



AUC

Alberta Utilities Commission

City of Medicine Hat Electric Utility

Transmission Line MH-20L Upgrade Project

December 17, 2014



The Alberta Utilities Commission

Decision 2014-349: City of Medicine Hat Electric Utility

Transmission Line MH-20L Upgrade Project

Application No. 1610463

Proceeding No. 3168

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Fifth Avenue Place, Fourth Floor, 425 First Street S.W.

Calgary, Alberta

T2P 3L8

Telephone: 403-592-8845

Fax: 403-592-4406

Website: www.auc.ab.ca

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1 Introduction

1. The Electric Utility of the City of Medicine Hat (City of Medicine Hat) filed Application No. 1610463 with the Alberta Utilities Commission (AUC or the Commission) on April 9, 2014, pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*. It requested an approval to upgrade a portion of the City of Medicine Hat's transmission system from 69 kilovolts (kV) to 138 kV by upgrading existing transmission line MH-20L from 69 kV to 138 kV and to alter the existing MH69S-3 and MH69S-6 substations.

2. The City of Medicine Hat is the owner and operator of transmission line MH-20L and MH69S-3 and MH69S-6 substations, pursuant to Permit and Licence No. MH 93-15,¹ Permit and Licence No. MH 99-04,² and Permit and Licence No. MH 93-10,³ respectively.

2 Decision overview

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

4. For the reasons set out below, the Commission approves the City of Medicine Hat's application for the upgrade of transmission line MH-20L to a 138-kV transmission line and the associated upgrades to substations MH69S-3 and MH69S-6.

3 Background

3.1 Nature of the proceeding

5. The Commission is an independent, quasi-judicial agency of the province of Alberta. As a quasi-judicial body, the Commission is similar in many ways to a court when it holds hearings and makes decisions on applications. Like a court, the Commission bases its decision on the evidence before it and allows interested parties to cross-examine the applicant's witnesses to test that evidence. Its powers are granted by the Alberta legislature in legislation.

¹ Transmission Line Permit and Licence No. MH 93-15, Application No. 930537, August 5, 1993.

² Substation Permit and Licence No. MH 99-04, Application No. 990011, February 9, 1999.

³ Substation Permit and Licence No. MH 93-10, Application No. 930537, August 5, 1993.

6. The Commission's proceedings are conducted to determine an outcome that meets the public interest mandate set out in the legislation. The Commission is not limited to considering only the evidence presented to it by the applicant and by parties that may be directly and adversely affected. Indeed, it is the Commission's role to test the application to determine whether approval of that application would be in the public interest.

7. It is the role of the applicant to demonstrate that approval of its application would be in the public interest, and it is the role of the parties that may be directly and adversely affected by approval of the application to demonstrate how approval or denial of the application does or does not satisfy the public interest. They may do so by bringing evidence of the effects of the application on their own private interests and explaining how the public interest may be better served by accommodating their private interests, and they may use the evidence filed by all parties to the proceeding to argue what a better balancing of the public interest might be.

8. In performing its duty to test the application, the Commission not only actively tests the evidence by asking questions of the applicant and the parties, but also by asking questions of any expert witnesses called by the applicant or the parties. The Commission's objective is to determine whether the application as filed is in the public interest and, if not, what changes could be ordered by the Commission to most effectively balance the various public interest factors it must consider, by relying upon its own expertise as well as the evidence it has before it.

3.2 Legislative scheme

9. Section 34 of the *Electric Utilities Act* requires a needs identification document for an expansion or enhancement of the transmission system that is or may be required to meet the needs of Alberta. In this case, this section does not apply to the application before the Commission because the electric distribution system or a transmission facility within the service area of the City of Medicine Hat is not part of the interconnected electric system or a transmission system, as defined in subsections 1(1)(z) and 1(1)(ccc) of the *Electric Utilities Act*. These definitions state:

1(1) In this Act,

...

(z) "interconnected electric system" means all transmission facilities and all electric distribution systems in Alberta that are interconnected, but does not include an electric distribution system or a transmission facility within the service area of the City of Medicine Hat or a subsidiary of the City, unless the City passes a bylaw that is approved by the Lieutenant Governor in Council under section 138;

...

(ccc) "transmission system" means all transmission facilities in Alberta that are part of the interconnected electric system.

