AUC
Alberta Utilities Commission

Alberta Electric System Operator
Needs Identification Document

ENMAX Power Corporation
Facility Application

Foothills Area Transmission Development in the South of Calgary

January 12, 2016

Alberta Utilities Commission
Decision 3386-D01-2016
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Application 1610795

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Contents

List of Tables

Alberta Utilities Commission
Calgary, Alberta

Alberta Electric System Operator
Needs Identification Document

ENMAX Power Corporation
Facility Application
Foothills Area Transmission Development in the South of Calgary

Decision 3386-D01-2016
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Applications 1610795 and 1610807

1 Introduction

1. In this decision, the Alberta Utilities Commission must decide whether to approve a needs identification document (NID) application from the Alberta Electric System Operator (AESO) and a related facility application by ENMAX Power Corporation (ENMAX) for a proposed 138-kilovolt (kV) transmission system reinforcement in the south Calgary area.

2. The AESO and ENMAX requested that these applications be considered jointly pursuant to Section 15.4 of the *Hydro and Electric Energy Act*. The Commission advised the AESO and ENMAX that the NID application and the facility application had been combined and were being considered jointly as Proceeding 3386.

3. A number of interested parties who own, reside, or have an interest in land within 800 metres of the proposed preferred route or alternate route of the transmission facilities participated in the proceeding.

4. A complete and detailed description of the proposed transmission system reinforcement in the south Calgary area is set out in subsequent sections of this decision.

2 Background

2.1 The process for new transmission development in Alberta

5. 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.

6. The AESO is responsible for preparing and filing the NID application with the Commission for approval. When making a decision on a contested needs application, the Commission has three options. It may approve the application, deny it, or refer it back to the AESO with directions or suggestions for changes or additions. The AESO also assigns the project to a transmission facility owner to prepare an application for the construction and operation of the transmission facilities (this is referred to as the "facility application"). The

transmission facility owner files the facility application with the Commission for consideration. The Commission may approve or deny the facility application, or approve it subject to terms or conditions.

7. When considering an application for transmission facilities, the Commission must assess whether the proposed transmission facilities are in the public interest having regard to the social and economic effects of the transmission facilities and the effects of the transmission facilities on the environment in accordance with Section 17 of the *Alberta Utilities Commission Act*.

2.2 Overview of the needs identification document application

8. On August 25, 2014, the AESO filed a NID application with the AUC, registered as Application 1610795 (the NID application), pursuant to Section 34 of the *Electric Utilities Act*, in relation to the need for a 138-kV transmission system reinforcement in the south Calgary area.

9. The AESO requested approval of the NID to resolve transmission system constraints and to contribute to the long term reliable operation of the 138-kV transmission system in the south Calgary area.

10. In its NID application which is further discussed in Section 3 of this decision, the AESO requested approval of the need for the following major elements of transmission development:

- build a new 138-kV transmission circuit between the existing ENMAX No. 65 and ENMAX No. 41 substations, with an in-and-out connection to the existing ENMAX No. 54 substation
- reconfigure the existing 138-kV transmission lines 32.82L and 26.81L to form a direct connection between existing ENMAX No. 32 and ENMAX No. 26 substations
- modify, alter, add or remove equipment, including switchgear, and any operational, protections, control and telecommunication devices required to undertake the work as planned and ensure proper integration with the proposed transmission developments with the transmission system

2.3 Overview of the ENMAX facility application

11. Pursuant to Section 35(1) of the *Electric Utilities Act*, the AESO directed ENMAX to submit a facility application to the AUC to meet the need identified in the AESO NID application.

12. ENMAX filed a facility application with the AUC on August 26, 2014, registered as Application 1610807 (the facility application),[1] pursuant to sections 14, 15, and 21 of the *Hydro and Electric Energy Act* to meet the need identified by the AESO.

[1] The facility application was originally filed in the AUC's previous electronic filing system. In January 2015, the Commission implemented the eFiling system. This system resulted in an application number for each of the project components. The new facility application numbers are 1610807-1, 3386-A001, 3386-A002, 3386-A003 and 3386-A004.

13. In its facility application, discussed in Section 4 of this decision, ENMAX requested approval of the following transmission facility additions and modifications:

- construct one new single circuit 138-kV transmission line between ENMAX No. 65 substation and ENMAX No. 54 substation, designated as 138-54.81L
- construct one new single circuit 138-kV transmission line between ENMAX No. 54 substation and ENMAX No. 41 substation, designated as 138-41.84L
- connect ENMAX No. 26 substation to ENMAX No. 32 substation by connecting existing transmission lines 138-26.81L and 138-32.82L at the intersection of Deerfoot Trail and Stoney Trail[2] and designating this as 138-26.81L
- add one circuit breaker to ENMAX No. 65 substation
- add two circuit breakers to ENMAX No. 41 substation

14. ENMAX proposed a preferred route and an alternate route for both of the new transmission lines 138-54.81L and 138-41.84L. In this decision, these proposed routes will be referred to as the preferred route and the alternate route.

15. The preferred route would begin at ENMAX. No. 65 substation and travel to the west along Stoney Trail within the transportation utility corridor (TUC), and then north on Macleod Trail, terminating at ENMAX No. 41 substation. The alternate route would begin at ENMAX. No. 65 substation and travel south along 88 Street S.E., then generally west along 212 Avenue S.E. and 210 Avenue S.E., and then north along Macleod Trail, terminating at ENMAX No. 41 substation.

16. On November 6, 2014, ENMAX advised the Commission that it had been contacted by Alberta Infrastructure regarding its preferred route alignment and alternate route alignment at Macleod Trail and Stoney Trail. Alberta Infrastructure notified ENMAX that it had reconsidered future Stoney Trail expansion plans. ENMAX explained that it was awaiting final direction from Alberta Transportation and would submit to the Commission any changes that would be required to the ENMAX application as a result of Alberta Infrastructure's reconsideration of its plans for Stoney Trail.

17. On March 17, 2015, ENMAX filed an amendment to the facility application in which it proposed a realignment of the preferred route and alternate route near Macleod Trail and Stoney Trail. The amendment also indicated that ENMAX conducted a new consultation process with newly-affected landowners, occupants and residents adjacent to the new proposed alignments.

2.4 Notice of applications and hearing

18. The Commission issued a notice of applications for Proceeding 3386 on September 18, 2014. The notice was mailed to residents and other interested parties in the vicinity of the proposed preferred and alternate routes. The notice was also published in the Calgary Herald and Calgary Sun on September 25, 2014, and on the AUC website. In the notice, 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 November 13, 2014. The Commission subsequently extended the deadline for statements of

[2] Stoney Trial was also referred to as Highway 22X in the proceeding.

intent to participate to November 28, 2014, for persons who had not yet received the notice. The notice also informed interested persons that an information session would be held by AUC staff on October 28, 2014.

19. The Commission issued a notice of hearing and application amendment on April 17, 2015. The notice was mailed to residents, and other interested parties in the vicinity of the proposed preferred and alternate routes, as amended. The notice was also published in the Calgary Herald and the Calgary Sun on April 22, 2015, and on the AUC website. It described the proposed changes to the facility application, informed interested persons that they could file a statement of intent to participate if they had not already registered and that an information session would be held by AUC staff on May 20, 2015. The notice also indicated that a hearing was scheduled to commence on August 24, 2015.

20. On May 29, 2015, Ms. Mona Pronk, as the representative of the Neighbours Against Overhead Lines group (NAOL group), filed a request for a postponement of the scheduled hearing. Ms. Pronk stated that more time was needed for the residents to hold discussions about the amendment to the proposed route, to find out if plans would change on the proposed Macleod Trail and Stoney Trail interchange, and to prepare for the hearing.

21. In a letter dated June 19, 2015, the Commission granted the NAOL group an extension of approximately four months to prepare for the hearing and rescheduled the hearing. A revised notice of hearing, issued on July 16, 2015, was published on the AUC website, in the Calgary Herald on July 21, 2015, and in the Calgary Sun on July 22, 2015. The notice advised that the hearing would commence on October 14, 2015, at the Best Western Plus Inn & Suites in Okotoks, Alberta.

22. The Commission issued a revised process schedule for this proceeding on June 22, 2015.

23. In a letter dated July 30, 2015, the Commission advised interested parties that it would not issue a decision on the application in Proceeding 3386 within the 180-day period set out in Subsection 15.2 of the *Hydro and Electric Energy Act* and that it anticipated making its decision within 90 days after the close of record for the hearing.[3]

2.5 Participants in the proceeding

24. In response to the notices issued for the proceeding, the Commission received numerous statements of intent to participate. Appendix A lists the proceeding participants.

25. The main issues raised by persons who filed a statement of intent to participate relate to the following:

- impacts to property values
- electric and magnetic fields (EMF) of the proposed transmission lines and their impacts on health; and
- visual impacts

[3] Exhibit 3386-X0240, AUC letter re extension of deadline - 2015-07-30.

26. The Commission issued five standing rulings for the proceeding.[4] Persons listed in the rulings who reside, own or have an interest in land adjacent to or within 800 metres of the proposed route or alternate route who have shown that they may be directly and adversely affected by the Commission's decision on the applications were given standing to participate fully in Proceeding 3386. Persons without standing were granted the option to give, in writing or orally at the hearing, a brief statement describing their views on the applications.

27. The following parties attended the public hearing:

- The NAOL group, representing 87 Sundance community residents listed in Appendix C[5]
- The Eberley group, representing Michael and Renata Eberley, Pilsum and Ruby Master, Albert Turgeon, and Fred and Marietta Olivares
- The Legacy group, representing West Pine Creek Developments Ltd., Legacy Gate GP Inc., 1779925 Alberta Ltd., and Jesse Jo Y. Teng
- Genstar Development Company (Genstar)
- Royop (Legacy) Development Ltd. (Royop)
- Brookfield Residential (Alberta) LP (Brookfield)
- Genesis Land Development Corporation (Genesis)
- Ollerenshaw Ranch Ltd. (Ollerenshaw) and Mr. Sandy Soutzo (Ollerenshaw/Soutzo group)
- Dr. Clare Westmacott
- Ms. Laura Van Kampen

2.6 Other procedural matters

28. On July 24, 2015, the NAOL group brought a motion[6] seeking better responses from ENMAX to certain NAOL group information requests and to file supplemental information requests. ENMAX submitted its responses to the NAOL group for better responses and to the supplemental information requests on July 30, 2015. The NAOL group advised on August 6, 2015that it would no longer pursue a ruling from the Commission because ENMAX had provided the information requested.

29. In a letter to the Commission dated August 31, 2015, the AESO requested that its further participation in Proceeding 3386 not be required and that the NID application be approved. The AESO's request was based upon its review of the evidence filed by the interveners and discussions it had with counsel for those interveners who indicated that they did not intend to cross-examine the AESO at the hearing. The Commission issued a letter dated September 1, 2015, requesting comments from parties on the AESO's request and giving the AESO an opportunity to reply to any comment.

[4] Exhibit 3386-X0004, AUC Ruling on Standing Letter, Exhibit 3386-X0166, AUC letter - Second ruling on standing, Exhibit 3386-X0189, AUC letter - Third ruling on standing, Exhibit 3386-X0239, AUC Fourth Ruling on Standing - Proceeding 3386 - 2015-07-30, and Exhibit 3386-X0315, AUC letter - Fifth ruling on standing.

[5] The list of members of the NAOL group can be found in Exhibit 3386-X0296, Attachment - Tab 1.

[6] Exhibit 3386-X0235, Motion to compel better responses to information requests and further information requests, July 24, 2015.

30. On September 8, 2015, counsel for the Eberley group, Mr. David Campbell, stated that he had been consulted by the AESO and did not plan to cross-examine the AESO witnesses. However, he stated that the NID application should not be approved because the Eberley group was going to cross-examine the ENMAX witnesses on the scope of the land impact assessment, which forms a part of the NID application. No other party filed any comments.

31. The AESO replied, on September 14, 2015, that while cross-examination and argument on routing assessments may be relevant to the Commission's decision on the ENMAX facility application, they have no bearing on the Commission's approval of the need for the transmission reinforcement, or the transmission development proposed by the AESO to meet the need, pursuant to Section 38 of the *Transmission Regulation*.

32. The Commission issued a ruling on September 18, 2015 granting the AESO's request to not attend or present witnesses at the oral hearing, but which also stated that it was not prepared to approve the NID application at that stage of the proceeding.

2.7 Hearing

33. The hearing commenced on October 14, 2015, in Okotoks, Alberta before a Commission panel comprised of Panel Chair Anne Michaud, Commission Member Tudor Beattie, QC and Acting Commission Member Kate Coolidge.

34. The proceeding concluded with oral argument and reply argument on October 21, 2015. The Commission considers October 21, 2015, to be the date of the close of record for this proceeding.

3 The AESO needs identification document

3.1 Views of the applicant

35. In 2011, the AESO established the 2011 Foothills Area Transmission Development Plan (2011 FATD Plan), which included the proposed transmission development. In 2012, the AESO undertook two sets of sensitivity studies (2012 FATD Sensitivity Studies) to supplement the 2011 FATD Plan. The AESO stated that the 2012 FATD Sensitivity Studies confirmed that the proposed transmission development continued to be needed as originally planned. The AESO submitted the 2011 FATD Plan and 2012 FATD Sensitivity Studies as part of the NID application.

36. The AESO stated that the 2011 FATD Plan and 2012 FATD Sensitivity Studies clearly demonstrated that the existing 138-kV system in the south Calgary area was prone to overloading by as early as 2014 under certain N-1 contingencies, (i.e., when one transmission system element is out of service). In particular, the 2012 FATD Sensitivity Studies indicated that the 138-kV transmission system constraints remained in the south Calgary area in the vicinity of the ENMAX No.65 substation and that these transmission constraints in the south Calgary area would be alleviated following the implementation of the transmission facilities in the NID application.

37. The AESO stated that it did not study alternatives to the proposed developments in detail. On November 28, 2014, the Commission issued an information request to the AESO asking for an explanation of why it did not study alternatives to the proposed developments in detail.[7] The AESO responded as follows:

> As explained in Section 3.2 of the Application, the Proposed Transmission Developments are a small component of the AESO's Foothills Area Transmission Development Plan (FATD Plan). In developing the FATD Plan, the AESO determined that 138 kV transmission developments were required in the South Calgary Area. Further, the AESO employed an incremental approach to identify reliability violations, followed by a consideration of Alberta Reliability Standards applicable to Transmission Planning (TPL) under various system conditions. The AESO also considered the primary requirement to serve local load in the South Calgary Area, while simultaneously considering that development would have to be constructible without affecting the reliability of the transmission system in the interim (given that it might not be feasible to remove existing elements of the system from service for extended periods of time for the purpose of re-building to a higher capacity). Further, the circuits experiencing overload in the area are already high capacity, making alternatives involving rebuilding of existing circuits impractical. In addition, the AESO considered developments that maximized the use of the existing transmission system, which included favoring system reconfigurations over new developments, where possible. Collectively, in consideration of the factors above, as well as the intended purpose of the ENMAX No. 65 Substation to act as a strong local source for 138 kV system reinforcement, the AESO did not identify other feasible transmission developments to meet the identified need. It is noted that the process for determining the Proposed Transmission Developments, as well as the specific circumstances in which the AESO determined there to be only one reasonable alternative, is consistent with other developments in the FATD Plan, which the Commission has previously approved.[8]

38. In the NID application, the AESO attached a letter dated July 9, 2014 in which ENMAX confirmed that the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*, NID 13) would be addressed in its facility application.[9] Rule 007, NID 13) outlines that in cases where the Independent System Operator is identifying a particular area in which the transmission facility owner should attempt to ultimately locate the proposed transmission facilities, the Independent System Operator is expected to examine options, and elaborate on the rationale for recommending the preferred option, having regard to agricultural impact, residential impact, environmental impact, electrical considerations, visual impact, and special constraints.

39. The AESO directed ENMAX to assist it in conducting a participant involvement program that would provide stakeholders with an opportunity to raise any concerns regarding the need for the facilities required for the project. According to the AESO, ten AESO-ENMAX open houses were held between April 1 and April 9, 2014. The AESO submitted that it believed all comments and questions regarding the need for the proposed transmission developments were appropriately addressed and that it was not aware of any outstanding concerns regarding the need for the proposed transmission developments.

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[7] Exhibit 0120.01.AUC-3386, AUC Information Request Round 1 to AESO, AUC-AESO-3, November 28, 2014.
[8] Exhibit 0125.02.AUC-3386, AESO IR Response ENMAX 3rd Circuit, AUC-AESO-3, December 12, 2014.
[9] Exhibit 0001.00.AESO-3386, NID Application, PDF page 1694.

