCO Electric Ltd.

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Applications No. 1605199, 1605252 and 1605280

Proceeding ID. 262

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# ALBERTA UTILITIES COMMISSION

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Calgary Alberta

**ALBERTA ELECTRIC SYSTEM OPERATOR  
ALTALINK MANAGEMENT LTD.  
ATCO ELECTRIC LTD.  
BUFFALO CREEK 526S SUBSTATION UPGRADE**

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## 1 INTRODUCTION

1. This decision jointly address two sets of applications, one being an application for approval of a Needs Identification Document (NID) filed by the Alberta Electric System Operator (the AESO), and the other being two facilities applications filed by AltaLink Management Ltd. and ATCO Electric Ltd.

2. The AESO filed Application No. 1605199, on June 24, 2009, with the Alberta Utilities Commission (the Commission or AUC) pursuant to section 34 of the *Electric Utilities Act*. This application sought the approval of the Needs Identification Document (NID) to upgrade the existing Buffalo Creek 526S substation. The substation is located in the Municipal District of Wainwright approximately 38 kilometres northwest of the town of Wainwright.

3. The Buffalo Creek 526S substation, the subject of this NID application, is owned by AltaLink Management Ltd.

4. The transmission line that currently feeds the Buffalo Creek 526S substation, also the subject of this NID application, is owned by ATCO Electric Ltd.

5. The AESO directed AltaLink Management Ltd. and ATCO Electric Ltd. to submit facility applications to the Commission for the facilities that are required to meet the needs identified in the NID pursuant to section 35 of the *Electric Utilities Act*.

6. Hence, on July 10, 2009, AltaLink Management Ltd. (AltaLink) filed Application No. 1605252 with the Commission, pursuant to sections 14, 15, and 18 of the *Hydro and Electric Energy Act*, to carry out the work identified in the NID to upgrade the existing Buffalo Creek 526S substation. Subsequently, on July 20, 2009, ATCO Electric Ltd (ATCO) filed Application No. 1605280, also pursuant to sections 14, 15, and 18 of the *Hydro and Electric Energy Act*, to carry out the work identified in the NID to modify transmission line 7L50 that currently feeds the Buffalo Creek 526S substation.

7. The AESO requested that the Commission consider both the NID and the facility applications jointly, pursuant to section 15.4 of the *Hydro and Electric Energy Act*.

## 2 BACKGROUND

### 2.1 The NID Application

8. According to the AESO, the need for the substation upgrade is driven by the increased loading of a distribution feeder predicted to exceed 13 megavolt amperes (MVA) by the winter of 2009 due to a large distribution customer load being connected in the area. This distribution feeder is located in FortisAlberta's service area, the electric distribution company that requested this upgrade to the AESO.

9. The AESO's proposed development is to install one additional 138-kV/25-kV 15/20/25-MVA transformer, one additional 25-kV circuit breaker, and one 18-MVAR capacitor bank at the Buffalo Creek 526S substation.

10. The AESO has stated, however, that these proposed additions go beyond what it considers to be standard facilities in this case. The AESO explained that, a standard facility upgrade of this existing substation would be the replacement of the existing 15/20/25-MVA transformer with a larger 25/33/42-MVA transformer, the addition of 25-kV switchgear complete with 25-kV breakers and the relocation of the existing 7L50 transmission line. This standard upgrade, which would meet FortisAlberta's long-term load requirements in the area, would have an estimated capital cost of \$5.21 million.

11. The reason that the AESO is proposing addition beyond standard facilities is that FortisAlberta had indicated a preference to install a second 15/20/25-MVA transformer, rather than just simply implementing a standard facility upgrade of replacing the existing transformer with a larger one. The AESO agreed and submitted that this approach will ensure that additional upgrades will not be necessary in the near future as the load continues to increase in this area.

12. Furthermore, AltaLink had indicated, according to the AESO, that rebuilding this substation immediately north of the existing site provides better entry/exit of the transmission and distribution circuits. Additionally, constructing a new substation while the old substation is still in service would result in fewer interruptions of the electrical service provided by the Buffalo Creek 526S substation. Both ATCO and FortisAlberta concur with this approach. AltaLink also indicated its view that this is an appropriate time to upgrade certain aging equipment in the existing 26-year-old substation to current standards.

13. The AESO agreed that this revised option, with all the aforementioned upgrades, also meets FortisAlberta's long-term load requirements in the area. The total cost of this selected option is \$7.5 million, which is \$2.29 million more than the AESO standard facilities (pursuant to the AESO's Tariff). Therefore, this \$2.29 million is considered customer related cost ineligible for the AESO's investment.

14. In addition, the AESO also determined that an 18-MVAR capacitor bank is required at the Buffalo Creek 526S substation for system voltage support. The cost of installing this capacitor bank is estimated at \$1.593 million. The cost of the capacitor bank is considered a system related cost and hence not included in the above \$7.5 million estimate.