10. Subsection 1(4) of the act further describes the service area of the City of Medicine Hat. It is undisputed that the changes to the transmission line and substations, which are the subject of this application, are within the service area of the City as Medicine Hat. As a result, no approved needs identification document is required for this application.

11. The application in question is governed by sections 14 and 15 of the *Hydro and Electric Energy Act* and AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* (AUC Rule 007).

12. Further, when considering an application for transmission facilities, the Commission must consider whether the proposed changes to the transmission line and substations 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*.

13. In interpreting the term “public interest”, the Commission is mindful of Decision [2009-028](#),⁴ which states:

The Commission recognizes that there is no universal definition of what comprises the “public interest” and that its meaning cannot be derived from strictly objective measures. The Commission acknowledges that the ultimate determination of whether a particular project is in the “public interest” will largely be dictated by the circumstances of each transmission facility application.

In the Commission’s view, assessment of the public interest requires it to balance the benefits associated with upgrades to the transmission system with the associated impacts, having regard to the legislative framework for transmission development in Alberta. This exercise necessarily requires the Commission to weigh impacts that will be experienced on a provincial basis, such as improved system performance, reliability, and access with specific routing impacts upon those individuals or families that reside or own land along a proposed transmission route as well as other users of the land that may be affected. This approach is consistent with the EUB’s [Alberta Energy and Utilities Board] historical position that the public interest standard will generally be met by an activity that benefits the segment of the public to which the legislation is aimed, while at the same time minimizing, or mitigating to an acceptable degree, the potential adverse impacts on more discrete parts of the community.⁵

3.3 Overview of the facility application

14. The City of Medicine Hat applied to the AUC for approval to upgrade its transmission system to address forecast transmission deficiencies in Medicine Hat.

15. The City of Medicine Hat stated that existing lines are reaching their maximum capacity due to increasing load on the 69-kV transmission system. A transmission study was conducted and recommended a phased conversion of the system to 138 kV. The Commission approved the first phase of the system upgrade in Decision [2014-112](#)⁶ on April 17, 2014. The current application is for the second phase of the upgrade.

⁴ Decision 2009-028: AltaLink Management Ltd. Transmission Line from Pincher Creek to Lethbridge, Application No. 1521942, Proceeding ID No. 19, March 10, 2009.

⁵ EUB Decision 2001-33: EPCOR Power Development Corporation and EPCOR Generation Inc., Rosedale Power Plant Unit 11 (RD 11), page 6.

⁶ Decision 2014-112: The City of Medicine Hat - Transmission Line MH-10L Upgrade Project, Proceeding No. 2987, Application No. 1610187, April 17, 2014.

16. Transmission Line MH-20L is a 69-kV, single-circuit line, on wood poles with an underhung distribution line, that connects the MH69S-6 (Riverview) substation to the MH69S-3 (South Ridge) substation. The City of Medicine Hat proposed to rebuild the transmission line, which is approximately 15 kilometres in length, within the existing right-of-way and operate the line at 138-kV. It stated that the proposed structures would be wood poles, similar to the existing structures, but approximately three metres taller than the existing poles⁷ with a maximum height of 75 feet above the ground.⁸ The span between transmission line structures would be approximately 60 metres.

17. The existing MH69S-3 substation is located in the northeast quarter of Section 18, Township 12, Range 5, west of the Fourth Meridian.

18. To convert the MH69S-3 substation from 69 kV to 138 kV, the City of Medicine Hat proposed to add one 138/69-kV, 75/100/125-megavolt-ampere (MVA) transformer and one 138-kV circuit breaker at the substation. Also, it proposed to redesignate the substation as MHS-3.

19. The proposed alterations to the MHS-3 substation would occur within the existing fenced area of the substation. The existing A-frame tower on the west side of the substation would be replaced by a similar structure to accept the upgraded incoming line.

20. The City of Medicine Hat stated that upon completion of the proposed alterations, the MHS-3 substation would contain the following major equipment:

- one 138/69-kV, 75/100/125-MVA transformer
- three 69/13.8-kV, 25/33/41.7-MVA transformers
- one 138-kV circuit breaker
- six 69-kV circuit breakers
- one 69-kV, 12-megavolt-ampere-reactive (MVar) capacitor

21. The existing MH69S-6 substation is located in the northwest quarter of Section 35, Township 12, Range 6, west of the Fourth Meridian.