3.2 Views of the parties

40. The Eberley group argued that ENMAX had chosen the preferred and alternate routes prior to receiving a land impact assessment (LIA) routing report from Golder Associates (Golder). The Eberley group stated that it is clear that ENMAX did not use its expert report to advise the AESO of the best choice for the alternate route, as ENMAX had chosen the alternate route prior to receiving the Golder report. The group argued that this was a serious deficiency, not only in the choice of routes, but also in the process by which utility companies are to proceed, and that it undermined the validity of the NID application.[10] For these reasons, the Eberley group contended that the approval of the NID application and the proposed 138-kV transmission lines along the alternate route would not be in the public interest pursuant to Section 17 of the *Alberta Utilities Act*.[11]

41. No other parties objected to the AESO's NID application.

3.3 Commission findings

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

43. The Commission does not accept the interpretation of the Eberley group that the NID application was deficient in the information provided under item NID 13 in Rule 007 and that for this reason the approval of the NID application is not in the public interest. The submissions of the Eberley group pertained to the routing of the proposed transmission lines rather than the need for the lines in question.

44. Because no party demonstrated that the AESO's assessment of the need for the proposed facilities is technically deficient or is not in the public interest, the Commission considers the AESO's assessment of the need to be correct, in accordance with Section 38(e) of the *Transmission Regulation*, and approves the AESO's needs identification document application.

4 The ENMAX facility application

4.1 Consultation

4.1.1 Views of the applicant

45. ENMAX submitted that it conducted a comprehensive consultation process that met the requirements of Rule 007 in that it notified and consulted with all landowners, occupants and residents adjacent to the proposed preferred and alternate routes.

46. ENMAX stated that it distributed project information packages through direct mail, email, conducted personal face-to-face consultations and held ten open houses with the AESO.

47. The project information package included a stakeholder newsletter, the *AUC Public Involvement* brochure and the AESO Need Overview, and was distributed on

[10] Transcript, Volume 5, PDF page 90, lines 6-21.
[11] Exhibit 3386-X0264, PDF page 2, paragraphs 1-2.

February 18, 2014 to all potentially affected landowners adjacent to the proposed preferred and alternate routes, as well as to local and provincial government officials, interested parties and community associations.

48. ENMAX's application stated that personal consultations were undertaken with occupants, residents and landowners in the first row adjacent to the proposed preferred and alternate routes and that it made at least two attempts to reach all occupants or commercial businesses in personal door-to-door consultations. These consultations were completed between February 12, 2014 and March 28, 2014.

49. In its application, ENMAX indicated that it received statements of concerns and opposition from affected persons on both the preferred and alternate routes. ENMAX stated that although it attempted to mitigate and resolve concerns where possible, it was not able to address the concerns of all parties opposing the transmission facilities.

50. As a result of the amendment to the routes near Macleod Trail and Stoney Trail, ENMAX conducted a second participant involvement program. ENMAX's amendment application explained that it conducted additional consultations with landowners, occupants and residents of the Sundance community located adjacent to the new preferred alignment. ENMAX also held a public open house on February 25, 2015, in relation to the application amendment.

51. ENMAX indicated that it would continue engagement efforts with affected stakeholders by responding to stakeholder concerns brought forth during the consultation process and that it would mitigate stakeholder concerns throughout the regulatory process.[12]

52. ENMAX also consulted on an additional route that it did not apply for, named the route variant, on June 11, 2015. ENMAX added that this involved personal consultation with 24 landowners in the first row of residences in the Chaparral community. On June 12, 2015, ENMAX mailed a newsletter to affected landowners in the first row adjacent to the route variant. It also sent materials to addresses in the T2X postal code with respect to the route variant and held one public open house on June 25, 2015.[13]

53. At the hearing, Mr. Sivakumar Ganesh (Mr. Kumar), director, projects, at ENMAX, testified that ENMAX carried out a participation involvement program in accordance with the requirements of Rule 007. He explained that the goal of ENMAX's participation involvement program was to ensure that interested parties and potential stakeholders were given an opportunity to learn about the proposed project, to discuss any project-related concerns, and for ENMAX to respond and address any issues that resulted from the consultations.[14]

[12] Exhibit 3386-X0011, EPC Amendment FATD South Calgary Application, PDF page 9, paragraph 18.
[13] Exhibit 3386-X0343, 2015-09-30-EPC-FATD Reply Evidence, Appendix A, PDF page 20.
[14] Transcript, Volume 1, PDF page 20, lines 12-19.

54. ENMAX filed the consultation records for multiple interveners and stated that it had demonstrated the steps it took to understand and address interveners' concerns. In argument ENMAX stated:

> Although some stakeholders have criticized aspects of ENMAX's process, it can fairly be said that the consultation records filed by ENMAX support the conclusion that its [participant involvement program] was comprehensive, transparent and fair.[15]

4.1.2 Views of the parties

55. The NAOL group contested ENMAX's consultation efforts with landowners located in the vicinity of Macleod Trail and Stoney Trail on the amended portion of the facility application. The NAOL group submitted that ENMAX failed to meaningfully consult with its members with respect to the ENMAX route variant and similar routes.[16]

56. Mr. Jason Berkholtz, who was on the NAOL landowner witness panel, stated that his property is located directly behind and within 50 metres of the preferred route. Mr. Berkholtz testified that:

> I went to ENMAX's open house in March 2015. Unfortunately, my experience with ENMAX further contributed to and equated to more stress. My initial impressions of ENMAX was as if they just didn't care. They seemed like they have been through this process many times and it clearly showed. I felt ENMAX didn't feel the "weight" of the situation introduced to my expanding family.[17]

57. Mr. Jeremy Bateson indicated that the ENMAX open house was insufficient:

> When we attended the February, 2015, open house, the ENMAX representatives were unable to give us specific reasons why the routing needed to change. I was told that it was a decision by Alberta Transport. There were no details given and there were no representatives to Alberta Transport present.[18]

58. Mrs. Kathy Lepard, a NAOL group member, was critical of the information presented at the ENMAX open house.

59. Mr. Paul Boskovich, senior development manager with Genstar, testified that Genstar had been aware of the ENMAX project since the winter of 2014. Mr. Boskovich stated that Genstar and other developers met with ENMAX in March of 2014 to express various concerns with putting the alternate route through their master plan communities before ENMAX filed its application.[19] In this regard, Mr. Boskovich stated: "I don't know what consultation process was supposed to accomplish because it was obvious that, from that point forward, no one listened to our concerns and we've put a huge expense to identify and quantify issues that were obvious to us from the start."[20]

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[15] Transcript, Volume 5, October 21, 2015, PDF page 11, lines 11-15.
[16] Exhibit 3386-X0262, NAOL Written Submission, Section 2, PDF page 4, paragraph 16.
[17] Exhibit 3386-X0411, Final Opening Statement of Jason Berkholtz, PDF pages 1 and 2.
[18] Transcript, Volume 3, PDF page 60, lines 6-11.
[19] Transcript, Volume 3, October 19, 2015, PDF page 214, lines 9-16.
[20] Transcript, Volume 3, October 19, 2015, PDF page 215, lines 4-8.

4.1.3 Commission findings

60. 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**.**

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

62. The Commission accepts ENMAX's evidence that it notified and consulted stakeholders in and around the project area and continued to send project updates to stakeholders as the project planning progressed.

63. The Commission also finds that potentially affected parties were provided with sufficient information from ENMAX to understand the proposed project and were given opportunities to express their concerns during the course of the participant involvement program.

64. Based on the above, the Commission finds that ENMAX's participant involvement program was conducted in accordance with Rule 007 and is satisfied that, overall, the program was comprehensive and successful.

4.2 Electrical considerations

4.2.1 Views of the applicant

65. ENMAX stated that it recognized that some stakeholders raised concerns about electric and magnetic fields (EMF) and the project's effects on health, noise, interference with computer and electronic equipment and induced current and voltage. ENMAX explained that it considered potential electrical effects when planning the project.

66. ENMAX explained that EMF are found everywhere electricity is used, from household wiring to power lines. It submitted that it would continue to monitor EMF-related developments through its work with the Canadian Electricity Association's EMF Task Group. ENMAX added that for several decades, scientific and government agencies have reviewed experimental research regarding the electrical environment near transmission lines and that scientific evidence to date has not established adverse health effects resulting from exposure to power frequency EMF at levels normally encountered in homes, schools or offices. ENMAX submitted that none of these agencies concluded that the levels of electric or magnetic fields from transmission lines are a health concern.[21] This was reiterated by Mr. Kumar during ENMAX's opening statement.[22]

67. In its application, ENMAX stated that the strength of the magnetic field from a transmission line is dependent upon the horizontal and vertical distance from the line, the current in the line and the configuration of the conductors. ENMAX explained that the magnetic field decreases quickly with increased distance, increases with increased current, and can be affected

[21] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 10, paragraphs 25 and 26.
[22] Transcript, Volume 1, PDF page 26, lines 16-25.

by the configuration of the conductors. Although the potential for reduction is relatively small for single circuit lines, ENMAX stated that, where possible, it would arrange conductors so as to reduce the magnetic field at the nearest residences. It would also provide EMF estimates, as well as before and after in-home EMF measurements, to any resident who requested them.[23]

68. ENMAX modelled and provided EMF profiles for the preferred and alternate routes in typical conductor arrangements. ENMAX predicted that the extremely low frequency magnetic field from transmission lines 138-54.81L and 138-41.84L would be approximately 85 milligauss (mG) at the centerline, approximately five mG at 30 metres way from the centerline, and approximately two mG at 50 metres away from the centerline.[24] It explained that at a distance of 80 metres, the average magnetic field from transmission lines 138-54.81L and 138-41.84L would be less than one mG, which is in the range typically found within Calgary homes. The calculations were made using the Corona and Field Effects program. At the hearing, Mr. Bill McVeigh, the supervising engineer, standards at ENMAX explained the electric and magnetic field profiles and how the fields were predicted to decrease with distance.[25]

69. ENMAX argued in this regard that:

> There is no evidence to suggest that there will be adverse impacts from EMF in relation to any component of the proposed facilities. The strength of electric and magnetic fields will be well below the 4.16 kilovolt per metre exposure limit for electric fields and the 2,000 milliGauss exposure limit for magnetic fields set out in the International Commission on Non-Ionizing Radiation Protection, or ICNIRP guidelines.[26]

70. ENMAX explained that ICNIRP is a body that sets guidelines to ensure that exposure to EMF do not cause electric currents or fields in the body that are stronger than the ones produced naturally by the brain, nerves and heart.[27]

71. Leah and Nathaniel Barnes objected to the preferred route on the basis of health risks related to exposure to EMF. They claimed that the approval of the preferred route would result in the erection of transmission structures within close proximity to their home, thereby putting their children and family at an elevated risk of exposure to EMF. ENMAX submitted that if the preferred route were approved, it would be located approximately 180 metres northwest of the Barnes property. ENMAX predicted that the magnetic field strength from the proposed transmission line at this distance would be below 0.6 mG, which is at levels lower than the magnetic field levels produced by many household appliances such as electric ranges (six mG at four feet, when operating), fluorescent lights (four mG at four feet) and digital clocks (one mG at four feet).[28]

72. ENMAX submitted that the nearest residence to the project is located on the alternate route. The distance between the proposed transmission line centreline on the alternate route to

[23] Exhibit 0002.00.EPC-3386, ENMAX Facility Application, Section 1.7, PDF page 26, paragraphs 22, 23 and 24.
[24] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 98, paragraph 22.
[25] Transcript, Volume 1, PDF pages 209-212.
[26] Transcript, Volume 5, October 21, 2015, PDF page 47, lines 18-25.
[27] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 9, paragraph 24.
[28] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 9, paragraph 23.

the property line would be 2.5 metres. ENMAX predicted that, at this distance, the electric field would be 0.99 kilovolts/metre and the magnetic field would be 70 mG.[29]

73. Mr. and Mrs. Barnes also suggested that if the preferred route were approved, ENMAX should be required to bury the line because the soil, concrete and/or sand would act as barrier and EMF would therefore be negligible. However, ENMAX submitted that only the electric field is reduced when a line is buried, and that this has been recognized by Health Canada.[30] Mr. McVeigh testified that he did not model a buried option for the transmission lines, but expected that the magnetic field profile would be similar to an overhead line at the centreline and would be reduced more quickly with distance than an overhead line if certain design methods were used.[31]

74. Some interveners, including members of the NAOL group, also had concerns about the buzzing noise that would be generated from the proposed 138-kV transmission lines. Corona noise, which is caused by electrical discharge and ionization of air around the surface of an AC transmission line conductor, may be noticeable as an audible hum or crackling sound.[32] The Golder report stated that to mitigate noise, television and Citizen Band (CB) radio interference, ENMAX would install corona shields on all insulators, would use conductors that are large in diameter and ensure there are no sharp edges on the conductors.[33] ENMAX submitted that audible noise was not expected to be a concern for these lines. However, ENMAX added that it has a yearly maintenance program which would identify and correct any corona issues and that it would take steps to mitigate any television interference caused by the project.[34]

4.2.2 Views of the parties

75. Various interveners expressed concerns with the project's EMF levels and their potential adverse health impacts.

76. The NAOL group stated that it had concerns with various negative impacts that would result with ENMAX's revised preferred route such as the unknown potential health risks and increase in noise (buzzing and crackling). The NAOL group indicated that its members included parents who are raising young children in homes that would be as near as 50 metres from the preferred route and that these members are not prepared to expose their infant children to EMF emissions from transmission lines.[35]

77. At the hearing, Dr. Clare Westmacott, a medical doctor who has been in family practice for over 40 years, stated that he and his spouse are not against new transmission lines if they are required. He stated that their home abuts the TUC in Cranston and uses electrical power. Their concern and potential objection is that the preferred or alternate route could allow high voltage

[29] Exhibit 0040.01.EPC-3386. ENMAX IR Responses to the AUC, AUC-EPC-012, PDF pages 146-147.
[30] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 10, paragraph 28.
[31] Transcript, Volume 1, PDF pages 213-214.
[32] Decision 2012-327. AltaLink Management Ltd. Western Alberta Transmission Line Project. December 6, 2012. Paragraph 454, PDF page 128.
[33] Exhibit 0003.00.EPC-3386, ENMAX FATD South Calgary Appendicies, Appendix E-2, PDF pages 213 and 221.
[34] Transcript, Volume 5, October 21, 2015, PDF page 48, lines 2-9.
[35] Exhibit 3386-X0262, NAOL Written Submission, PDF page 6, paragraphs 25 and 26.

transmission lines to be placed in very close proximity, not only to their property, but to other homes that have young children living in them, or where children are visiting regularly.[36]

78. Dr. Westmacott stated that EMF is additive and accumulative and highlighted parts of an article concerning EMF and health information he had filed in the proceeding.[37] His primary concern in relation to the preferred route is health,[38] stating "Any proposal, from a health prospective, needs to take into consideration distance from households and schools as the only way to be completely safe."[39]

79. Mr. Barry Woods, an NAOL group member whose residence would be located 32 metres from the preferred route, explained that he was concerned with the noise from the project. He said that an ENMAX employee at an open house confirmed to him, that "when the weather is hot and humid, you can actually hear a very distinct hum from the wires and, therefore, the power line will certainly infringe on our enjoyment of sitting on our renovated deck."[40]

4.2.3 Commission findings

80. Many interveners expressed concerns about the potential effects of EMF from transmission lines on human health.

81. However, the profiles generated by ENMAX's computer modelling of the EMF levels associated with the proposed transmission lines 138-54.81L and 138-41.84L show that the electric fields and magnetic fields are strongest when close to the lines and diminish quickly as the distance increases from the lines. The Commission finds the results of the modelling to be credible and accepts them.

82. The closest residence to the project would have its property line 2.5 metres from the alternate route centreline.[41] Based on the EMF profiles and modelling submitted, the electric field levels 2.5 metres from proposed transmission lines 138-54.81L and 138-41.84L centrelines are expected to be 0.99 kilovolts/metre, which is lower than the ICNIRP exposure guidelines for the general public of 4.16 kilovolts/metre.

83. The magnetic field levels 2.5 metres from proposed transmission lines 138-54.81L and 138-41.84L centrelines are expected to be 70 mG, which is also lower than the ICNIRP exposure guidelines for the general public of 2,000 mG.

84. The evidence on electric and magnetic fields produced by the proposed transmission lines is uncontroverted. There is no evidence before the Commission to suggest that there will be adverse health impacts from EMF in relation to the project.

85. Furthermore, ENMAX's commitment to use large diameter conductors with no sharp edges and its yearly maintenance program will assist in reducing the noise of the transmission lines.

[36] Transcript, Volume 3, October 19, 2015, PDF pages 160, lines 6-25, PDF Page161, lines 1-4.
[37] Exhibit 0114.00.WEST-3386.
[38] Transcript, Volume 3, October 19, 2015, PDF page 164, lines 4-8.
[39] Transcript, Volume 3, October 19, 2015, PDF page 167, lines 14-16.
[40] Transcript, Volume 3, PDF pages 97-98, lines 20-1.
[41] Exhibit 0040.01.EPC-3386. ENMAX IR Responses to the AUC, AUC-EPC-012, PDF pages 146-147.