## 2.2 The Facility Applications

15. To satisfy the need identified by the AESO, AltaLink proposes to decommission and salvage the current Buffalo Creek 526S substation and to re-build it approximately 200 metres North of the existing substation.
16. AltaLink also proposes to reuse the current 15/20/25-MVA 138/25-kV LTC transformer and the 15/20/25-MVA 25-kV voltage regulator and to install a new 15/20/25-MVA 138/25-kV LTC transformer, three 138-kV circuit breakers, a 18.92-MVAR capacitor bank, three 25-kV circuit breakers, and two new switchgear buildings.
17. The relocated Buffalo Creek 526S substation will support the higher electrical loads in the area and will allow for the re-configuration of the incoming ATCO Electric 144-kV transmission line. All equipment not relocated to the new substation will be decommissioned, with the fence and gravel area left at the request of the landowner who owns the property around the current substation site and the proposed site. The new substation will measure 74 by 65 metres and is located on private property purchased by AltaLink from the landowner.
18. Similarly, to satisfy the need identified by the AESO, ATCO proposes to alter the existing Battle River to Vermilion 144-kV transmission line 7L50 by re-terminating the line at the new Buffalo Creek 526S substation. ATCO would then operate the line between ATCO's Battle River substation 757S and AltaLink's Buffalo Creek 526S substation as 144-kV transmission line 7L50. ATCO would operate the line between AltaLink's Buffalo Creek 526S substation and ATCO's Vermillion substation 710S as 144-kV transmission line 7L129.
19. ATCO proposes that the Commission orders these lines connected to AltaLink's Buffalo Creek 526S substation.
20. ATCO indicates that line 7L50 currently passes directly over and connects to the existing Buffalo Creek 526S substation via a single tap. AltaLink is proposing to rebuild the Buffalo Creek 526S substation approximately 200 metres North of the existing substation. To connect to the rebuilt substation, ATCO proposes the following alterations to line 7L50:
  - Remove the existing tap connection at Buffalo Creek 526S substation;
  - Construct a new segment of single-circuit 144-kV line (to be operated as part of 7L50), starting from a point on existing 7L50 approximately 265 metres Northeast of the existing tap and extending approximately 110 metres West to the rebuilt Buffalo Creek 526S substation fence;
  - Construct a new segment of single-circuit 144-kV line (to be operated as part of 7L129), starting from a point on 7L50 approximately 290 metres Northeast of the existing tap, and extending approximately 130 metres West to the rebuilt Buffalo Creek 526S substation fence; and
  - Remove the approximately 25 metres of existing line 7L50 between the two new segments.

21. ATCO also indicates that the proposed segment of line 7L50 would be a standard three-phase design with a circuit of three conductor wires strung on wood structures built to ATCO's standards for operation at the nominal voltage of 144 kV. The typical structure for the existing line 7L50 is a double-pole "H-Frame" design with two overhead shield wires for lightning protection. Conductors for the line will be single 266.8 MCM (Partridge) as specified by the AESO.

22. ATCO submitted that the transmission line alignment was based on landowner input and the proposed location of the rebuilt Buffalo Creek 526S substation. The alignment was selected to align with the proposed termination bays at the substation, to maintain a minimum length of new construction, and to avoid a willow thicket at the request of the landowner.

23. The AESO, in conjunction with AltaLink and ATCO, conducted a participation involvement program for the Buffalo Creek 526S substation upgrade before the NID Application and facility applications were filed with the Commission. The AESO stated that no objections were received regarding the need for this upgrade. Likewise, AltaLink and ATCO confirmed that, following completion of the participation involvement program, no objections or further concerns were presented.

### **2.3 Information Requests and Notice of Application**

24. On October 5, 2009, the Commission issued information requests to the AESO, AltaLink, and ATCO. These were responded to on November 5, 2009. On December 16, 2009, the Commission issued a follow-up information request to AltaLink, who responded on January 7, 2010.

25. The Commission issued a single Notice of Application on January 20, 2010. It was mailed to all directly affected landowners within 800 meters of the proposed Buffalo Creek 526S substation upgrade, as well as to other potentially interested parties. The Notice of Application was also published in the *Wainright Star* and the *Wainright Edge*. The Commission's Notice of Application specified February 17, 2010, as the deadline for interventions.

26. The Commission received no objections, interventions, or statement of intent to participate in response to the Notice of Application.

## **3 FINDINGS**

### **3.1 Overview – the Process for New Transmission Development in Alberta**

27. There are two approvals from the Commission that are required for new transmission facilities in Alberta to be built. These are:

- 1) an approval of the NID application, or an approval of the need for expansion or enhancement to the system pursuant to section 34 of the *Electric Utilities Act*; and
- 2) an approval of the facility application in the form of a permit to construct and operate a transmission line pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*.