22. To convert the MH69S-6 substation from 69 kV to 138 kV, the City of Medicine Hat proposed to add one 138/69-kV, 75/100/125-MVA transformer, and one 138-kV circuit breaker at the substation. Also, it proposed to redesignate the substation as MHS-6.

23. The proposed alterations to the MHS-6 substation would require an expansion to the fenced area of the substation (approximately 680 m²) to allow room for the new equipment. However, the substation would remain within the fenced area of the City of Medicine Hat's power plant site.

⁷ Transcript, page 46, lines 2-4.

⁸ Transcript, page 100, lines 2-6.

24. The City of Medicine Hat stated that upon completion of the proposed alterations, the MHS-6 substation would contain the following major equipment:

- one 138/69-kV, 75/100/125-MVA transformer
- two 69/13.8-kV, 30/40/50-MVA transformers
- one 138-kV circuit breaker
- seven 69-kV circuit breakers

25. Construction of the proposed project is expected to occur in winter 2015 and the upgraded line is expected to be energized by June 30, 2015.⁹

26. The estimated cost of the total project, attributed entirely to the City of Medicine Hat, is \$9.72 million. The application stated that “Medicine Hat City Council approved the project as part of the 2012-2014 Capital Budget.”

3.4 Application review process

27. On May 14, 2014, the Commission issued an information request to the City of Medicine Hat to clarify details of the application. The City of Medicine Hat responded to the information request on June 16, 2014.

28. On June 20, 2014, the Commission issued a notice of application, with a submission deadline of July 11, 2014, for filing responses. The notice was mailed directly to all residents and landowners within 800 metres of the transmission line and substations as well as to interested parties. The notice was posted on the AUC website and also published in the Medicine Hat News on June 25, 2014.

29. Subsequent to issuing the notice, the AUC ascertained that there was a delay in the printing and mailing of the notice, which resulted in a short reply period for parties. To ensure that interested persons had an opportunity to respond to the notice, the AUC accepted submissions for Proceeding No. 3168 until July 28, 2014.

30. In response to the notice, the Commission received submissions from G. Eley, Lansdowne Equity Ventures Ltd. (Lansdowne) and M. Schmunk.

31. Mr. Eley indicated that he was a resident affected by the project and was concerned with the short period for replies to the notice. The AUC acknowledged Mr. Eley’s submission in an email and requested he identify his concerns with the proposed development in writing and submit them. No additional information was submitted by Mr. Eley.

32. Ms. Schmunk indicated concerns about the potential auditory and visual impacts of the proposed development as well as potential impacts to the value of her property and her health.

33. The Commission requested additional information from Lansdowne, residential subdivision developers in the area, to determine standing. Lansdowne did not respond to this request.

⁹ Transcript, page 107, lines 8-11.

34. The Commission issued a ruling, in a letter on August 1, 2014, granting standing to Mr. Eley, Ms. Schmunk and Lansdowne based on the proximity of their lands to the transmission line right-of-way and existing substation MHS-3.
35. On September 10, 2014, the Commission issued a notice of hearing, with a deadline for submitting evidence of October 29, 2014. The notice was mailed directly to all residents and landowners within 800 metres of the transmission line and substations as well as to interested parties. The notice was posted on the AUC website and also published in the Medicine Hat News on September 17, 2014.
36. On September 26, 2014, Ms. Schmunk withdrew her objection to the proposed upgrades.
37. On November 7, 2014, Lansdowne confirmed in an email that a representative would be present at the hearing to make a submission.
38. On November 10, 2014, Lansdowne submitted an email stating its concerns with the proposed development. These concerns included property value impacts, impacts on future developments and health impacts due to electromagnetic fields.
39. On November 11, 2014, Lansdowne was informed that any references or documents it intended to rely on at the hearing had to be filed by noon on November 12, 2014.
40. The hearing was held on November 13, 2014, at the Clarion Hotel and Conference Centre in Medicine Hat, Alberta before Commission Chair Willie Grieve and Acting Commission Member Kate Coolidge.
41. A list of all registered parties in this proceeding, including those who did not appear in person at the hearing, is provided in Appendix A to this decision report. All submissions filed by registered parties were considered by the Commission in reaching its decision.
42. One party attended the public hearing in Medicine Hat and gave evidence. A complete list of hearing participants is attached to this decision report in Appendix B. To assist readers of this decision, the Commission has included the following brief introduction to the corporate landowner who participated in the oral public hearing.
43. Mr. Brian Sidorsky appeared at the hearing and testified on behalf of Lansdowne. Lansdowne is a privately owned real estate investment company with developments in Medicine Hat south of the existing 69-kV transmission line MH-20L and the South Ridge substation, namely the Hamptons residential subdivision and Southridge Heritage Estates Mobile Home Park. The Hamptons is adjacent to the existing line. Lansdowne has sold all properties directly adjacent to the existing line and continues to develop properties further south in the community. The mobile home park land is located adjacent to the existing line as well as the existing South Ridge substation. Fifteen homes are adjacent to these existing facilities; 13 are owned by residents and two are owned by Lansdowne and rented to third parties.