86. The Commission is consequently of the view that both the preferred and alternate routes are acceptable from an electrical consideration perspective.

4.3 Property value and visual impacts

4.3.1 Views of the applicant

4.3.1.1 Property value impacts

87. ENMAX retained Golder to conduct a land impact assessment to support the NID application and the facility application for the proposed transmission lines and submitted the Golder LIA report as part of its application.[42] Golder assessed four potential route options based on the criteria described in Rule 007.[43]

88. In the LIA, Golder stated the impact of a transmission line on residential property is subjective, site-specific and could be difficult to estimate. Golder noted that existing transmission and distribution lines are presently located adjacent to existing residential properties within the LIA study area.[44]

89. With respect to measuring the impact of the project on residential property values, Golder stated that "in consideration of the multitude of factors that influence the value of residential properties and because there is no widely accepted method of quantifying the impact of proximity to transmission lines on residential property values, Golder cannot measure the impact of the Project on residential property values."[45]

90. Overall, Golder concluded that impacts to residential property values are more likely to occur along transmission line routes that are in proximity to a greater number of residential properties. As such, of the four routes it studied, the preferred and alternate routes are in proximity to the lowest number of residential properties and would have the lowest potential to impact residential property values.[46]

91. In its reply evidence, ENMAX reiterated that it had not conducted a site-specific analysis of property values for the preferred or alternate route.[47] Mr. Kumar testified that:

> We took the expert opinion out of what Golder had provided, but ENMAX does have its own position with regard to property values. The issue of property values within the City of Calgary is one that is complex and technical in nature.
>
> The house -- the value of the home is influenced by a number of factors, and it could be the location, the neighbourhood, the maturity of the neighbourhood. It depends upon the size of the lot, the house at the lot, the internal upgrades, the orientation of the house, whether it's south facing or north facing. It depends upon a number of factors that a value of the house is dependent upon.[48]

[42] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-2.
[43] Exhibit 0.002.00.EPC-3386, ENMAX Facility Application, Section 6.1, PDF page 43, Paragraph 77.
[44] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-2, Section 4.2.1, Report page 16, PDF page 214.
[45] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-2, Section 4.2.1, Report page 16, PDF Page 214.
[46] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-2, Section 4.2.2, Report page 19, PDF page 217.
[47] Exhibit X-0343 at paragraph 15.
[48] Transcript, Volume 1, October 14, 2015, PDF page 42, lines 2-14.

92. Mr. Kumar was further questioned on whether ENMAX conducted any impact analysis on property values, in particular to the residences owned by members of the NAOL group.[49] He replied as follows:

> We certainly did not undertake a study, sir, if that's what you're asking. There's good reasons why we didn't.
>
> In an urban city such as Calgary it's impossible to site an overhead transmission line, especially given the geographic area, without having any impact on any of the residents.
>
> I would say it's almost a common denominator if you were to look to site a transmission line within a geographic area such as the southeast part, which is largely residential. And so what we have done here is, again, looked at considerations under Rule 007 for all of the factors that are outlined there and then weighted the impacts of one route relative to another in arriving at a preferred route and coming up as an alternate route.[50]

4.3.1.2 Visual impacts

93. The Golder report stated that all structures and lines are expected to be visible from residences, roads and recreational installations such as city of Calgary pathways, Fish Creek Provincial Park, playgrounds, and sporting fields. Of the four routes Golder evaluated in the LIA, it found that that Route Option A, which was the preferred route, was expected to have the lowest visual impact, as seen from residences, farms, roads and recreational installations.[51] Golder stated that Route Option A was one of the shortest routes that it evaluated and it made the most use of the TUC to reduce residential, environmental and visual impacts.[52]

94. Further, ENMAX proposed to construct the transmission lines with steel monopole structures which, relative to lattice towers, would reduce visual impact and, relative to wood poles, would reduce the number of poles required. Mr. Kumar added that for each of the three phases of 138-kV circuit, ENMAX proposed to use a single conductor rather than a bundled two-conductor design, which would also help to reduce the visual impact.[53]

4.3.2 Views of the parties

4.3.2.1 Property value impacts

4.3.2.2 NAOL group

95. The NAOL group retained the services of Mr. Ryan Archer of Gettel Appraisals Ltd. to conduct a financial impact assessment on the potential effects of a 138-kV overhead transmission line on homes and to prepare a report. Mr. Archer prepared a report entitled *Financial Impact Assessment ENMAX Power Corporation 138 kV Foothills Area Transmission Development Sundance & Chaparral Calgary, Alberta* (the Archer report).[54]

96. The NAOL group filed the Archer report in response to an AUC information request about the potential effect of the Berrien Alternate Route (BAR) on residential property values,

[49] Transcript, Volume 1, October 14, 2015, PDF page 42, lines 17-22 and page 43, lines 4-7.
[50] Transcript, Volume 1, October 14, 2015, PDF page 43, lines 8-23.
[51] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-1, Section 5.4, Report Page 47, PDF page 245.
[52] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-1, Section 6, Report Page 48, PDF page 246.
[53] Transcript, Volume 1, PDF pages 22-23, lines 25-7.
[54] Exhibit 3386-X0335, Tab 3, Financial Impact Assessment.

compared to ENMAX's preferred route. The BAR was developed by Mr. Robert Berrien, who was retained by the NAOL group to review the facility application and ENMAX's routing. The NAOL group stated that the BAR would result in less property value losses than ENMAX's preferred route and that the Archer report substantiated this conclusion.[55]

97. The Archer report stated that the main objective in undertaking the study was to formulate an opinion on the impact that the proposed transmission lines would have on the saleability and potential market value of homes of the members of the NAOL group in Sundance and Chaparral. The analysis was limited to homes located within 150 metres of the proposed transmission line that have a direct sightline of the proposed transmission line. The analysis was based on Gettel Appraisals Ltd.'s case studies.[56] Mr. Archer also conducted appraisals of three properties owned by members of the NAOL group.

98. The Archer report relied on three case studies in its analysis of the impact of property values resulting from transmission lines. The first case study pertained to a series of vacant rural residential lots adjoining a lower voltage 138-kV transmission line located to the west of the city of Edmonton in Parkland County. The second case study pertained to the Heartland transmission project with a focus on a series of properties in Sturgeon County. The third case study pertained to the upgrading of a 138-kV line to a 240-kV line within the area of Tsawwassen, a suburb of the greater Vancouver area. [57]

99. The Archer report indicated that the range in property value losses were between 4 to 31 per cent in the Parkland County study, an average devaluation of 30 per cent of list price in the Heartland transmission project study, and a price decrease of 6 to 12 per cent in the Tsawwassen Heights study.[58]

100. In his report, Mr. Archer noted that both Sundance and Chaparral flank the TUC and are already exposed to what would be considered a negative externality, and that his assessment would focus on the incremental impact that would result from the proposed transmission lines. He concluded that the typical range of anticipated value loss based on distance to the preferred route or the BAR was:[59]

- 0-50 metres with a clear sightline: 15 per cent loss
- 50-100 metres with a clear sightline: 10 per cent loss
- 100-150 metres with a clear sightline: 5 per cent loss

101. Mr. Archer testified that he determined anticipated value losses of 5, 10 and 15 per cent as follows:

> I think one of the -- one of the [studies] that I personally put the most emphasis on was the Tsawwassen one and simply because that one was 6 to 12. And I think that one balanced off with the idea that we had a mountain view in this one. And so I thought the extreme end was actually more pronounced in that instance, but I still looked at the Tsawwassen one in terms of how you're looking at --backing on to a negative externality

[55] Exhibit 3386-X0338, Response to AUC- Round 1 Responses, NAOL-AUC-2015SEP16-003, PDF page 5.
[56] Exhibit 3386-X0335, Tab 3, Financial Impact Assessment, Section 4.3, PDF pages 8 and 23.
[57] Exhibit 3386-X0335, Tab 3, Financial Impact Assessment, Section 4.3, PDF pages 21 and 22.
[58] Exhibit 3386-X0335, Tab 3, Financial Impact Assessment, Section 4.3, PDF pages 22 and 23.
[59] Exhibit 3386-X0335, Tab 3, Financial Impact Assessment, Section 4.3, PDF page 24.

> and just building upon that. So I think overall from that point of view it maybe got the most weight, but, again, it really was a combination of all of them. But I think if I key in on one thing, that's probably what it was the most, was that 6 to 12 but, again, acknowledging the mountain views that are now kind of -- well, not kind of, you have a power line between them. So that would be the key.[60]

102. Mr. Archer took the applicable percentage and applied it to the 2014 City of Calgary's property assessment value for each property in question to calculate the total potential financial impact of the proposed transmission lines.

103. On October 13, 2015, the NAOL group submitted an amendment to the Archer report[61] because of map corrections filed by ENMAX which updated the distances of Sundance residences from the preferred route. As a result of the corrections, four of the residences that were previously included in the Archer report were located further away than 150 metres and were removed from the calculation of the total potential financial impact.[62]

104. In the amendment to his report, Mr. Archer concluded that the preferred route would have a primary impact on 85 residences within 150 metres with a clear sightline, which he estimated would result in a cumulative economic loss of $3,783,350. However, he estimated the BAR would have a primary impact on 23 residences within 150 metres and result in a cumulative economic loss of $610,350.[63] Mr. Archer clarified that the primary impact referred to in his report was the proximity of a transmission line to residences and its visual impact.[64]

4.3.2.3 Genstar

105. Genstar, a developer that owns land along the alternate route, expressed concerns with the property value impacts of the proposed alternate route. Genstar stated it was the developer of the Lake Chaparral community and that there were impacts from infrastructure on property values.[65] Genstar stated it discounted lots on 200 Chapalina Place S.E., which is adjacent to the TUC, by 5 to 10 per cent. It also said it discounted lots backing onto 210 Avenue S.E. in Walden, along the alternate route.

106. Genstar's evidence indicated that an example of discounts offered was for lots immediately adjacent to a 240-kV transmission line in the community of Evansview, in northwest Calgary. It stated that these lots were discounted in the range of 5 to 18 per cent.

107. Genstar submitted that if the alternate route were constructed, it expected to discount its lots adjacent to the alternate route in the Rangeview area by a range of three to eight per cent. At the hearing, Mr. Patrick Briscoe, a development manager with Genstar, testified that such a discount to the value of its lots along 212 Avenue S.E. would result in losses of $400,000 to $1.1

[60] Transcript, Volume 3, October 19, 2015, PDF page 443, lines 1-18.
[61] Exhibit 3386-X0381, Amendment of Financial Assessment-Gettel Appraisals Ltd.
[62] Exhibit 3386-X0381, Amendment of Financial Assessment-Gettel Appraisals Ltd. page 3.
[63] Exhibit 3386-X0381, Amendment of Financial Assessment-Gettel Appraisals Ltd. page 6, Mr. Archer stated that since there were no specific distance setback corrections to the BAR distances, he saw no basis to amend his opinion about the BAR property value impact.
[64] Transcript, Volume 3, October 19, 2015, PDF page 138, lines 13-15.
[65] Exhibit 3386-X0273, Genstar Written Submission, Section 4.4, PDF pages 6-7.

million.[66] In its evidence, Genstar stated that it expected that the alternate route would result in a reduction in value for owners in the Walden community along 210 Avenue S.E. Mr. Paul Boskovich, a senior development manager with Genstar, added in his testimony that he expected everyone whose property was adjacent to the transmission lines to lose value on their property.[67]

4.3.2.4 Brookfield

108. Brookfield, a developer that owns land along the alternate route, stated that one of the most important aspects of its business is to have a comprehensive pricing strategy that incorporates the many components that determine the value of a parcel of land.

109. In its corporate evidence, Ms. Tara Steell, development manager, planning for Brookfield Residential, explained that the contributing factors to the value of a land parcel included the size of lot, location, adjacent uses, market demand, and servicing. Ms. Steell added that proximity to local infrastructure such as local roads, sanitary lines, and water lines provided direct benefit to the lots it served, and would be priced in as a benefit to the lots.

110. However, major regional infrastructure such as railway tracks, transmission lines, and substations, have negative effects such as visual impacts and noise impacts and a negative price impact. In Brookfield's experience, the more major regional infrastructure is adjacent or in close proximity to a lot, the greater the negative effect on the price of such a lot.

111. Ms. Steell stated that lots adjacent to or affected by the proposed alternate route would likely be sold for a discounted price to account for the loss of value due to their proximity to transmission lines 138-54.81L and 138-41.84L.[68] Mr. Robert Clark, senior vice president - Calgary and Region Communities at Brookfield, agreed with Ms. Steell and testified that Brookfield is concerned that approval of the alternate route will result in a negative impact on the value of its development.[69]

4.3.2.5 Ollerenshaw/Soutzo group

112. The Ollerenshaw/Soutzo group consisted of Ollerenshaw Ranch Ltd. and Mr. Sandy Soutzo, both developers that own land on the alternate route.

113. Mr. Michael Pepper, financial officer for Ollerenshaw and Mr. Chris Plosz, president of Ollerenshaw testified at the hearing on behalf of Ollerenshaw. Mr. Pepper explained that the residences that would be constructed on the Ollerenshaw land would experience a visual impact from the alternate route due to the proximity of the residences to the proposed transmission lines. Mr. Pepper stated that each affected residence would be less desirable to potential purchasers and that Ollerenshaw would therefore have to reduce such lots by eight per cent, which would result in an estimated loss of $1,161,600. Mr. Pepper calculated this loss based on a valuation of $5,500 for 2,600 feet of front footage for the Ollerenshaw Rangeview Lands.[70] He estimated that

[66] Transcript, Volume 3, PDF page 219, lines 3-6 and Exhibit 3386-X0273, Written Evidence of Genstar, PDF page 7.
[67] Transcript, Volume 3, PDF page 218, lines 2-4.
[68] Exhibit 3386-X0291, The Corporate Evidence of Brookfield Residential (Alberta) LP, Section 2, PDF pages 5-6.
[69] Transcript, Volume 3, PDF page 192, lines 2-5.
[70] Exhibit 3386-X0461, Opening Statement of Ollerenshaw Ranch Ltd., PDF page 2.

Ollerenshaw would construct 40 residences bordering 88 Street S.E. Mr. Pepper projected that the alternate route would cause a loss of developable land resulting in a loss of $605,000.[71]

114. Mr. Sandy Soutzo testified that the Soutzo Cell E lands border on 212 Avenue S.E. and that the alternate route would create a visual impact and would lower the potential price of these lots by at least eight per cent.[72] Mr. Pepper testified that the eight per cent was based on his dialogue with other developers in southeast Calgary and their experience in developing land adjacent to major roads and transmission lines.[73]

4.3.2.6 Visual impacts

115. Some interveners raised general concerns about the visual impacts of the proposed transmission lines. Others were concerned about the impact of the proposed transmission lines on their mountain views. Some interveners, including members of the NAOL group, expressed concerns that the scalable poles would increase the visual impacts if the poles were extended in the future.

116. Interveners along the alternate route were concerned that the visual impacts of the proposed transmission lines would be greater on the alternate route because the proposed transmission lines would be closer to their property lines in contrast to the greater setback to properties on the preferred route.

117. Members of the Eberley group were concerned that transmission structures on the alternate route would disrupt the unobstructed view of the mountains for most of the interveners located on the west edge of the community of Chaparral.

4.3.3 Commission findings

118. Mr. Archer derived the percentages of the loss in property values in this proceeding mainly from the Tsawwassen Heights study. A report providing an economic impact analysis would be beneficial to the Commission if the analysis were centred on the specifics of the application before it. The information found in the Archer report provides general information; however, an analysis of the precise economic impacts associated with a particular project would provide greater insight into the issue and assist the Commission in determining whether there are any impacts and the full scope of those impacts.

119. Although the Commission agrees with the approach of examining the specific properties that may be impacted by a proposed transmission line, it does not accept for the reasons specified below, Mr. Archer's conclusion of 5, 10 and 15 per cent in value diminution for the subject properties.

120. The Commission is of the view that the property impacts examined in the Tsawwassen Heights study are not comparable to the potential property impacts that could arise in this application. The Tsawwassen Heights study involved an upgrade, from 138-kV to 230-kV, of an existing transmission line located directly on the properties in question, whereas the application before the Commission is to construct 138-kV transmission lines within a TUC or

[71] Exhibit 3386-X0461, Opening Statement of Ollerenshaw Ranch Ltd., PDF page 3.
[72] Exhibit 3386-X0460, Opening Statement of Soutzo, PDF page 2.
[73] Transcript, Volume 4, October 20, 2015, PDF page 77, lines 9-16.

within a roadway. Mr. Archer also testified that the lots were large in the Tsawwassen Heights study. However, it appears from his report that the rebuilt transmission line in that case was located in backyards close to residences. In addition, the other case studies referred to in the Archer report are not comparable to the proposed transmission project because of the higher voltage of the lines in the studies, the number of conductors, and the rural location of such lines.