28. Where no party objects to a NID application, the Commission looks to section 38 of the *Transmission Regulation*. Where no party objects to a NID, subsection 38(d) is of particular relevance. Section 38 outlines to the Commission how it should proceed when a NID application is before it. Specifically, section 38(e) instructs the Commission that it must “consider the [AESO]’s assessment of the need to be correct ....” There are two exceptions to this presumption, which are when “an interested person” satisfies the Commission that the AESO’s assessment is “technically deficient” or the “interested person” satisfies the Commission that approval of the NID “would not be in the public interest.”

29. Section 34(3) of the *Electric Utilities Act* provides the Commission with three different options for making a decision on a NID. The Commission may approve the NID, refuse to approve the NID, or refer the NID back to the AESO with “directions or suggestions for changes or additions.”

30. Facility applications are prepared by transmission facility owners (TFOs) assigned by the AESO. In this instance, the TFOs are AltaLink and ATCO. Section 17(1) of the *Alberta Utilities Commission Act*, instructs the Commission, when considering applications for transmission facilities, to consider whether the proposed facilities are in the public interest having regard for the social and economic effects of the transmission facilities and their effect on the environment.

31. Finally, section 15(4) of the *Hydro and Electric Energy Act* allows the Commission to consider a NID and a facility application in a combined proceeding. As such, in this proceeding the Commission considered the NID and the facility applications jointly.

### **3.2 The NID Application**

32. The Commission has reviewed the NID Application as submitted by the AESO. The Commission notes that no party filed any objection or intervention or statement of intent to participate in response to the Notice of Application.

33. As no interested party has demonstrated that the AESO’s assessment of the need to upgrade the Buffalo Creek 526S substation is technically deficient or that approval of the NID is not in the public interest, the Commission must therefore consider the AESO’s assessment of need to be correct.

### **3.3 The Facility Applications**

34. The Commission notes that AltaLink filed a Noise Impact Assessment (NIA). The NIA indicated that the maximum predicted sound levels produced by the Buffalo Creek 526S substation at the nearest or most impacted residence, which is located 390 metres south of the substation, would be 37.9 decibels (dBA Leq). This maximum predicted sound level is below the night-time Permissible Sound Level of 40 dBA Leq, which is set out in the Commission’s noise control rule, *AUC Rule 012*.

35. The Commission notes that the new substation would be constructed on lands now owned by AltaLink, and finds that anticipated noise levels will be within permissible sound levels specified in *AUC Rule 012*.

36. AltaLink submitted that there are no environmentally significant areas, historic resource values, or notable environmental features within the footprint or general area of the upgrade. It submitted that the new substation will be constructed with secondary containment around the transformers to protect nearby wetlands in case of accidental spills. Also, construction will occur outside the breeding bird season (March 15 through July 31) to avoid disrupting any nesting wildlife.

37. Furthermore, AltaLink committed to meet the environmental health and safety requirements of all laws and regulations of the jurisdiction in which the work would take place, including procedures and practices that follow Alberta Environment's guidelines for right-of-way clearing, construction, reclamation, etc.

38. In light of this, the Commission is satisfied that construction of the new substation and decommissioning of the existing substation will have no negative environmental impacts.

39. With respect to ATCO's portion of the work, which entails the construction of a segment of transmission line of less than 150 metres in length, the Commission notes ATCO's submission that the transmission line alignment was based on landowner input to maintain minimum length of new construction and to avoid a willow thicket.

40. Furthermore, the affected landowner did not object to ATCO's proposed location of the line. Therefore, the Commission finds that this short segment of transmission line will have no negative environmental or social impact.

41. The Commission, therefore, finds that the facility applications are technically complete and comply with the requirements set out in sections 14 and 15 of the *Hydro and Electric Energy Act* and by *AUC Rule 007*.

42. The Commission also accepts that the transmission development as applied-for by AltaLink and ATCO will satisfy the need as identified by the AESO in the NID. The Commission is satisfied that the Buffalo Creek 526S substation upgrade is in the public interest, having regard to its social, economic and environmental impacts.

#### **4 DECISION**

43. Pursuant to section 34 of the *Electric Utilities Act*, the Commission approves Application No. 1605199 and grants the approval set out in Appendix 1 – Needs Identification Document Approval No. U2010 – 99 to the AESO to upgrade existing Buffalo Creek 526S substation (Appendix 1 will be distributed separately).

44. Pursuant to sections 14, 15, and 18 of the *Hydro and Electric Energy Act*, the Commission approves Application No. 1605252 and Application No. 1605280 and grants the approvals (U2010-100, U2010-101, U2010-102, U2010-103, and U2010-104) set out in Appendices 2 through 6 (Appendices 2 through 6 will be distributed separately).

Dated on March 4, 2010.

#### **ALBERTA UTILITIES COMMISSION**

*(original signed by)*

N. Allen Maydonik, Q.C.  
Panel Chair

*(original signed by)*

Moin A. Yahya  
Commissioner

*(original signed by)*

Thomas McGee  
Commissioner