4 Discussion of issues

44. In the Commission's view, the application and intervention raise the following issues:

- Does the City of Medicine Hat's application meet the requirements of AUC Rule 007?
- Is approval of the proposed upgrade described in the application in the public interest?

4.1 AUC Rule 007 requirements

4.1.1 Need for development

45. The City of Medicine Hat indicated that the project would be entirely within its service area, therefore, a direct assignment letter from the Alberta Electric System Operator was not required for the proposed project.

46. The City of Medicine Hat stated that the need for the proposed upgrades to the transmission line and substations and its budget were approved by council. It added that the proposed alterations in question were circulated to other departments of the city for comment. Further, the proposed alterations were considered by an energy committee made up of elected councillors and senior staff members.¹⁰

4.1.2 Routing

4.1.2.1 Views of the applicant

47. Transmission line MH-20L was originally constructed approximately 35 years ago. The City of Medicine Hat stated that development in southern Medicine Hat and residential development on both sides of the existing line in the area immediately west of the MHS-3 substation has severely constrained any other possible routes. The City of Medicine Hat explained that, by using the existing rights-of-way for the upgraded line, the impacts to landowners and the environment would be minimized. The majority of the route length is located in utility right-of-way or the road allowance with the remainder on city-owned land. For these reasons, the City of Medicine Hat did not consider any routing alternatives.

48. The City of Medicine Hat explained that the option to convert the proposed transmission line or a portion of it to underground was not studied in detail for a number of reasons including that the city had not received any aesthetic complaints regarding the existing line, the bird mortality had not been a significant issue with the existing line, and the capacity of an underground line is strictly limited by heat. The City of Medicine Hat asserted that the biggest drawback to building an underground line is the cost. It stated that underground transmission lines typically cost between four to 15 times the cost of an equivalent overhead line. The city mentioned a 2011 study by the Public Service Commission of Wisconsin, which found that the cost of underground 69-kV and 138-kV transmission lines was approximately five times more than an overhead line. The city stated "it was the determination of the utility that the additional cost would generate no benefits in terms of reliability and could not be justified as it would unfairly burden all utility customers with significant costs of system improvements that would be of a potential benefit to only a limited number".¹¹

¹⁰ Transcript, pages 122-125.

¹¹ Transcript, page 36, lines 2-7.

49. The City of Medicine Hat indicated that transmission line MH-20L is located in proximity to the Medicine Hat Regional Airport, which is owned and operated by the City of Medicine Hat. However, the upgraded line would not add any additional constraints to present or future airport operations.

50. In response to a question from Lansdowne, the City of Medicine Hat confirmed that the pre-existing electric utility setback of nine metres from the centre of the transmission line to a building or building foundation would not change and that no additional utility right-of-way or easement would be required for the proposed transmission line upgrade. The City of Medicine Hat stated that while it was not aware of Lansdowne's specific plans for future development, the proposed transmission line upgrade would not change the current circumstances in terms of land required and existing setbacks.

4.1.2.2 Views of the intervener

51. Lansdowne suggested that the proposed upgraded transmission line should be routed underground for the portion of the line that is adjacent to residences.

52. Lansdowne stated that, according to its information, undergrounding a transmission line only costs about 15 per cent more than an overhead line. No expert evidence on the cost of underground transmission lines versus overhead lines was submitted at the hearing.

53. Lansdowne was also concerned about future restrictions on development of its lands and mobile home park as a result of the proposed upgraded transmission line.