121. Lastly, Mr. Archer was not aware of an existing 138-kV double-circuit monopole along the Deerfoot Trail that backs onto the residences in the community of Cranston in the city of Calgary. When asked whether such a transmission line would be a good comparison, Mr. Archer's response was: "I think going forward, now that I'm alerted to this situation. Much like our involvement in other circumstances, we will probably be following up on that." [74] This response was unhelpful to the Commission.

122. On the basis of the shortcomings outlined above, the Commission placed little weight on Mr. Archer's report, its amendment, and his testimony.

123. As a result, the Commission does not accept the submissions of the NAOL group that the proposed preferred route would result in the property value impact suggested. Further, the Commission considers that the property value impact of the proposed transmission lines is difficult to quantify because there are many factors that affect property values at any given time. These factors include the size of a lot, location, adjacent uses, market demand, the neighbourhood, the maturity of the neighbourhood, the house on the lot, and the internal upgrades. The project's potential impact to property values is not a factor that militates in favour of the BAR. Furthermore, based on the submissions of the interveners on the proposed alternate route, prices of lots vary based on the location of lots in a development, size and whether lots are adjacent to or in proximity to major roads, or other infrastructure including transmission lines. The Commission is consequently not persuaded that the quantification of potential losses of value of properties on the alternate route is in the range submitted by these interveners. As a result, the Commission finds that in the present case, the potential impact to property values cannot be determined for either of the proposed preferred and alternate routes.

124. With respect to visual impacts, the Commission considers that routing the proposed transmission lines 138-54.81L and 138-41.84L in the TUC will result in less visual impacts because residences that are adjacent to the alternate route would be much closer to the transmission lines. In fact, the closest residential parcel to the preferred route would be 32 metres away, while the closest residential parcel to the alternate route would be 2.5 metres away.[75]

125. Although visual impacts are subjective and difficult to quantify, the Commission finds that the alternate route would have the potential for greater visual impacts than the preferred route.

[74] Transcript, Volume 3, October 19, 2015, PDF page 153, lines 10-13.
[75] Exhibit 3386-X0359, Corrected 3386-X0355 NAOL Correction and Exhibit 0040.01.EPC-3386, ENMAX IR Responses to the AUC, AUC-EPC-012, PDF pages 146-147.

4.4 Environment

4.4.1 Views of the applicant

126. ENMAX retained Golder to conduct an environmental evaluation of both the preferred and alternate routes. Golder stated that its environmental evaluation aimed to describe baseline environmental conditions, identify potential effects, and propose mitigation for identified environmental sensitivities prior to the construction of the project.[76]

127. According to its report, Golder's environmental evaluation was developed by way of a desktop information review and field work conducted in June 2014, and the potential effects of the project were evaluated on the following environmental components: land use; designated areas; wetlands and watercourses; soils; vegetation; and wildlife.

128. Golder proposed mitigation measures as a means to reduce or avoid potential adverse environmental effects of the proposed project, however ENMAX noted that additional field surveys would be conducted prior to the start of construction and once a final route is selected, in order to allow for the development of site-specific measures as required.[77]

129. Golder concluded that the land use along the preferred route included land within the TUC and developed land, and therefore, no adverse effects to land use were anticipated. Golder stated that the land use along the alternate route included land within the TUC, developed land, agricultural land, rural roadside land, and undeveloped land and that the alternate route is expected to result in limited loss of agricultural and undeveloped land. [78]

130. ENMAX's application stated that the largest portion of the proposed preferred route would be located within the TUC, which includes a dedicated utility component. The remainder of the preferred route would cross developed land. Therefore, ENMAX submitted that no adverse effects on land use are anticipated for the preferred route.

131. In its application, ENMAX stated that 62 per cent of the alternate route would cross the TUC and developed land. Outside the developed urban area, the alternate route would cross undeveloped and agricultural land. ENMAX explained that the alternate route has the potential to affect agricultural land use and undeveloped land due to access restrictions, vegetation removal and soil disturbance during construction and the presence of structures during operations. Further, it explained that long-term loss of agricultural and undeveloped land would be restricted to those areas occupied by transmission structures. ENMAX also stated that short-term loss of the use of agricultural and undeveloped land within the right-of-way and temporary workspaces could occur during construction of the alternate route.

132. ENMAX did not anticipate that any approvals under the *Water Act* would be required because pole locations have been designed to avoid wetlands. However, it added that there are some poles potentially located within wetlands, both on the proposed preferred and alternate routes. ENMAX explained that this would likely be rectified with slight adjustments to pole placement.

[76] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-1, Section 1, Report Page 1, PDF page 141.
[77] Exhibit 0.002.00.EPC-3386, ENMAX Application, Section 9.2, PDF page 55.
[78] Exhibit 0.003.00.EPC-3386, ENMAX Appendices, Appendix E-1, Section 3.6, Report page 9, PDF page 149.

133. ENMAX indicated that it would develop site-specific mitigation measures to further limit any adverse effects along the alternate route within agricultural and undeveloped land. All mitigation would be based on standard construction practices to meet applicable regulatory requirements.

134. ENMAX stated approval under *Navigable Waters Act* (Canada) would be required for the portion of the preferred route going over the Bow River and that although it had applied for approval, it had not yet been granted. ENMAX does not anticipate any issues regarding this crossing and stated it would forward the approval to the AUC upon receipt.

135. ENMAX applied to Alberta Culture for *Historical Resources Act* clearance for the proposed preferred and alternate routes. Alberta Culture indicated that *Historical Resources Act* studies would be required before clearance for the project would be given.

136. In its reply evidence, ENMAX clarified that the detailed design for the proposed alternate route has not been completed and that current pole locations are preliminary. ENMAX anticipated that any wetlands along the proposed alternate route can be avoided by modifying pole locations slightly, where required. If, upon completion of detailed design ENMAX is unable to avoid any wetland setbacks, it would apply for approval under the *Water Act* from Alberta Environment and Parks.[79]

137. The Ollerenshaw/Soutzo group retained Cottonwood Consultants Ltd. (Cottonwood) to examine the environmental impacts of the proposed preferred and alternate routes and submitted Cottonwood's environmental assessment report.

138. In ENMAX's reply to the Cottonwood evidence, Golder addressed concerns raised with respect to its land impact assessment. Golder stated that no metric was specifically developed to ascertain the relative amounts of upland habitats because it is not one of the measurable indicators of environmental impact assessment under NID 13 of Rule 007, and that the LIA was completed at an early stage in the routing and siting process. Golder explained that two of the land use categories it delineated could include native upland habitat: undeveloped land and pasture. Golder added that its conclusion, that the proposed alternate route crosses more land that could include native upland habitat than the proposed preferred route, concurs with Cottonwood's. It further stated that mitigation measures are proposed in its report, and by ENMAX, to mitigate potential impacts on native vegetation. Golder stated that if such measures are implemented, the preferred and alternate routes are both expected to have limited adverse effects on native upland habitat.[80]

139. The Cottonwood evidence also raised concerns about the evaluation of the number of wetlands crossed by the project. In response, Golder explained that the LIA included an assessment of the number of wetlands crossed for the preliminary routes but that it had conducted additional environmental evaluation of wetlands on the proposed preferred and alternate routes. Golder stated that the lengths of natural wetland area crossed by the proposed routes are relatively consistent between Golder and Cottonwood. Golder reiterated that it had provided mitigation measures for wetlands in its environmental evaluation and if these mitigation

[79] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF page 15.
[80] Exhibit 3386-X0341,Golder Reply Evidence Cottonwood Report, page 2-3.

measures are implemented, the preferred and alternate routes are both expected to have limited adverse effects on wetlands.[81]

140. Golder further maintained that the amount of natural area crossed by the proposed routes is valid because Golder considers that the portion of the TUC that is crossed by the proposed preferred route north of Fish Creek Provincial Park is a natural area.

141. Golder provided the following table showing its assessment of the environmental impacts for each route option:

Table 1. Environmental impact route comparisons[82]

Environmental Impact	Route Options	
	Route A [Preferred Route]	Route D [Alternate Route]
Length crossing treed areas (km)	0.4	0.8
Length crossing natural areas (km)	0.8	0.4
Length crossing areas offering outdoor education opportunities (km)	0.8	0
Length within the Transportation and Utility Corridor (km)	12.4	2.7
Length crossing areas with slopes >15% (km)	0.3	1.9
Length crossing Environmentally Significant Areas (km)	0.9	6.5
Number of historical listed species habitat observations within 1 km	2	8
Number of ACIMS records within 1 km	2	3
Number of wetlands crossed	8	20[83]
Number of major waterbody crossings	1	1

142. Golder concluded that of the four routes it evaluated, Route Option D, which eventually became known as the alternate route, had the highest potential to have an environmental impact because of the following factors:

- it would make the least use of the TUC to reduce environmental impacts
- it would cross the greatest amount of environmentally significant areas
- it would be proximal to the greatest number of Fisheries and Wildlife Management Information System observations
- it would cross the second greatest amount of treed area

143. Golder stated that Route Option A, which eventually became known as the preferred route, was expected to have the lowest potential environmental impact because of the following factors:

- it would cross the lowest amount of treed areas

[81] Exhibit 3386-X0341, Golder Reply Evidence Cottonwood Report.
[82] Exhibit 000.3.00.EPC-3386, Appendix E-2, Land Impact Assessment, Section 5.2, PDF pages 243-244, Report pages 45-46.
[83] ENMAX revised the number of wetlands in Transcript, Volume 2, PDF pages 48, lines 14-16.

- it would make the greatest use of the TUC to reduce environmental impacts
- it would cross the lowest amount of environmentally significant areas
- it would be proximal to the lowest number of Fisheries and Wildlife Management Information System observations[84]

4.4.2 Views of the parties

144. In its report,[85] Cottonwood stated that given the high degree of disturbance in the project area, it concurred with the conclusion of Golder's environmental evaluation that both routes are viable, but that a more detailed review and field checking revealed significant differences between the potential biodiversity impacts on both routes. Cottonwood contended that ENMAX did not develop a metric to ascertain the relative amounts of native upland habitats to facilitate comparison of the merits of both routes.

145. Cottonwood submitted that Golder's evaluation of wetlands crossed was not consistent with the field work conducted by Cottonwood and aerial photography data and, as a result, several additional wetlands were found on both routes. It added that when looking at the detailed field-verified information, the differences between the two routes narrow markedly.

146. Cottonwood took issue with Golder's environmental evaluation showing Fish Creek Provincial Park occupying a portion of the preferred route along the TUC. In addition, Cottonwood contended that the proposed alternate route crosses more natural area than the preferred route, and that it also directly parallels the large, "productive Priddis slough" and associated undeveloped natural area south of Stoney Trail for approximately 1,300 metres.[86]

147. Mr. Cliff Wallis, president of Cottonwood, concluded that most impacts of the proposed transmission lines can be mitigated. However, because there are significant differences between the potential biodiversity impacts on both routes, Mr. Wallis testified that the proposed alternate route would result in significantly more potential impacts to biodiversity than the preferred route, especially to native upland habitats and species of concern.[87]

148. Other interveners were concerned that the preferred route would result in a negative impact on the natural habitat that the green space (referring to the TUC) provides to animals in the area, including the effect of pesticides used on the base of transmission towers on ducks, deer, coyotes, and birds in the area. Some interveners also spoke to the natural beauty of the green space and to their use and enjoyment of this space.

4.4.3 Commission findings

149. The transmission lines are proposed to be located in urban, highly disturbed areas. Most of the proposed preferred route is within the TUC, which some area residents consider to be a green area. Along the proposed alternate route, numerous tracts of undeveloped land are slated for residential and commercial development.

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[84] Exhibit 000.3.00.EPC-3386, Appendix E-2, Land Impact Assessment, Section 5.3, PDF page 245, Report page 47.
[85] Exhibit 3386-X0281, Cottonwood Consultants Ltd. Report, Appendix B.
[86] Transcript, Volume 4, page 588, lines 13-19, and Exhibit 3386-X0281, Cottonwood Consultants Ltd. Report, Appendix B, PDF page 25.
[87] Exhibit 3386-X0281, Cottonwood Consultants Ltd. Report, Appendix B, PDF pages 4 and 37.

150. Based on the evidence before it, the Commission finds that both proposed routes are viable from an environmental impact and biophysical perspective and that the implementation of the mitigation measures proposed by ENMAX would limit adverse environmental impacts. However, the potential impacts on wetlands and species of concern favour the proposed preferred route.

151. In making this determination, the Commission accepts that if the project is approved, ENMAX will conduct additional field surveys prior to the start of construction and once a final route is selected in order to further mitigate potential environmental impacts and allow for the development of site-specific measures, as required.

4.5 Project costs

152. This section deals with the overall cost of the project. The Commission also considered costs in relation to comparing one route to another.

4.5.1 Views of the applicant

153. In its amended application, ENMAX estimated the total cost of the project to be $28,012,518 plus 20 per cent/minus 10 per cent for the preferred route using scalable monopole structures, and $32,857,724 for the alternate route using traditional monopole structures.[88]

154. ENMAX submitted that the delays incurred because of the Alberta Infrastructure approval required for the realignments and because the AESO declined to provide long lead directions had increased the project costs from those set out in its original application.

155. On March 27, 2015, ENMAX submitted that the estimated total cost of the preferred route, using traditional monopole structures, would be $26,078,136.[89] Below is a summary of the costs for each proposed route.

[88] Exhibit 3386-X0015, ENMAX Attachments E-1 and E-2, PDF pages 1 and 6.
[89] Exhibit 3386-X0017, ENMAX letter to the AUC, Cost Addendum, PDF page 2.

Table 2. Proposed project costs

Transmission Development Description	Total Project Cost +20/-10 %
Preferred route using traditional monopole structures within the TUC	$26,078,136
Preferred route using scalable monopole structures within the TUC	$28,012,518
Alternate route using traditional monopole structures	$32,857,724

4.5.2 Views of the parties

156. None of the parties challenged ENMAX's cost estimates.

4.5.3 Commission findings

157. The Commission considers that the total project cost differences between the preferred route and the alternate route are material and finds that the project's costs favour the proposed preferred route.

4.6 Detailed siting of transmission lines 138-54.81L and 138-41.84L

4.6.1 Views of the applicant

4.6.1.1 Routing methodology

158. Golder assessed four potential route options in its LIA in accordance with the indicators described in Rule 007. ENMAX stated that upon review of the LIA, the economic considerations, and the electrical considerations, it determined that the two most viable routes to be studied would be LIA Route Option A, (which eventually became known as the preferred route) and LIA Route Option D, (which eventually became known as the alternate route).[90]

159. ENMAX submitted that the most direct alignment for the transmission lines between ENMAX No. 65 substation and ENMAX No. 41 substation would be one located in the power line component of the TUC.

160. ENMAX received Utility Line Assignments from the City of Calgary for all portions of the proposed preferred and alternate routes located outside the TUC. At the hearing, Mr. Kumar added that the Utility Line Assignments are typically valid for six months and that ENMAX would continue to request the renewal of these assignments until such time as construction is complete.[91]

[90] Exhibit 002.00.EPC-3386, ENMAX Application, Section 7, PDF page 44.
[91] Transcript, Volume 1, PDF page 129, lines 2-9.