4.1.2.3 Commission findings

54. The Commission has before it an application to upgrade an existing transmission line within the existing right-of-way. The Commission accepts the explanation of the City of Medicine Hat that development in southern Medicine Hat and residential development on both sides of the existing line in the area immediately west of the MHS-3 substation has severely constrained any other possible routes. The Commission is of the view that by using the existing right-of-way for the upgraded line, the impacts on residents and landowners and the environment are minimized, as discussed below. Also, the existing route obviates the need for any new substations. In such circumstances, the City of Medicine Hat did not have to file an alternate route. The Commission finds that the use of the existing right-of-way is cost effective.

55. The Commission considers that no compelling evidence was presented regarding the proposal by Lansdowne to underground the portion of the altered transmission line near its subdivision or mobile home park. Accepting that the cost is estimated to be five times higher placing this line underground and that the distribution line attached to the same poles would also have to be placed underground, the Commission considers that no benefits have been shown to justify the additional cost of placing the line underground.

4.1.3 Environment

4.1.3.1 Views of the applicant

56. The City of Medicine Hat conducted a noise impact assessment for the proposed alterations at the MHS-3 and MHS-6 substations. In response to an information request, the City of Medicine Hat submitted two revised noise impact assessment reports. The results of the

revised assessments indicated that the cumulative sound levels at the substations, following completion of the alterations, are expected to be in compliance with the permissible sound level values of AUC Rule 012: *Noise Control* (AUC Rule 012) at all residences assessed.

57. The City of Medicine Hat retained an environmental consultant, Strom Environmental Consulting Ltd., to conduct wildlife surveys for species of management concern in the project area. This survey, as well as a soil and terrain survey, rare plant survey, and an evaluation of the Seven Persons Creek area, was conducted during the spring, summer and fall of 2014. The survey results indicated that no setbacks would be required; however, an area of wildflowers was detected. Although no animals such as leopard frogs were found in the area around Seven Persons Creek, the consultant suggested that development not occur along the banks of the creek. The city stated that it would construct the proposed upgrade to the transmission line and alterations to the substations during the winter when the ground is frozen to reduce any issues associated with damage to soil and would fence off the wildflowers to ensure there is no traffic through that area.

58. The City of Medicine Hat anticipated that the proposed upgrade would have minimal environmental implications as the development would be on an existing right-of-way. At the hearing, the City of Medicine Hat stated that Phase 1 Environmental Site Assessments had been completed by Strom Environmental Consulting Ltd. at both substation sites and no issues were identified.

59. The City of Medicine Hat testified that it was in the process of reviewing the environmental survey results and all proposed mitigations would be reviewed and approved by the Fish and Wildlife Division of Alberta Environment and Sustainable Resource Development. The City of Medicine Hat confirmed that it would also create an overall environmental protection plan for the construction and operation of the proposed project.

60. The City of Medicine Hat stated that transmission line MH-20L has been in operation, at 69 kV, for approximately 35 years and has experienced only one instance of power interruption due to bird interaction. The proposed transmission line is regularly patrolled and no evidence of bird mortality due to line collisions has ever been made known to the City of Medicine Hat. It stated that it would not expect an increase in bird mortality as a result of the proposed upgrade of the transmission line since the rebuilt transmission line would follow the same route, would be of similar construction, and would have increased tower spacing. The City of Medicine Hat added that the transmission line would be monitored closely and mitigation devices would be installed if an unacceptable rate of bird mortality occurs.

61. The construction at both substations is expected to take place during the day and the City of Medicine Hat stated that it would work to minimize noise, dust, lights or other disturbances.

4.1.3.2 Views of the intervener

62. Lansdowne did not raise any environmental issues.

4.1.3.3 Commission findings

63. Regarding any potential noise impacts from the proposed alterations to the MHS-3 and MHS-6 substations, the Commission finds that the noise impact assessment reports submitted by the City of Medicine Hat meet the requirements of AUC Rule 012. The Commission accepts that the cumulative sound levels at the MHS-3 and MHS-6 substations are expected to meet the permissible sound level values in AUC Rule 012.

64. The Commission finds that the potential environmental effects will be minimal because the upgrade to the transmission line will occur within an existing right-of-way, the alterations to the MHS-3 substation will not require any additional land and the MHS-6 substation will require an expansion for additional equipment, but such expansion will be within the fenced area of the City of Medicine Hat's power plant site. The right-of way, the substation sites and the power plant site are on land which has already been disturbed.

65. Although the proposed upgraded transmission line and the substations are on previously disturbed lands, the Commission observes that the City of Medicine Hat retained an environmental consultant who conducted wildlife surveys for species of management concern in the area. This survey, as well as a soil and terrain survey, rare plant survey, and an evaluation of the Seven Persons Creek area, was conducted during the spring, summer and fall of 2014. The results of the surveys indicated that no setbacks would be required; however, an area of wildflowers was detected. Also, the City of Medicine Hat confirmed that a Phase 1 Environmental Site Assessment had been completed at both substation sites and no issues were identified.

66. The Commission acknowledges the commitments of the City of Medicine Hat to complete an environmental protection plan and monitor bird mortality. The Commission accepts that the City of Medicine Hat will review all proposed mitigations with the Fish and Wildlife Division of Alberta Environment and Sustainable Resource Development and will take necessary actions prescribed by the Fish and Wildlife Division.

67. Based on the above, the Commission finds that the environmental aspects of the proposed upgrade to the transmission line and the alterations to the substations fulfill the requirements of AUC Rule 007.

4.1.4 Consultation

4.1.4.1 Views of the applicant

68. The City of Medicine Hat submitted that it conducted a participant involvement program that encompassed all occupants, residents, landowners, companies and agencies within 800 metres of the proposed project, including Alberta Transportation and Cypress County. A project package was mailed to 4,900 persons in April 2013, and personal consultations were conducted with 178 persons from April to June 2013. A subsequent update was mailed to approximately 1,140 potentially affected parties in August 2013 when the preliminary design for substation MH69S-3 was completed. In January 2014, the City of Medicine Hat updated its mailing list and project information packages were sent to 72 new parties who may not have received the original mailing. In February 2014, the City of Medicine Hat held an open house regarding the proposed upgrade to the transmission line and alterations to the substations.

69. The City of Medicine Hat stated that approximately 23 individuals¹² sought clarification about the proposed upgrade to the transmission line. The main questions were about health impacts from electromagnetic field levels and whether steel lattice towers would be used. The City of Medicine Hat contacted each of these individuals to provide additional information about the proposed upgrade to the transmission line. It added that in all cases, except one, the individuals were satisfied once they had additional information. A meeting was scheduled with the one remaining person, but that individual cancelled the meeting.

70. At the hearing, the City of Medicine Hat noted that no occupants, residents or landowners of either the Hamptons residential subdivision or the Southridge Heritage Estates Mobile Home Park raised any concerns or objections with respect to the application.

71. In response to questions from Lansdowne, the City of Medicine Hat testified that it was unable to personally contact 12 occupants, residents or landowners adjacent to the existing right-of way. However, they were provided information packages at two separate times. The City of Medicine Hat asserted that it took reasonable efforts to try and obtain additional contact information for these 12 parties and that it did have personal consultation with 100 per cent of the landowners with upgraded facilities on their lands.

72. The City of Medicine Hat noted that its extensive consultation with Lansdowne had commenced in April 2013 and submitted a consultation record summarizing the city's communications with Lansdowne in relation to the application.¹³

4.1.4.2 Views of the intervener

73. Lansdowne raised a concern about the lack of community participation at the hearing and questioned the adequacy of the city's notification process. Lansdowne asserted that there are parties that are not aware of the proposed development, which will result in many objections to the city when the upgraded line is constructed. It questioned whether all landowners, residents and occupants along the transmission line had been consulted. However, it did not dispute that the City of Medicine Hat had consulted with it and attempted to address its concerns.

4.1.4.3 Commission findings

74. The Commission considers a participant involvement program to be effective if it meets AUC Rule 007 requirements and has allowed stakeholders an opportunity to understand the project and its potential impacts, express their concerns about the project and to provide site-specific input to improve the project in an effort to reduce the impacts of the proposed upgrades to the transmission line and substations; however, an effective participant involvement program may not resolve all landowner, resident or occupant concerns.

75. The Commission finds that the City of Medicine Hat conducted an extensive and comprehensive participant involvement program notifying more than 4,900 persons and consulting with 178 persons whose land or residence is adjacent to the proposed upgraded transmission line and altered substations. The City of Medicine Hat continued to update its residents and landowner lists, sent out two separate information packages regarding its proposed upgrades to the transmission line and substations, and held an open house.