161. The original proposed preferred and alternate routes are depicted in the figure below:

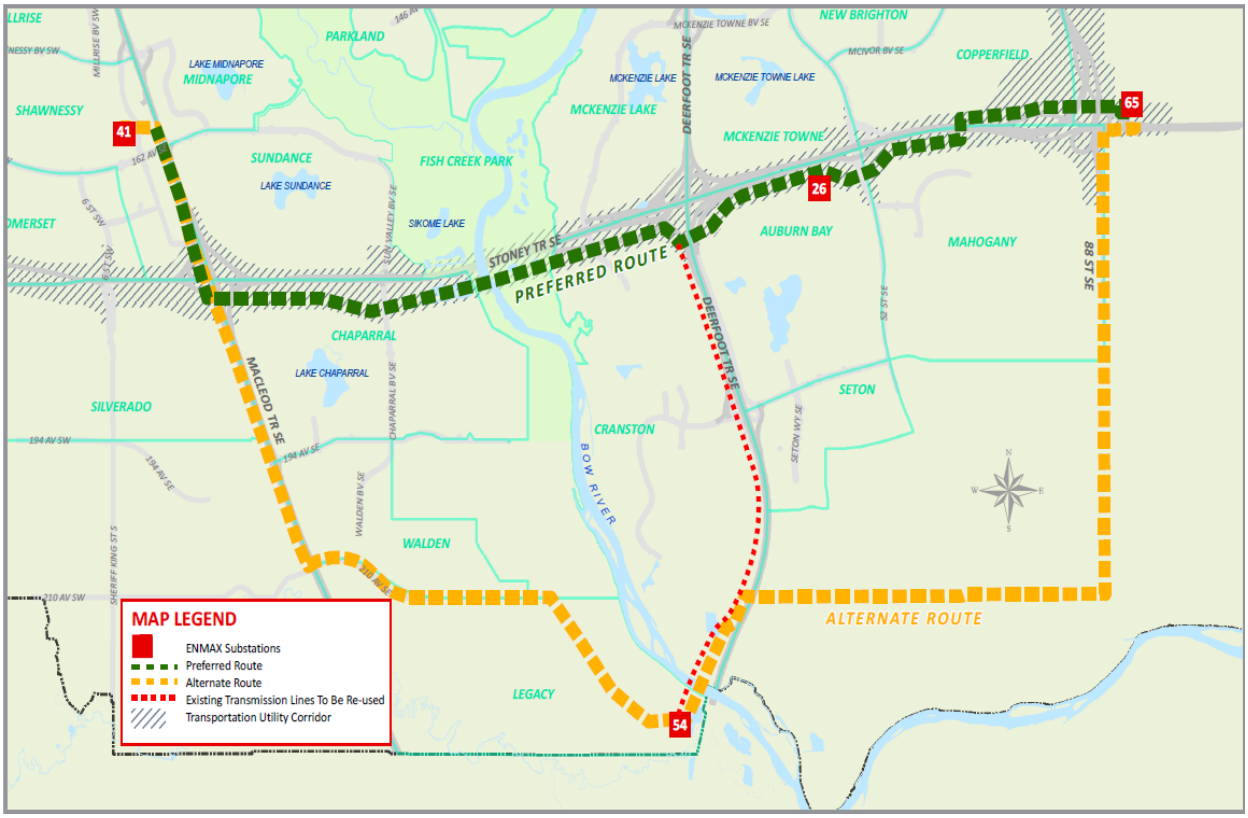

Figure 1. Proposed preferred and alternate routes[92]

4.6.1.2 Preferred route

162. ENMAX's preferred route would be approximately 14 kilometres in length and would run from ENMAX No. 65 substation to the west along Stoney Trail to Macleod Trail within the TUC, and then travel north on Macleod Trail, terminating at ENMAX No. 41 substation. The preferred route would require the following:

- Construction of 5.9 kilometres of new, single-circuit 138-kV transmission line, designated as 138-54.81L, from ENMAX No. 65 substation to the intersection of Deerfoot Trail and Stoney Trail S.E.
- Construction of 8.0 kilometres of new, single-circuit 138-kV transmission line, designated as 138-41.84L, from the intersection of Deerfoot Trail and Stoney Trail to ENMAX No. 41 substation.
- Connection of 138-54.81L and 138-41.84L to the existing double-circuit transmission line (currently 26.81L and 32.82L as shown by the red dotted line in Figure 1) along Deerfoot Trail south to ENMAX No. 54 substation.[93]

163. The preferred route would result in transmission line 138-54.81L connecting ENMAX No. 65 substation to ENMAX No. 54 substation and transmission line 138-41.84L connecting ENMAX No. 54 substation to ENMAX No. 41 substation.

[92] Exhibit 000.5.01.EPC-3386, ENMAX Supplemental Location Information, PDF page 2.
[93] Exhibit 0.002.00.EPC-3386, ENMAX Application, Section 7.2, PDF page 46, paragraph 87.

164. ENMAX submitted that approximately 91 per cent, or 12.4 hectares, of the preferred route right-of-way would cross land within the TUC, that the TUC has a dedicated utility component, and that the proposed transmission lines would be consistent with this land use designation. ENMAX added that the preferred route is the most economical solution that would allow for siting flexibility for future expansion within the TUC. The remaining nine per cent, or 1.2 hectares, of the preferred route right-of-way would be along developed land of the western portion of the route.

165. ENMAX proposed the preferred route within the TUC because the TUC lands were set aside by the Government of Alberta as a long-term alignment for linear transportation and utility facilities needed to serve expanding urban areas.[94] ENMAX explained that in the mid-1970s, the Government of Alberta established restricted development areas (RDAs), around Calgary and Edmonton. The lands included in the RDAs were designated for transportation and utility uses, which include ring roads, major power lines, pipelines, and municipal utilities. ENMAX submitted that TUCs were established on the principle that long-term planning for the accommodation of a number of transportation and utility facilities within a corridor can maximize the use of those corridors and also provide an open space in an area that will be surrounded by urban development, consequently protecting ring road and utility facilities from advancing urban development. ENMAX added that TUCs offer a long-term solution to many of the land use problems associated with developing major linear facilities in the urban context.[95]

166. ENMAX argued that the TUC is the preferred location for the proposed transmission lines and that there was no compelling evidence to the contrary.[96]

4.6.1.3 Alternate route

167. ENMAX's alternate route would begin at ENMAX No. 65 substation and travel south along 88 Street S.E., then west along 212 Avenue S.E. and 210 Avenue S.E., and north along Macleod Trail, terminating at ENMAX No. 41 substation. According to ENMAX, the alternate route would fulfill the same electrical requirement as the preferred route, but would be a longer and a more expensive alignment. The alternate route would require the following:

- Construction of 9.5 kilometres of new, single-circuit 138-kV transmission line, designated as 138-54.81L, from ENMAX No. 65 substation to the existing double circuit 138-transmission line (currently 26.81L and 32.82L) on Deerfoot Trail at approximately 210 Avenue S.E.
- Construction of 10.5 kilometres of new, single-circuit 138-kV transmission line from ENMAX substation No. 54 north to 210 Avenue S.E., west to Macleod Trail S.E., and north on Macleod Trail S.E.to ENMAX No. 41 substation.
- Conversion of the existing 138-kV double-circuit transmission line 26.81L and 32.82L along Deerfoot Trail near 210 Avenue S.E. to a single-circuit transmission line and connection of 138-54.81L to this line to ENMAX No. 54 substation.

[94] Exhibit 0.002.00.EPC-3386, ENMAX Application, Section 7.1, PDF page 44.
[95] Transcript, Volume 5, October 21, 2015, PDF pages 13-14, lines 22-25, lines 1-11.
[96] Transcript, Volume 5, October 21, 2015, PDF page 16, lines 11-13.

168. Similar to the preferred route, the alternate route would result in transmission line 138-54.81L connecting ENMAX No. 65 substation to ENMAX No. 54 substation and transmission line 138-41.84L connecting ENMAX No. 54 substation to ENMAX No. 41 substation.

169. ENMAX stated that, compared to the preferred route, the alternate route has a higher estimated cost and would be significantly closer to areas zoned for future residential development.[97]

170. ENMAX provided additional information about the nature of the Utility Line Assignments. It stated the following:

> For the routes in the TUC, EPC has an alignment in the power line component of the overall TUC. For the alternate route we will have an alignment within a City of Calgary road allowance….Along the alternate route there is limited existing development….EPC has assumed that EPC would obtain a line assignment from the City of Calgary that would be 2.5 metres from property line within a road right of way.[98]

171. ENMAX confirmed that on the alternate route the transmission lines would generally be located within the road allowances. It stated that the distance from the centreline of the proposed 138-kV transmission lines' poles to the edge of the road allowance, and therefore the residential property line, would generally be 2.5 metres.[99]

172. According to ENMAX, the alternate route would traverse approximately 7.4 hectares of pasture land which would account for 35 per cent of the right-of-way. Undeveloped land along the Bow River valley would account for three per cent or approximately 0.7 hectares of the right-of-way, while developed land would account for 43 per cent or 9.2 hectares of the alternate route right-of-way. The alternate route right-of-way would also cross seven per cent, or 1.7 hectares of rural roadside and 11 per cent, or 2.2 hectares of land located within the TUC.[100]

173. In response to the Eberley group's comments, ENMAX submitted that locating the alternate route adjacent to the Canadian Pacific Railway Ltd. (CP) tracks is not viable for a number of reasons, including the following:

- The route would be approximately one and a half kilometres longer than the alternate route and therefore more costly.
- The route could not be constructed within the CP land as there is inadequate room to safely construct or operate the transmission line.
- A route parallel to CP tracks may require mitigation measures to prevent induction into the train tracks.
- A route parallel to CP land would require the purchase of land adjacent to the CP tracks or construction within a wetland area.

[97] Exhibit 0.002.00.EPC-3386, ENMAX Application, Section 7.3, PDF pages 47-48, paragraph 94.
[98] Exhibit 0040.01.EPC-3386, EPC-FATD IR Responses to AUC, AUC-EPC-012, PDF pages 145-146, October 20, 2014.
[99] Exhibit 0128.01.EPC-3386, EPC-Responses to AUC IRs Round 2, AUC-EPC-017, PDF pages 5-6, December 19, 2014.
[100] Exhibit 0.002.00.EPC-3386, ENMAX Application, Section 9.3, PDF page 56, paragraph 120.

- CP requires onerous terms in its agreements with utilities, including a provision that allows CP to unilaterally terminate the agreement and require the utility's facilities to be removed on 90 days' notice.

174. ENMAX explained that agreements with CP had caused serious issues in the past and that an example of this was ENMAX's experience summarized in Decision 3368-D01-2015.[101]

4.6.1.4 Amendment to the preferred and alternate routes

175. On March 17, 2015, ENMAX submitted an amendment to both the preferred and alternate routes in response to concerns raised by Alberta Transportation.

176. ENMAX modified the alignment of the preferred route to cross Stoney Trail on the east side of the intersection with Macleod Trail. The route would proceed northeast of the intersection, and then cross Macleod Trail to connect to the original route along the west side. The remainder of the preferred route as filed in the original application remained unchanged.[102]

177. ENMAX stated that it made efforts to reduce the impact of the preferred route near Sundance residences by negotiating with Alberta Transportation and Alberta Infrastructure to have the preferred route located 15 metres further away from the Sundance residences. ENMAX stated it also negotiated a diagonal crossing of Macleod Trail, which would reduce the number of poles.

178. ENMAX also modified the alignment of the alternate route at the intersection of Macleod Trail and Stoney Trail. Although the alternate route would still traverse the west side of Macleod Trail, it would extend further west around the future interchange, and then connect to the original route north of the intersection.[103]

179. ENMAX submitted a letter from Alberta Infrastructure dated January 22, 2015, stating that although Alberta Infrastructure and Alberta Transportation agree in principle to the construction of either of the amended routes, their preference is Preferred Alignment Option A, which corresponds to ENMAX's preferred route.[104]

[101] Transcript Volume 5, October 21, 2015, PDF Pages 17-18. Lines 17-25, Lines 1-23.
[102] Exhibit 3386-X0011, ENMAX Amendment Facility Application, PDF page 5.
[103] Exhibit 3386-X0011, ENMAX Amendment Facility Application, PDF page 6.
[104] Exhibit 3386-X0012, ENMAX Attachment A-1 and A-2, Appendix.

180. The amended preferred and alternate routes are depicted in the following figure:

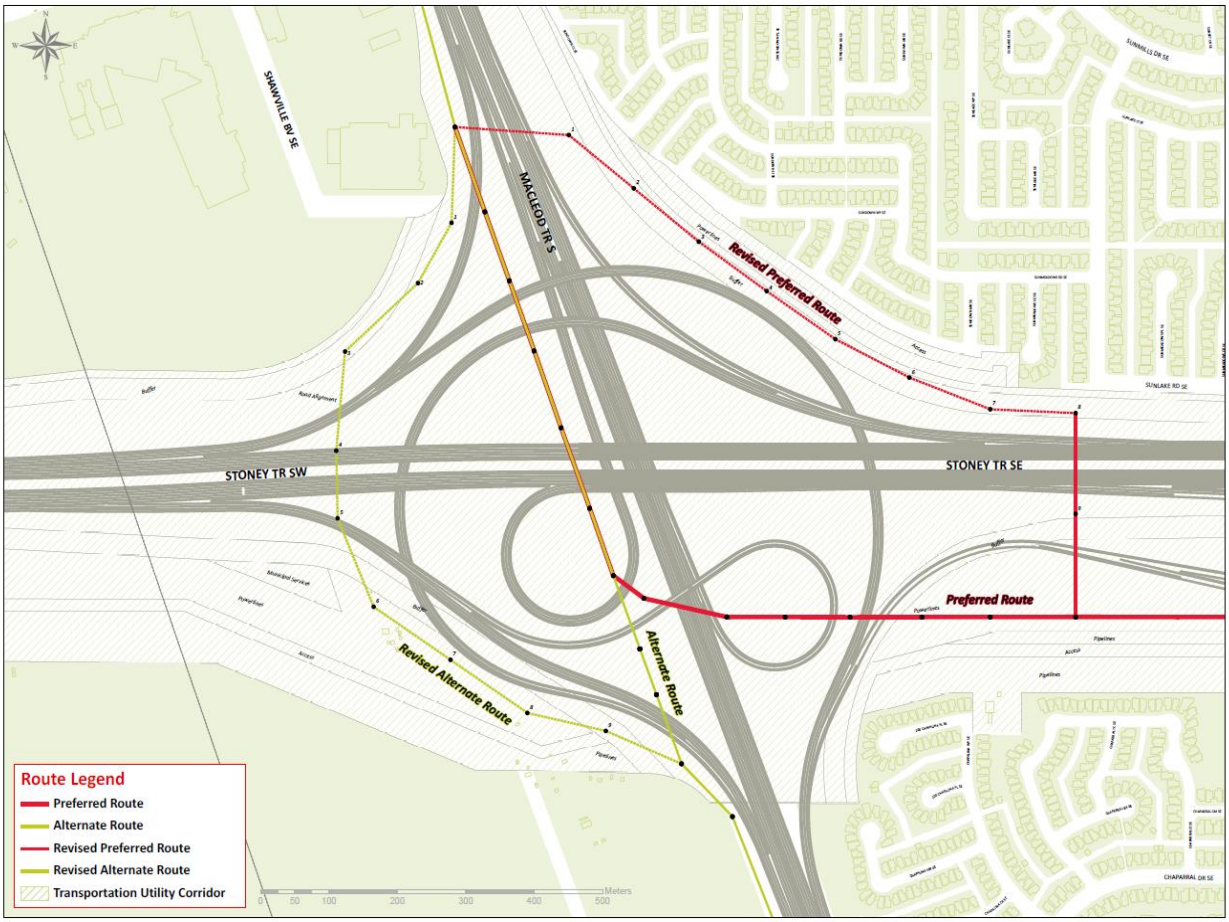

Figure 2. Amended preferred and alternate routes[105]

181. ENMAX provided the following table that identifies the number of residences within 15, 50 and 150 metres of the preferred and alternate routes:[106]

Table 3. Residences within 15, 50 and 150 metres of the preferred and alternate routes

Registered Ownership Parcels Count for entire routes as of October 9, 2015		
Distance (metres)	**Preferred Route**	**Alternate Route**
15	9	65
50	17	185
150	789	766

[105] Exhibit Number 3386-X0013, ENMAX Attachment B, PDF page 5.
[106] Exhibit 3386-X0363, Corrected 3386-X0343 Appendix B.

182. At the hearing, Mr. Kumar noted that the land developers on the alternate route took issue with ENMAX's estimated number of future residences. Mr. Kumar said that ENMAX "acknowledges that the developers have the best information about the development plan and does not take issue with any of the evidence provided by the developers about the plans and the number of future residences."[107] Mr. Kumar testified that if these residences are constructed, the residential impact of the alternate route would be greater than described in ENMAX's application.[108]

183. ENMAX further explained its reasons for choosing the proposed locations of transmission lines 138-54.81L and 138-41.84L, as follows:

> The Alberta Environment guidelines explain that the use of existing linear developments such as road allowances and TUCs helps to minimize the impacts and optimize compatibility of transmission lines with the environment. Neither the preferred nor the alternate route requires the acquisition of any private land. The routes take advantage of the transportation and utility corridor, or TUC, and road allowances, although to differing extents.[109]

4.6.1.5 ENMAX route variant

184. On June 12, 2015, ENMAX submitted a project status update to the Commission indicating that as a result of feedback received from the NAOL group, it considered a variant of the preferred route near the Macleod Trail and Stoney Trail intersection, which it named the ENMAX route variant. ENMAX stated that in considering the ENMAX route variant, it had decided that it was not a viable option and would not be proposing it for approval by the AUC.

185. The NAOL group submitted a report that outlined an additional variant to the preferred route. As mentioned previously, this route was named the BAR and was developed by Mr. Robert Berrien, who was retained by the NAOL group to review the ENMAX's facility application and routing. ENMAX testified that the BAR was very similar to the ENMAX route variant, which it considered and rejected.[110]

186. ENMAX stated that both the ENMAX route variant and the BAR would cost approximately $500,000 more than the preferred route.