¹² Transcript, page 36, lines 16-20.

¹³ Exhibit No. 48.01, Tab D.

76. The Commission finds that potentially directly and adversely affected persons were provided with sufficient information to understand the proposed upgrade to the transmission line and alterations to the substations and were given opportunities to express their concerns during the course of the participant involvement program. The City of Medicine Hat responded to persons who raised concerns and provided additional information.

77. Based on the above, the Commission finds that the City of Medicine Hat's participant involvement program was conducted in accordance with AUC Rule 007. The Commission is satisfied that, overall, the participant involvement program implemented by the City of Medicine Hat met the goals of a successful participant involvement program.

4.1.5 Other requirements

78. The city received *Historical Resources Act* clearance on May 9, 2014. One location on the transmission line MH-20L route was flagged as having archaeological interest. The city intends to span the upgraded line over this sensitive location and divert construction traffic around this area.

4.2 Public interest aspects

4.2.1 Property value

4.2.1.1 Views of the applicant

79. In response to the issue of property values raised by Lansdowne on November 10, 2014, the City of Medicine Hat retained Mr. Darren Clarke of McNally Land Services Ltd. as an expert to advise it on the issue of the impact of the proposed upgrade to the transmission line on property values.

80. Mr. Clarke testified that he investigated sales of the lots adjacent to the transmission line right-of-way versus the sales of lots not adjacent to the right-of-way within the Hamptons residential subdivision and produced a map showing the lot sale prices in the area transposed over the land titles map.¹⁴ The map indicated that rectangular shaped lots adjacent to the power line right-of-way ranged in price from \$76,900 to \$83,895. Lots of similar size not adjacent to the power line right-of-way ranged in price from \$76,900 to \$86,900. The map also indicated that corner lots adjacent to the power line right-of-way ranged in price from \$109,095 to \$125,130 while corner lots not adjacent to the right-of-way ranged in price from \$103,900 to \$121,695. Mr. Clarke was of the opinion that the sales data indicated that there was no distinguishable difference between the prices of lots that were adjacent to the existing transmission line and lots that weren't adjacent to the existing transmission line.¹⁵

81. Mr. Clarke testified that he performed a visual inspection of the Hamptons residential subdivision and asserted at the hearing that houses adjacent to the existing transmission line would have a visual line-of-sight to the power line but the lots not adjacent would have an obstructed view due to the houses that lie between the non-adjacent lots and the transmission line. Mr. Clarke stated that lots further south in the subdivision would be increasingly less likely to see the transmission line. Mr. Clarke opined that the lots still to be developed, in the southern portion of the Hamptons subdivision, would not see the current transmission line nor would they

¹⁴ Exhibit No. 59.01.

¹⁵ Transcript, page 44, lines 14-18.

be likely to see the proposed upgraded line that would be approximately three metres taller than the existing line. Mr. Clarke asserted this minimal increase in height would be a negligible difference and would not have a negative effect on the neighbouring properties. In regard to the Southridge Heritage Estates Mobile Home Park, Mr. Clarke stated that “lots adjacent to the power line would have a direct line-of-sight, but moving south after that, the line-of-sight of the transmission line would again be obstructed by residences and large trees within the trailer park.”¹⁶

82. With respect to Lansdowne’s concern regarding the impact of the proposed line on the sale of unsold lots in the Hamptons residential subdivision, Mr. Clarke explained that the unsold lots would be in the southern portion of the quarter section where it would be unlikely that the proposed upgrade to the transmission line would be visible. Mr. Clarke added that the proposed upgrade to the transmission line and alterations to the substations would not result in a reduction in property value of the undeveloped lots.

83. Mr. Clarke testified that he found two home listings for properties that back onto the existing transmission line that noted that the lot backed onto a green space as a positive feature in the listing.¹⁷

84. At the hearing, Mr. Clarke also explained that he had reviewed the information submitted by Lansdowne. He stated that the data was 10 and 20 years old and reflected a different geographical area and a different transmission line than was being considered in this application. Mr. Clarke asserted that the information was not useful in assessing potential impacts on property values associated with this application.

4.2.1.2 Views of the intervener

85. In its submission of November 10, 2014,¹⁸ Lansdowne indicated that it was concerned about the saleability of 107 unsold lots in the Hamptons development if the proposed upgrade to the transmission line is perceived to be detrimental by future purchasers. It was also concerned about the negative impact the proposed upgrade could have on its plans to add up to 81 new home pads to the Southridge Heritage Estates Mobile Home Park.