187. According to ENMAX, because both the ENMAX route variant and the BAR would be near the Priddis slough, the potential for environmental impacts would be greater than on the preferred route.[111]

188. ENMAX provided the table below which outlines the number of residences in the first row adjacent to and within 150 metres of the preferred route, the BAR, and the ENMAX route variant at the Macleod Trail and Stoney Trail intersection:[112]

[107] Transcript, Volume 1, PDF page 27, lines 16-20.
[108] Transcript, Volume 1, PDF page 27-28, lines 21-2.
[109] Transcript, Volume 5, October 21, 2015, PDF pages 12-13, lines 21-25, lines 1-15.
[110] Transcript, Volume 5, October 21, 2015, PDF page 23, lines 13-15.
[111] Transcript, Volume 5, October 21, 2015, PDF page 25, lines 2-25, lines 1-7.
[112] Exhibit 3386-X0363, Corrected 3386-X0343 Appendix B.

Table 4. Residences in the first row adjacent to and within 150 metres of the preferred route, the BAR and the ENMAX route variant

Registered Ownership Parcels Count for the MacLeod/Stoney intersection as of October 9, 2015			
	Preferred Route	**BAR Route Variant**	**ENMAX Route Variant**
First Row Adjacent	63	35	38
Within 150 metres	160	45	46

189. ENMAX explained that both the route variant and the BAR would reduce the number of residences affected by transmission line 138-41.84L near the interchange. However, ENMAX stated that the number of residences is not the only consideration and that there would be serious issues with both the ENMAX route variant and the BAR, including conflicts with the future interchange.[113]

190. ENMAX submitted that although the NAOL group complained that ENMAX had not formally asked Alberta Transportation to consider the BAR, Alberta Transportation had considered the ENMAX route variant, which was almost identical to the BAR.

191. ENMAX stated that it met with Alberta Transportation on May 7, 2015 and confirmed Alberta Transportation's position that a route variant would be considered, although not favored.[114] ENMAX also submitted an email it received from Alberta Transportation that stated that Alberta Transportation strongly favoured preferred alignment Option A, which was the amended preferred route, versus preferred alignment Option B which, was the ENMAX route variant. In the email, Alberta Transportation explained why it strongly favoured the amended preferred route.[115] ENMAX adopted many of these reasons in deciding that the ENMAX route variant would not be a viable option. These reasons are discussed below.

192. ENMAX stated that both the ENMAX route variant and the BAR have the potential to be relocated depending upon the final interchange design. Alberta Transportation indicated that if the ENMAX route variant were approved, and by extension the BAR, ENMAX or ratepayers would be responsible for the costs associated with any future conflict, including line relocations.[116]

193. Further, if a line relocation were required, a regulatory process would also be needed, which could delay the contractor responsible for the construction of the interchange. ENMAX and Alberta Transportation stated that this in fact occurred during a relocation of a transmission

[113] Transcript, Volume 5, October 21, 2015, PDF page 25, lines 2-25, lines 1-7.
[114] Exhibit 3386-X0161, ENMAX Letter Project Status Update, PDF page 2.
[115] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.
[116] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.

line at Deerfoot Trail and Stoney Trail. Alberta Transportation stated that this would increase the risk to Alberta Transportation in terms of schedule and cost.[117]

194. ENMAX contended that the ENMAX route variant would introduce significant safety concerns. The future interchange is classified as complex and would be subject to heavy construction activities and vehicles, such as cranes. ENMAX explained that the ENMAX route variant and the BAR would position poles and an energized transmission line in the construction area, which would raise safety concerns.[118]

195. ENMAX added that the road network in the area may require that temporary safety measures be put in place to protect transmission line 138-41.84L during road construction and that putting immovable objects within the clear zone of the existing road network would increase the risk to the travelling public. ENMAX and Alberta Transportation explained that these circumstances would also raise safety concerns.[119]

196. ENMAX reiterated that Alberta Transportation had expressed a very clear preference for ENMAX's preferred route around the interchange and had expressed the above-noted serious concerns with a route south of the interchange through the interchange footprint.[120]

4.6.1.6 Scalable poles

197. ENMAX indicated that it would use standard steel monopoles for both the preferred and alternate routes in locations outside of the TUC. It stated that steel monopoles allow for an optimized span length which reduces the number of poles required and, as a result, reduces the visual impact.

198. ENMAX proposed scalable monopole structures for the preferred route within the TUC because scalable monopoles would be able to accommodate the addition of a 240-kV double-circuit transmission line. The total height for such a configuration would be in the range of 36 to 42 metres.[121]

199. ENMAX added that it proposed scalable monopoles to accommodate future development because there is room for only one more transmission line alignment within the TUC and there is a high likelihood that future transmission development would be required within this corridor.

200. Mr. Ken Chao, ENMAX director, engineering and planning, testified that the need for proposed scalable poles was the result of the Foothills Area Transmission Development west project which was the fourth component of the AESO's FATD plan. Mr. Chao referred to an AESO newsletter that stated that a double-circuit line, from the Foothills substation in High River to the AltaLink No. 42 substation at Sarcee and Glenmore, would be part of FATD west. Mr. Chao believes that this line would likely use the TUC corridor.

[117] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.
[118] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.
[119] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.
[120] Exhibit 3386-X0161, ENMAX Letter Project Status Update, Attachment 2, page 4.
[121] Exhibit 0128.01.EPC-3386, EPC-Responses to AUC IRs Round 2, AUC-EPC-019, PDF page 9, December 19, 2014 and Exhibit 3386-X0001, ENMAX Amended Response, January 5, 2015.

201. Mr. Kumar also referred to "a project classified as medium term that shows on page 106 of the AESO's 2013 long-term transmission plan with an in-service date as of 2022."[122] However, Mr. Kumar agreed that the AESO does not have a need for a 240-kV transmission line at this time.[123]

202. ENMAX stated that should future transmission development be required within this corridor, the use of scalable poles for the proposed transmission lines would accommodate such transmission line development and avoid potential salvage costs and minimize outage constraints.[124] ENMAX indicated that if traditional monopole structures were installed and subsequently required to be salvaged, it would cost a minimum of $4.25 million.

203. ENMAX noted that although the use of scalable poles exceeds the minimum requirements of the AESO functional specifications, it is the lowest cost solution that would allow siting flexibility for future expansion.

204. Mr. Kumar testified that one of the requirements of Section 15.1 of the Transmission Regulation is the efficient use of transmission corridors. ENMAX stated that whenever it is siting and routing lines, it takes into consideration the potential for future lines because there is limited space. ENMAX also believes that proposing the scalable monopole structure would minimize the cost of any future development within the corridor.

4.6.2 Views of the parties

4.6.2.1 NAOL group

205. The NAOL group is comprised of residents in the Sundance community that opposed the portion of the preferred route located near the intersection of Stoney Trail and Macleod Trail. NAOL group members Mona Pronk, Jason Berkholtz, Jeremy Bateson, Jennifer Proctor, Kathy Lepard, Nathan Baines, Lynn Niosi, Barry Woods, and James Muirhead, testified at the hearing.

206. Many of the NAOL group members testified that the preferred route would affect their use of the land near their homes. For example, Mr. Berkholtz testified that when his family moved into Sundance in August 2014, they were very excited to have access to the green space within the transportation corridor.[125] He stated that the preferred route would create a massive visual and audio impact, and would affect future learning opportunities for his children within the existing green space.[126]

207. The NAOL group stated that ENMAX failed to explore all viable routing options at the intersection of Stoney Trail and Macleod Trail. The group contended that the preferred and alternate routes fail to adequately minimize impacts, and in particular, residential impacts; and further, that ENMAX did not consult with or seek input from the newly impacted residents in the Sundance community with respect to the amendments to the routes.

[122] Transcript Volume 1, October 14, 2015, PDF pages 199-200, lines 12, 25, lines 5-19.
[123] Transcript Volume 1, October 14, 2015, PDF page 198, lines 4-5.
[124] Exhibit 000.200.EPC-3386, ENMAX Application, Section 7.2, PDF page 46, paragraph 88.
[125] Transcript, Volume 3, PDF page 49, lines 10-15.
[126] Transcript, Volume 3, PDF page 52, lines 4-7.

208. Following the February 25, 2015 ENMAX open house, the NAOL group explained that its members attempted to consult with representatives of ENMAX and proposed a variation that would have the preferred route south and west of the Macleod Trail and Stoney Trail intersection. The NAOL route variant is depicted in the figure below as the dotted green line.

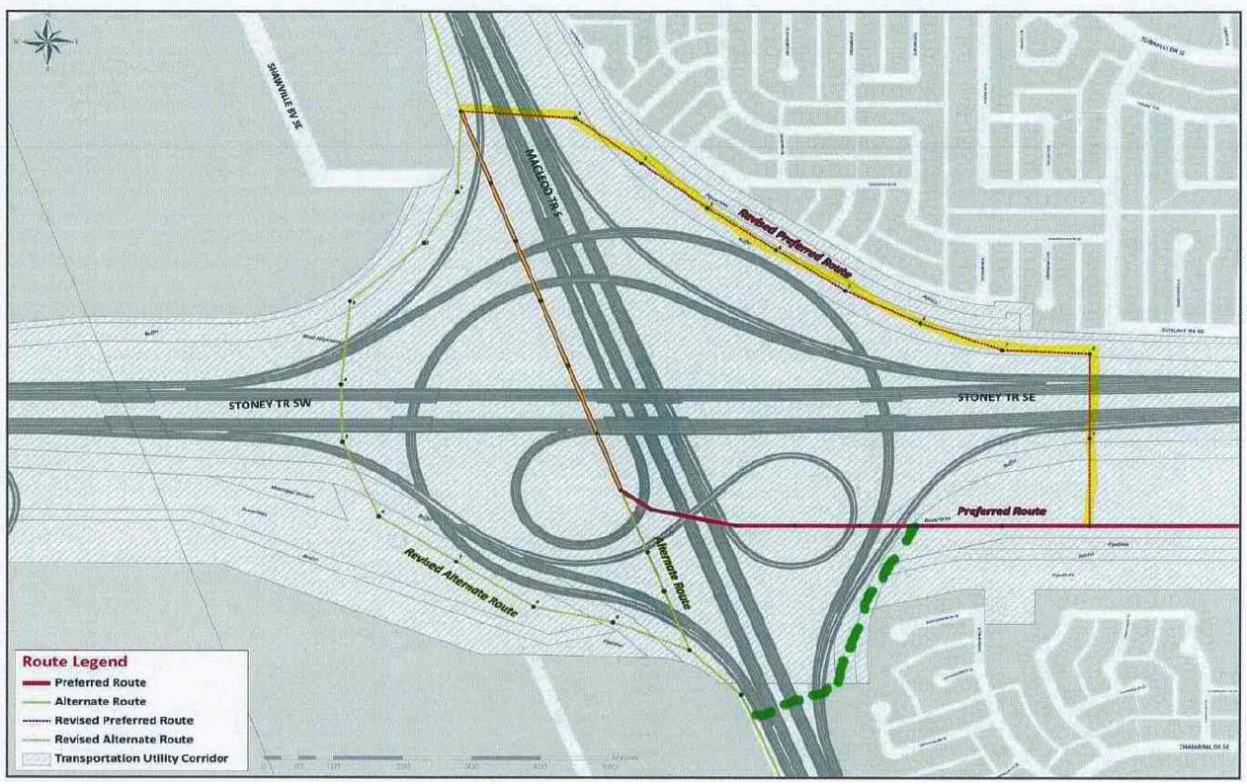

Figure 3: NAOL route variant[127]

209. The NAOL group stated that after fruitless attempts to engage ENMAX about the NAOL route variant, it had reached out to both the former Member of the Legislative Assembly, Mr. Jeff Wilson and the former Minister of Transportation to discuss the NAOL route variant. The NAOL group stated that the former Minister of Transportation confirmed he had no objections to the NAOL route variant and would consult with the department further; however, this process was delayed due to the announcement of the provincial election.

210. The NAOL group contended that in May 2015, ENMAX learned that Alberta Transportation would accept a preferred route variant south and around the Stoney Trail and Macleod Trail intersection, similar to what had been proposed by the NAOL group.[128]

211. The NAOL group submitted a report prepared by Mr. Robert Berrien in which he reviewed the ENMAX application and evaluated the impacts of the prospective routes put forward by ENMAX near Stoney Trail and Macleod Trail.[129]

[127] Exhibit 3386-X0259, Tab 3 NAOL Written Submission.
[128] Exhibit 3386-X0262, NAOL Written Submission, PDF pages 4-5, paragraphs 16-18.
[129] Exhibit 3386-X0257, Berrien Report, Section 1.1., PDF page 4.

212. Mr. Berrien testified that when he is evaluating a route, he looks to minimize impacts.[130] He stated "the result of a route that has minimized impacts is that you can probably deem it would be the superior route."[131]

213. Mr. Berrien stated he agreed with ENMAX that the preferred route was superior from the point of view of being in the TUC and that he did not understand why the alternate route had any place in this discussion at all.[132] However, he explained that when he looked at both the preferred and alternate routes near the Stoney Trail and Macleod Trail interchange, it became apparent to him to connect the two routes and to determine what the impacts would be.

214. As a result of his analysis, Mr. Berrien proposed a route variant called the BAR. The BAR, shown in the figure below, was described by the NAOL group as similar to the NAOL route variant.

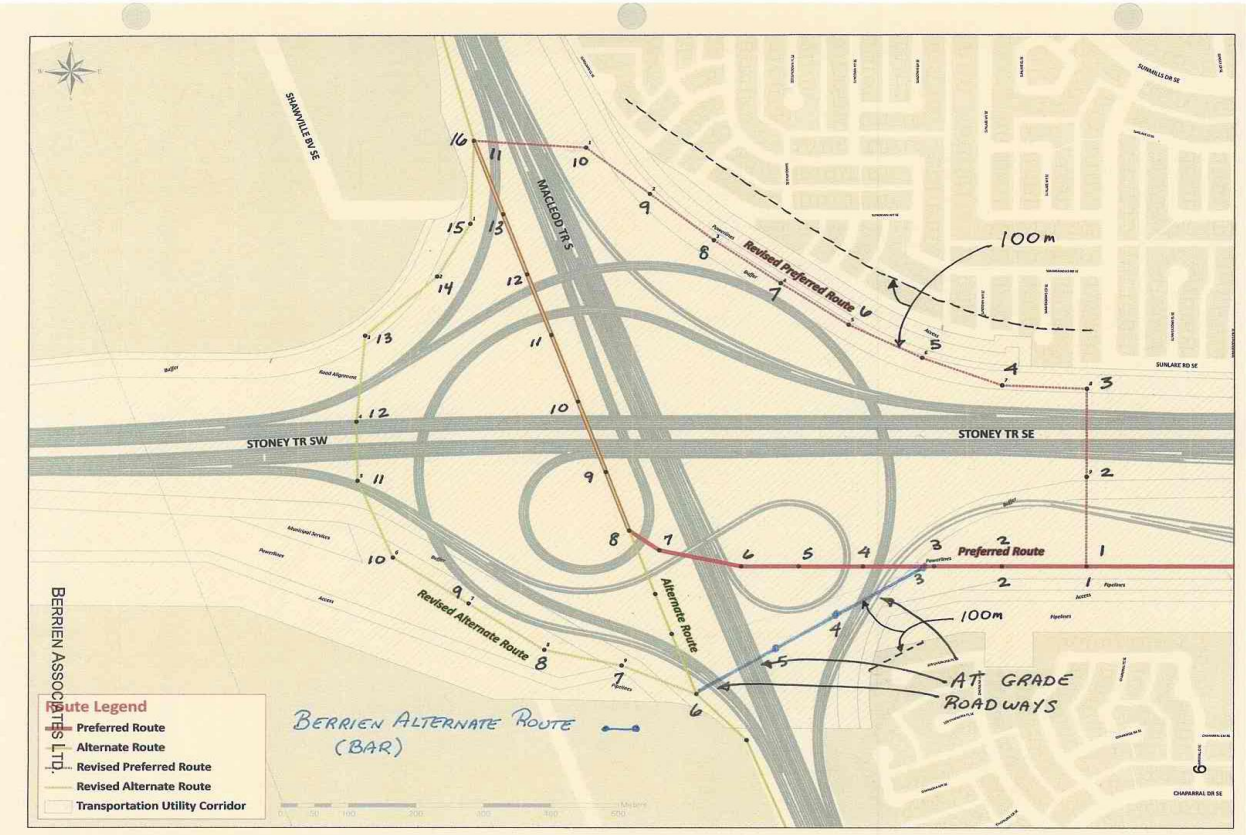

Figure 4: The BAR[133]

215. Mr. Berrien summed up his view that compared to the preferred route, the BAR produced demonstrably lower residential and visual impacts and is a superior route through the Stoney

[130] Transcript, Volume 3, October 10, 2015, PDF page 10, lines 1-3.
[131] Transcript, Volume 3, October 10, 2015, PDF page 10, lines 3-5.
[132] Transcript, Volume 3, October 10, 2015, PDF page 20, lines 21-25.
[133] Exhibit 3386-X0257, Berrien Report, PDF page 9.

Trail and Macleod Trail segment.[134] However, Mr. Berrien acknowledged he had not spoken to Alberta Transportation about the proposed BAR.

216. The NAOL group adopted Mr. Berrien's conclusions outlined in his report[135] and submitted that the BAR variant is a superior route to ENMAX's revised preferred route at the Stoney Trail and Macleod Trail interchange, for the following reasons:[136]

- the BAR would impact fewer residences
- the BAR would be located further from impacted residences
- the BAR would be located along the TUC south of Stoney Trail, which has a greater amount of free space compared to the TUC north of Stoney Trail
- the BAR would divert a portion of transmission line 138-41.84L to an undeveloped area south-west of the Stoney Trail and Macleod Trail intersection and away from residential areas
- Alberta Transportation has not rejected a similar routing at the Stoney Trail and Macleod Trail intersection.

217. Ms. Pronk testified as follows:

> Ultimately, I want this power line to impact the least number of residences possible. A route south of the Stoney/Macleod interchange would achieve that.
>
> I cannot understand why ENMAX wouldn't simply include the Berrien alternate route or a similar route variant as part of its application.
>
> If Alberta Transportation was not opposed to a route south of the interchange and if such a route would impact less residences, then ENMAX should have included these routes in its application for the AUC to consider.[137]

4.6.2.2 Eberley group

218. The Eberley group is comprised of Michael and Renata Eberley, Pilsum and Ruby Master, Albert Turgeon, and Fred and Marietta Olivares. Its members own and occupy lands along the portion of the proposed alternate route that borders Macleod Trail. The Eberley group submitted that the Commission should approve the preferred route and not the alternate route. Mr. Master and Mr. Eberley testified at the hearing on behalf of the Eberley group.

219. The Eberley group stated that ENMAX had not taken all necessary steps to use currently existing linear infrastructure to minimize the impact on residents. Mr. Master testified that other routes could have been chosen by ENMAX that would have minimized the number of residents affected. For example, he explained that ENMAX did not look at an additional alternate route option that would parallel the CP line west of the applied-for alternate route. Further, the Eberley group noted that because of the City of Calgary's proposed plans to extend the C-Train along the CP line, construction of the C-Train overhead power lines would be required and the addition of ENMAX's power lines along this linear disturbance would lessen the impact on the interveners

[134] Exhibit 3386-X0257, Berrien Report, Section 3.6.3, PDF page 9.
[135] Exhibit 3386-X0262, NAOL Written Submission, Section 5, PDF page 7, paragraph 33.
[136] Exhibit 3386-X0262, NAOL Written Submission, Section 4, PDF page 7, paragraph 29.
[137] Transcript, Volume 1, PDF page 177-178, lines 16-1.

with residences located along the alternate route.[138] The Eberley group submitted that the alternate route should be constructed away from the residences on Macleod Trail and much closer to the other existing linear disturbances.

220. The Eberley group added that the alternate route would result in increased costs to ENMAX and to ratepayers when the City of Calgary realigns 194 Avenue S.E. and constructs an interchange there in 2016.

221. The Eberley group explained that the City of Calgary currently has a proposal to excavate and build the storm sewer lines underneath 210 Avenue S.E. and if the alternate route were selected and its construction began, the storm sewer line project would potentially necessitate the removal and relocation of the transmission line along 210 Avenue S.E.

222. The Eberley group added that the TUC, located along Stoney Trail, was specifically reserved for utilities, such as the proposed 138-kV transmission lines. Mr. Eberley testified that residents along the TUC cannot say that they are not aware that they border on the transportation and utility corridor, nor can they argue that it is a green space. He explained that when entering and exiting Lake Chaparral, there are information signs that explain the reason for and the function of the transportation and utility corridor. Mr. Eberley said that the signs have been there for years, and are on both the west and the east side of the road.[139]

223. The Eberley group explained that a utility right-of-way and two restrictive covenants are registered against title for each lot that borders the TUC and that these titles state that the TUC borders the property and provides restrictions on what can be built, placed, parked or erected within and upon each property.[140] Because of this, Mr. Eberley explained, residents along the TUC would have purchased their properties with the knowledge that the TUC was backing onto their properties.

4.6.2.3 Land developers

224. A number of developers objected to the alternate route. These developers, Genstar, Genesis, the Legacy group, the Ollerenshaw/Soutzo group, Royop and Brookfield, all have land development projects located on or near the alternate route.

225. Genstar, Genesis, the Legacy group, the Ollerenshaw/Soutzo group, and Royop jointly retained the Brown and Associates Planning Group (Brown) to prepare a land use planning evaluation report of the alternate route. Brown prepared a report for each developer, with sections one to four of the reports reflecting common elements of planning and evaluation, and section five particular to the impacts to each developer.

226. Brown provided a comparative analysis between the preferred and the alternate routes for all of the developers' reports. The key findings of the Brown comparative analysis are as follows:

[138] Exhibit 3386-X0264, Eberley evidence, Section 2, Part b, PDF page 5.
[139] Transcript, Volume 2, PDF page 54, lines 10-20.
[140] Exhibit 3386-X0264, Eberley evidence, Section 4, Part 1.b, PDF page 3.

- Given the longstanding presence of the TUC, the preferred route provides for a higher level of predictability and informed decision-making for residents and developers compared to the alternate route, which has only relatively recently been determined by ENMAX.
- The alternate route has a significantly greater exposure along its interface to residential development in comparison to the preferred route, both in terms of the number of residential dwellings immediately adjacent to the line and the number of individual dwellings lying in close proximity to the line.
- The minimum buffer between the preferred route and the nearest residences adjacent to the lines would be 52 metres (except for three residences in the Sundance community that have a buffer of 35 metres). This was compared to a distance of 2.5 metres for the alternate route.
- The alternate route would negatively impact the visual quality of streets and community entranceways compared to the preferred route located in the TUC, a landscaped corridor that is intended to concentrate higher impact linear infrastructure, such as overhead transmission lines, in a predetermined location along the outer edge of established communities.[141]

227. To support its evidence that the alternate route impacted more residences than the preferred route, Brown submitted the following tables:[142]

Table 5. Number of potential single/semi detached lots and multifamily units impacted by setbacks from the preferred route

	Existing Residential		Active Residential	
	Single/Semi	Multifamily	Single/Semi	Multifamily
First row	912	216	101	197
7 m of preferred route	0	0	0	0
15 m of preferred route	0	0	0	0
25 m of preferred route	0	0	0	0
75 m of preferred route	39	9	0	0
150 m of preferred route	566	153	39	88

[141] Exhibit 3386-X0266, Brown and Associates report, PDF page 29.
[142] Exhibit 3386-X0266, Brown & Associates Land Use Planning Evaluation-West Creek, PDF pages 24 and 25.

Table 6. Number of potential single/semi detached lots and multifamily units impacted by setbacks from the alternate route

	Existing Residential		Active Residential	
	Single/Semi	Multifamily	Single/Semi	Multifamily
First row	284	23	389	345
7 m of alternate route	36	0	5	0
15 m of alternate route	57	0	87	39
25 m of alternate route	66	0	135	88
75 m of alternate route	209	0	334	515
150 m of alternate route	675	0	809	1200

228. In the tables above, Brown noted that "Existing Residential" referred to residential areas with occupied dwellings and development phases that are currently being marketed to potential home buyers. These encompass communities of Chaparral and portions of Walden, Legacy, and Mahogany. Brown also noted that "Active Residential" referred to residential areas and a mixed use centre having outline plans and land use approval and, in some cases, pending subdivision approval. These encompass portions of Walden, Legacy, Cranston, and Mahogany.[143]

229. The Brown reports also provided an evaluation of the route efficiency from a land use planning perspective based on linear attributes. Brown noted that the preferred route would be 13.9 kilometres, while the alternate route would be 21.4 kilometres. Brown also compared the length of the routes adjacent to existing and future residential (calculated for both sides of the route). It determined that these lengths would be 18 kilometres for the preferred route and 25 kilometres for the alternate route. Finally, it noted that the minimum buffer from adjacent residential developments would be 35 metres to the preferred route and 2.5 metres to the alternate route.[144]

230. The Brown reports also included values for the imminent residential development, which included residential areas with area structure plans, pending outline plans, and land use submissions. Future residential values, which included residential areas identified in a regional policy plan or regional context study were also outlined in the reports. The Brown report indicated that the imminent residential developments and future developments were much greater on the alternate route.[145]

231. Genstar, Genesis, the Ollerenshaw/Soutzo group and Brookfield commissioned Urban Systems Ltd. to conduct an engineering review[146] of the impacts of the alternate route on Rangeview area developments east of the Bow River. The report concluded that if the alternate route were constructed, significant issues would be encountered that would result in additional

[143] Exhibit 3386-X0266, Brown & Associates Land Use Planning Evaluation-West Creek, PDF pages 24 and 25.
[144] Exhibit 3386-X0266, Brown and Associates report, Table 5, PDF page 29.
[145] Exhibit 3386-X0266, Brown and Associates report, Table 5, PDF page 29.
[146] Exhibit 3386-X0286, Urban Systems, ENMAX Foothills Area Transmission Development-South Calgary Engineering Report.

cost, delay of future City of Calgary infrastructure implementation, and encumber the efficient and affordable development of approved urban development land uses in the study area.

232. Brookfield submitted another report from Urban Systems Ltd. concerning the impacts of the project on the Brookfield lands.[147] The report concluded that future residential development on Brookfield land would be constrained and disproportionally affected by the alternate route's residential and visual impacts. The report stated that future residential development on Brookfield lands would be substantially more affected than was predicted in the Golder LIA. The report recommended that the preferred route be selected because it would be primarily located within the TUC and is expected to impact the fewest number of residences, have the lowest visual impact, and would not constrain future development.

233. In addition to the reports, the developers submitted specific and generally similar concerns. All submitted that the Commission should approve the proposed preferred route because it would be located in the TUC and would result in fewer residential impacts than the alternate route. Some developers are also concerned that the alternate route would interfere with the orderly development of lands along 88 Street S.E. and 212 Avenue S.E., such that the line would dictate the future development of roadways and services.

234. Brookfield stated that based on Urban System Limited's engineering evidence, the alternate route located 2.5 metres from the southern boundary of its land adjacent to 212 Avenue S.E. would result in additional right-of-way to be taken due to the widening of 212 Avenue S.E. from a 20 metre right-of-way to a 46 metre right-of-way. As a result, it would sustain a loss of developable land.

235. Genstar also stated that 212 Avenue S.E., adjacent to Genstar's Rangeview lands, was expected to be built to a six lane arterial roadway standards requiring 46 metres of right-of-way and that if the alternate route were constructed, there would be either no trees on one side of the road, affecting the planning policy for the communities, or additional road right-of-way would be required at significant cost.

236. The Ollerenshaw/Soutzo group expressed concerns that the alternate route would cause a loss of developable land due to the positioning of the line's poles along 88 Street S.E., which would anchor the road allowance right-of-way and force the landowner across the road from the line to dedicate more land to the road allowance. The group indicated that alternatively, the line could be relocated at substantial cost to equitably distribute the required road allowance between landowners.

237. The developers are also concerned about setback and safety issues resulting from locating the proposed transmission lines on the alternate route. Genesis expressed concerns about the non-compliance zone and development setbacks that would be created by the proposed alternate route alignment, which would reduce the land that Genesis could develop and change how it could develop its land next to 212 Avenue S.E.

[147] Exhibit 3386-X0287, Urban Systems, ENMAX Foothills Area Transmission Development-South Calgary Planning Report.

238. Brookfield stated that it and its building partners have experienced problems in the past associated with transmission lines and community development. These problems created safety concerns and resulted in the need for proper setbacks between residential development and electric transmission infrastructure.

239. Genesis indicated that the proximity of the alternate route to residential property would be a safety concern because residents standing on structures in the backyard of their lots could encroach the minimum separation distance from energized conductors.

240. Royop is concerned that the alternate route would impose a transmission line on 210 Avenue S.E. through the middle of the Walden and Legacy communities, and adjacent to the gateway and core commercial area, years after the planning was done and land use was established.

241. The Legacy group indicated that that it would be difficult to plan around the alternate route, especially in Legacy, where construction is already so far advanced. It stated that the proximity of the line to existing houses in Legacy is of particular concern, given that some houses would be less than seven metres from the alternate route. The Legacy group advised that it was representing one such homeowner on the alternate route, Mr. Jesse Jo Y. Teng.

242. Genstar's concerns are similar. Its projects are either actively under development pursuant to land use plans put into place almost a decade ago, as it is in Walden, or are well along in the development process to the point where an area structure plan has been approved and detailed planning is moving forward, as it is in Rangeview.

4.6.2.4 Other participants

243. A number of participants expressed concerns about the preferred route and alternate route. These concerns, which are mainly with respect to property value impacts, visual impacts, and EMF, were discussed in previous sections of the decision.

244. Persons located along the preferred route support the alternate route because it is proposed to be located in undeveloped areas. However, persons located along the alternate route submitted that in the future these areas would be more developed than those along the preferred route. Many participants contended that the TUC is the most appropriate location for the proposed transmission lines, because the area has been established for exactly such a purpose.

245. In her submission to the Commission at the hearing, Ms. Van Kampen stated that her family is the new owner of a home in Chaparral that directly backs onto the field where the preferred route would be located. She stated that the preferred route would be approximately 105 metres away from her family property's fence, in full open view. Ms. Van Kampen said that the potential power lines were not disclosed to her family in any way upon the recent purchase of their new home. She indicated that her biggest concerns with the transmission lines are health and property value and suggested that if the alternate route were chosen, the impact would be much less on the developers than it would be on residences on the preferred route and that future owners would be aware of the lines prior to their purchase.[148]

[148] Transcript, Volume 5, pages 652-655, lines 8-8.

246. A number of interveners expressed concerns about ENMAX's proposed use of scalable poles. For example, in their statement of intent to participate, Glenn and Yvonne Hermann stated:

> AESO's expansion plan includes changing the 138kv "expandable" single circuit line into a 240kv double circuit line by 2022--just 8 years away. Enmax has stated in their application that they will put smaller 138kv poles along the alternate route, but larger, expandable poles along the preferred TUC route, if approved. We fail to see how that is a fair process, since AUC will not hear arguments against the 240kv line because that application is not before AUC as of yet. But it is surely a foregone conclusion that once those large, expandable poles go into the ground along the TUC, there will be no fair hearing against the inevitable double circuit 240kv line in 2022, since Enmax will submit that a majority of the taxpayers' costs would have already been largely incurred. This would make Enmax's next application to raise the height of the poles and raise the voltage a slam-dunk case in Enmax's favour.[149]

5 Commission findings

5.1.1.1 Proposed routes

247. The Commission finds that the preferred and alternate routes would both satisfy the need identified in the AESO NID application.

248. In this section, the Commission considers the proposed siting of transmission lines 138-54.81L and 138-41.84L on the basis of residential impacts, visual impacts, electrical considerations, environmental impacts and cost. All of these factors have been discussed earlier in this decision.

249. The Commission heard numerous submissions on the purpose of the TUC and that the preferred route should be selected because it would be located mostly within the TUC. For this reason, it is useful to consider the purpose and use of TUCs for locating transmission lines.

250. Under the *Calgary Restricted Development Area Regulations* AR 212/76, the lands described in the schedules to the regulations are lands established as the Calgary Restricted Development Area.[150] Schedule A lists lands within the Calgary restricted development area that are set aside for the purposes of a right-of-way for a transportation and utility. As indicated by ENMAX and interveners on the alternate route, the majority of the proposed preferred route is located within the TUC on lands listed in Schedule A to the *Calgary Restricted Development Area Regulation*.

251. The Commission and its predecessors have made findings that one of the purposes for establishing the restricted development areas is to use them for siting utility infrastructure, including transmission lines. Moreover, since 1979 the government of Alberta has engaged in an

[149] Exhibit 0100.01.HERMANN-3386, November 13, 2014.

[150] Section 3 of the *Calgary Restricted Development Area Regulations* AR 212/76. This regulation was enacted under the *Department of the Environment Act* which was repealed in 1994 and replaced with in part by the *Government Organization Act.* Schedule 5 to the *Government Organization Act* addresses the establishment of restricted development areas. The *Calgary Restricted Development Area Regulations* fall under the jurisdiction of the Minister of Alberta Infrastructure.

ongoing planning process for establishing a transportation and utility corridor within the restricted development area. Highways have been constructed in accordance with those plans, as have a large number of pipelines and high voltage overhead transmission lines.[151]

252. The Commission heard testimony from members of the NAOL group about their use of the green space within the TUC that runs behind their residences or in near proximity to their residences. They are concerned that the proposed transmission lines would affect their use and enjoyment of the green space. The Commission also reviewed written submissions from other residents whose residences are adjacent to the TUC. It was undisputed that this green space is within the restricted development area.

253. Given that the green space can continue to be used even if the proposed transmission lines are approved, that there are restrictive covenants registered on title of the residences adjacent to the TUC on the preferred route, and that the purpose of the restricted development area is for siting utility infrastructure, the Commission finds that approval of the preferred route would be consistent with the restricted development area regulations, as well as past and present transportation and utility corridor policy. Nonetheless, in making its decision, the Commission must consider the potential impacts of both proposed routes.

254. The preferred and alternate routes would both be located in urban areas. Both proposed routes are generally located adjacent to existing residences, or lots and residences currently being marketed to potential buyers. However, along the alternate route there are development plans in place for additional residential and commercial development which would be adjacent to the proposed alternate route. This development is not uncertain because outline plans and land use approvals are in place. And, in some cases, subdivision approval is pending. ENMAX did not dispute the evidence filed by the developers in this regard.

255. Although there were differences in the manner in which residences were counted, the Commission considers the tables [152] prepared by ENMAX and Brown to be useful. Brown stated that it calculated a total of 1426 existing residential lots and units in the first row of residences adjacent to the proposed preferred route and 1041 existing residential lots and units within the first row of residences adjacent to the alternate route. Overall there are more residences, lots, and residences being marketed to buyers, at a distance of 75 metres or less on the alternate route because the proposed transmission line would be located within the roadway. The residential parcel nearest to the preferred route would be at a distance of 32 metres,[153] while the residential parcel nearest to the alternate route would be at a distance of 2.5 metres .[154] Further, as stated below, the Commission denies the use of scalable poles in the TUC along the preferred route; consequently, both routes would use the same type of poles. As a result, because of the proximity of the transmission poles to residences, there would be more visual impact on the alternate route than on the preferred route. The Commission therefore finds that the proposed transmission lines would have a greater impact on residences along the alternate route.

256. The Commission also weighed the environmental impacts and costs, discussed in Section 4.4 and Section 4.5 respectively. Both these factors favour the preferred route. This is

[151] Heartland Decision 2011-436, ERCB Decision 89-2.
[152] Exhibit 3386-X0266, Brown & Associates Land Use Planning Evaluation-West Creek, PDF pages 24 and 25.
[153] Exhibit 3386-X0359, Corrected 3386-X0355 NAOL Correction.
[154] Exhibit 0040.01.EPC-3386, ENMAX IR Responses to the AUC, AUC-EPC-012, PDF pages 146-147.

because the preferred route is a shorter route and would be less costly to construct, and would have fewer potential environmental impacts.

5.1.1.2 Route variants

257. The evidence before the Commission is that in the vicinity of Macleod Trail and Stoney Trail there are more first row adjacent land parcels to the preferred route (63) than to the ENMAX route variant (38) or the BAR (35).[155] There are also more residences within 150 metres of the preferred route (160) than on the ENMAX route variant (46) or the BAR (45).[156] All other factors being equal, the fact that there are more residences on a proposed route generally factors against the adoption of such a route.

258. In this case, there are other factors to be considered. As noted above, although there are more residences on the preferred route, no residential parcel is closer than 32 metres.[157] Furthermore, the Commission has to consider the reasons for Alberta Transportation withdrawing its initial non-objection to the ENMAX application. Alberta Transportation's position, which was uncontroverted, is that it strongly favours the preferred route versus the ENMAX route variant. The Commission considers that Alberta Transportation is in the best position to alert ENMAX of any potential conflict between the future interchange and the proposed transmission lines.

259. The Commission also took note of the following ENMAX submissions. First, Alberta Transportation took the position that, if proposed transmission line 138-41.84L were routed within the footprint of the interchange, the cost of relocating the line would be borne by ENMAX or transmission customers, not by Alberta Transportation. Second, if proposed transmission line 138-41.84L were in the footprint of the future interchange, safety concerns might arise during the construction of the interchange. Third, ENMAX stated that it made efforts to reduce the impact of the preferred route near the Sundance community in that it negotiated with Alberta Transportation and Alberta Infrastructure to have the preferred route located 15 metres further away from the Sundance residences, than where the power line component was located in the TUC.[158]

260. The Commission also accepts ENMAX's evidence that the BAR would require large structures (a minimum of 26 metres tall) to maintain clearances over the highway and would result in a longer route with heavier corner structures than the preferred route. This would result in more visual impacts to the residences adjacent to the BAR.

261. Based on the above, Commission is persuaded that the preferred and alternate routes best address Alberta Transportation's concerns and finds that the preferred route is a better route than either of the route variants.

5.1.1.3 Scalable poles

262. The Commission rejects ENMAX's proposal to use scalable steel monopoles within the TUC to accommodate a future double-circuit line. In support of its proposal, ENMAX referred to

[155] Exhibit 3386-X0363, Corrected 3386-X0343 Appendix B.
[156] Exhibit 3386-X0363, Corrected 3386-X0343 Appendix B.
[157] Exhibit 3386-X0359, Corrected 3386-X0355 NAOL Correction.
[158] Exhibit 3386-X0343, ENMAX Reply Evidence, PDF pages 18-19, paragraphs 66-67.

the AESO's 2013 Long Term Outlook and an AESO newsletter. However, in response to a Commission information request, the AESO stated that that there is no need for a double-circuit 240-kV transmission line at this time.[159]

263. ENMAX's application before the Commission is based upon the current AESO NID application for single-circuit, 138-kV transmission lines, and not for a future double-circuit, 240-kV transmission line. Such a development is speculative at best. During the hearing, Mr. Kumar agreed that the AESO does not, at this time, have a need for a 240-kV transmission line that the scalable poles would accommodate Even if a future transmission line were needed, there is no certainty regarding the routing of such a line. Further, such a proposal for scalable poles presupposes the Commission's approval of a route within the TUC in the area of the proposed preferred route.[160]

5.1.1.4 Conclusion

264. Based on the above findings, the Commission concludes that the preferred route for proposed transmission lines 138-41.84L and 54.81L has less of an overall impact than the alternate route and that its approval is therefore in the public interest, in accordance with Section 17 of the *Alberta Utilities Commission Act*.

265. Furthermore, having regard to the clear wording of the *Calgary Restricted Development Area Regulations* and the previous decisions of the Commission and its predecessors, the Commission is satisfied that it has the jurisdiction to approve the ENMAX application, on the condition that the applicant provide the written consent of the Minister of Infrastructure. The Commission recognizes that it may not issue a permit and licence for the construction and operation of the proposed transmission lines until it receives the Minister's written consent.

5.2 Other components of the facility application

5.2.1 Views of the applicant

266. In order to meet the elements requested in the NID application and to accommodate the construction of transmission lines 138-54.81L and 138-41.84L, ENMAX proposed the following modifications:

- Alterations to ENMAX No. 65 substation to accommodate the termination of the transmission line 138-54.81L. The alterations would include the addition of one 138-kV circuit breaker and associated switches.
- Alterations to ENMAX No. 41 substation to accommodate the termination of the transmission line 138-41.84L. The alterations would include the addition of two 138-kV circuit breakers and associated switches.
- Minor modifications to ENMAX No. 54 substation to accommodate the termination of the transmission lines 138-54.81L and 138-41.84L, with no major equipment to be installed.
- Connection of existing transmission lines 138-32.82L and 138-26.81L to connect ENMAX No. 26 and No. 32 substations, and designation of this line as 138-26.81L.

[159] Exhibit 0125.02.AUC-3386, AESO IR Response ENMAX 3rd Circuit, AUC-AESO-1, December 12, 2014.
[160] Transcript Volume 1, October 14, 2015, PDF page 198, lines 4-5.

- Minor modifications to ENMAX No. 26 and No. 32 substations to accommodate the proposed connection of transmission line 138-26.81L, with no major equipment to be installed.

5.2.2 Views of the parties

267. No party had any objections to ENMAX's proposed modifications.

5.2.3 Commission findings

268. The Commission approves the connection of existing 138-32.82L and 138-26.81L to be designated as 138-26.81L and the proposed modifications to ENMAX substations No. 65, 41, 54, 26 and 32.

6 Decision

269. After careful consideration of the record of this proceeding, and for the reasons provided elsewhere in this decision, the Commission finds that the approval of the NID and the preferred route for transmission lines 138-54.81L and 138-41.84L, is in the public interest having regard to the social and economic effects of the project and its effects on the environment.

270. Pursuant to Section 34 of the *Electric Utilities Act*, the Commission approves the NID application, as filed by the AESO, and grants the AESO the approval set out in Appendix 1 – Needs Identification Document Approval 3386-D02–2016-January, 12, 2016. This appendix will be distributed separately.

271. Pursuant to sections 14, 15 and 21 of the *Hydro and Electric Energy Act*, the Commission approves the facility application and is prepared to grant ENMAX the permits and licences set out in the following appendices:

- Appendix 2 – New Transmission Line 138-54.81L – Permit and Licence 3386-D03-2016
- Appendix 3 – New Transmission Line 138-41.84L – Permit and Licence 3386-D04-2016
- Appendix 4 – Alter and re-designate transmission line 138-32.82L to 138-26.81L – Permit and Licence 3386-D05-2016
- Appendix 5 – Alter ENMAX No. 65 Substation – Permit and Licence 3386-D06-2016
- Appendix 6 – Alter ENMAX No. 41 Substation – Permit and Licence 3386-D07-2016

272. The Commission cannot issue permits and licences for the construction and operation of the project within the transportation and utility corridor without the prior written consent of the Minister of Infrastructure. The permits and licences to ENMAX will therefore be distributed upon receiving written consent of the Minister of Infrastructure.

Dated on January 12, 2016.

Alberta Utilities Commission

(*original signed by*)

Anne Michaud
Panel Chair

(original signed by)

Tudor Beattie, QC
Commission Member

(original signed by)

Kate Coolidge
Acting Commission Member

Appendix A – Proceeding participants

Name of person or group counsel or representative
Alberta Electric System Operator (AESO) G. Davies
R. Amaral
A. Hasib Amin & Z. Shamel
F. Ansari
J. Arnold
M. and P. Atencio
N. Bane
L. and N. Barnes
A. Bochynski
W. Branham
Brookfield Residential (Alberta) LP G. Fitch, QC M. Baldasaro
K. Brown
L. Reti Brown
B. and L. Burchell
S. Butler
M. Campagnaro
D. and S. Carmelo
D. Casewell and D. Evanson
A. Christensen
L. Christie
C. Cormier
D. Cornish
J. Dahms
J. Dalla Costa

L. Drescher
Eberley group D. Campbell
ENMAX Power Corporation (ENMAX) D. Wood G. Bruni
C. Erskine
P. Fuller
Genesis Land Development Corporation C. Davis P. Clark
Genstar Development Company R. B. Brander
D. Gilbert
L. Godden
S. and G. Gottwald
R. and K. Hanson
K. and C. Hatton
M. and S. Hawrelak
G. and Y. Hermann
J. Hinshaw
C. Innes and E. Tomlinson
E. Jimenez
S. Kadam
G. and N. Kaya
T. Koopmans
S. and J. Langton
Legacy group J. Laycraft, QC A. Louie
D. Lennon
C. and M. MacKinnon

M. and G. Matyus
K. McGeoch
J. Sabado and K. McLeod
L. McNaughton
Q. Mitchell
H. Morgan
R. and G. Morrison
NAOL group D. Mallon, QC D. O'Callaghan
Ollerenshaw/Soutzo group M. Niven, QC N. Ramessar
J. Pon and C. Hankel
O. Pricca
V. Pruegger
J. and P. Roberts
K. Robinson
Royop (Legacy) Development Ltd. R. B. Brander
M. and L. Schultz
A. Soutzo
C. Spyker
D. Steward
T. Strang
M. and P. Strietman
L. Tofts
K. Toner
P. Covarrubias Toy
D. and T. Trafford

A. and J. Ulatowski
L. Van Kampen
J. Van Engelen
D. J. Washington
C. and C. Westmacott
W. D. Williams
G. Witherley
D. Yang and X. Guan
R. Zeller
T. Zerbe

Alberta Utilities Commission

Commission Panel
- A. Michaud, Panel Chair
- T. Beattie, QC, Commission Member
- K. Coolidge, Acting Commission Member

Commission Staff
- G. Bentivegna (Commission counsel)
- K. Elkassem
- A. Anderson
- T. McCusker
- E. Neuhart
- J. Yau

Appendix B – Oral hearing - registered appearances

Name of organization (abbreviation) counsel or representative	Witnesses
ENMAX Power Corporation (ENMAX) D. Wood G. Bruni	S. Kumar K. Chao D. Elias A. Anaka B. McVeigh C. Simpson-Laird C. Squires
NAOL group D. Mallon, QC D. O'Callaghan	M. Pronk L. Niosi B. Woods J. Proctor J. Bateson J. Berkholtz J. Muirhead K. Lepard N. Baines
Eberley group D. Campbell	M. Eberley P. Master
Brookfield Residential (Alberta) LP G. Fitch, QC M. Baldasaro	R. Clark T. Steel J. Power P. Nottveit J. Workman
Genstar Development Company R. B. Brander	P. Boskovich P. Briscoe B. Syal D. MacDonald
Genesis Land Development Corporation C. Davis P. Clark	A. Stefaniuk B. Syal D. MacDonald
Ollerenshaw/Soutzo group M. Niven, QC N. Ramessar	C. Plosz M. Pepper S. Soutzo C. Wallis B. Syal D. MacDonald

Name of organization (abbreviation) counsel or representative	Witnesses
Royop (Legacy) Development Ltd. R. B. Brander	M. G. Foht B. Syal D. MacDonald
Legacy group J. Laycraft, QC A. Louie	J. Goldade J. Mackey B. Syal D. MacDonald
C. Westmacott	C. Westmacott
L. Van Kampen	L. Van Kampen

Appendix C – NAOL group members[161]

NAOL Group Members		
M. and J. Pronk	J. and C. Muirhead	L. and M. Niosi
V. and R. Saretsky	C. and F. Jonkers	R. and J. Bourak
G. Ray-McCreary and M. McCreary	C. Parks	D. and S. Nickel
R. and L. Case	T. and T. Schroeder	F. and J. Engelhardt
B. Woods	J. and J. Li	C. Huang and J. Yu
A. Atwal	S. and K. Serl	G. and J. Joly
A. and K. Meeks	M. and D. Thompson	G. Stepansky and J. Suk
K. and B. Morgan	S. and D. Gough	C. Fraser and L. Williams
B. and J. Gibbs	J. Berkholtz and J. Zhang	P. and P. Harrington
P. and S. Allen	J. Bateson and D. Yanchula	J. Bishop
J. and K. Proctor	S. and D. Lavender	M., J. and N. Hardstaff
V. and A. Myles	W., K., M. and K. Cooper	T. and V. Procopio
A. Tesarek and L. Tesarek	J. and W. Lewis	G. and S. Munro
D. and K. Lepard	D. and S. Spear	S. Williams
L. Deng	N. and T. Baines	T. Revitt
K. Chase		

[161] Exhibit 3386-X0296, Attachment - Tab 1.

Appendix D – Abbreviations

Abbreviation	Name in full
2011 FATD Plan	2011 Foothills Area Transmission Plan
AESO	Alberta Electric System Operator
Archer report	Financial Impact Assessment ENMAX Power Corporation 138 kV Foothills Area Transmission Development Sundance & Chaparral Calgary, Alberta
AUC or the Commission	Alberta Utilities Commission
Rule 007	AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*
Rule 012	AUC Rule 012: *Noise Control*
BAR	Berrien Alternate Route
Brookfield	Brookfield Residential (Alberta) LP
Brown	Brown and Associates Planning Group
Cottonwood	Cottonwood Consultants Ltd.
CP	Canadian Pacific Railway Ltd.
ENMAX	ENMAX Power Corporation
EMF	electric and magnetic field or electromagnetic field
Genesis	Genesis Land Development Corporation
Genstar	Genstar Development Company
Golder	Golder Associates
ICNIRP	International Commission on Non-Ionizing Radiation Protection
km	kilometre
kV	kilovolt
kV/m	kilovolts per metre
Legacy group	West Pine Creek Developments Ltd., Legacy Gate GP Inc., 1779925 Alberta Ltd., and Jesse Jo Y. Teng
LIA	land impact assessment
mG	milligauss
MVA	megavolt-ampere
NAOL group	Neighbours Against Overhead Lines group
NID	needs identification document
Ollerenshaw	Ollerenshaw Ranch Ltd.
RDA	restricted development area
Royop	Royop (Legacy) Development Ltd.
TUC	transportation utility corridor