86. Lansdowne submitted four letters from realtors, dated 2002, regarding their opinions on the impact of transmission lines on property values in Minneapolis. These letters asserted that power lines had a negative effect on property values.¹⁹ Lansdowne also submitted two Internet articles on the impact of transmission lines on the value of residential homes; however, no current web addresses were given for either article. One document indicated it was a Real Estate Center news release from February 1999 with no cited author. The other article was published in November 1998 and is entitled “Power lines and Property Values: The Good, the Bad, and the Ugly.”²⁰ Lansdowne did not speak to this information during the hearing.

87. Lansdowne confirmed that its Hamptons residential development was built beginning in 2005 and that the transmission line was constructed and operating at that time. In response to

¹⁶ Transcript, page 45, lines 21-25.

¹⁷ Transcript, page 96, lines 11-17.

¹⁸ Exhibit No. 53.01.

¹⁹ Exhibits No. 58.04 and No. 58.05.

²⁰ Exhibit No. 58.05, PDF page 5.

questions, Lansdowne acknowledged that it had sold its properties in the Hampton development located adjacent to the right-of-way and it did not dispute the sale prices of these properties put forward by the City of Medicine Hat. It also acknowledged that its remaining properties in the Hamptons development were at least 400 metres from the existing transmission line. Regarding its Southridge Heritage Estates Mobile Home Park, it stated that some of the sites have been sold and others are rented. It confirmed that it was not aware of any concerns from residents regarding the proposed upgrade to the transmission line or the alteration of the MHS-3 substation, which is adjacent to the mobile home park.

88. Lansdowne stated at the hearing that the proximity to the existing line was not a problem when it sold the lots adjacent to the existing transmission line. Lansdowne asserted that the people that were going to be affected the most by the proposed upgrade are the owners of land adjacent to the existing power line when they go to resell their houses.

4.2.1.3 Commission findings

89. The Commission is persuaded by the evidence presented by the City of Medicine Hat that the proposed upgrade to the transmission line will not impact property values for the following reasons. The upgrade to the transmission line will be constructed within an existing right-of-way and the application is for a small incremental change to the size of the existing wood poles with correspondingly small incremental changes in visual impacts for properties adjacent to the right-of-way. The residences were built and purchased after the existing transmission line was in place. The undisputed evidence before the Commission is that the sales data presented showed that there was no distinguishable difference between the prices of lots that were adjacent to the existing transmission line and lots that weren't adjacent to it.

90. The Commission gave less weight to the evidence presented by Lansdowne because it was not shown to pertain to the City of Medicine Hat. Further, Lansdowne acknowledged that its properties were about 400 metres from the existing transmission line and the transmission line was not visible. Also, Lansdowne did not dispute that properties adjacent to the transmission line sold at similar prices to those of similar size that were not adjacent to the transmission line.

4.2.2 Electromagnetic fields (EMF)

4.2.2.1 Views of the applicant

91. In response to the issue of health impacts raised by Lansdowne on November 10, 2014, the City of Medicine Hat retained an expert consultant, Dr. Gabor Mezei, a senior managing scientist, at the Exponent Health Sciences Centre for Epidemiology and Computational Biology. Dr. Mezei prepared a report, entitled EMF Modelling and Assessment,²¹ on whether electric and magnetic fields from the proposed upgraded transmission line have the potential to result in health impacts.

92. Dr. Mezei's curriculum vitae indicates that he is a medical doctor and has a doctorate in epidemiology. Dr. Mezei has over 20 years of experience in health research including epidemiological studies of both clinical outcomes and environmental and occupational health issues. He is the author or co-author of over 50 scientific publications and book chapters and has appeared as an EMF health expert before a number of commissions and committees.

²¹ Exhibit No. 48.01, Tab B.

93. In the report, Dr. Mezei provided electric and magnetic field calculations associated with the proposed transmission line upgrade and a brief summary of the current scientific consensus and recent health evaluations of research on exposure to extremely low frequency electric and magnetic fields and health. Dr. Mezei summarized his findings at the hearing.

94. Dr. Mezei's review of the results of scientific organizations' EMF research led to his conclusion that none of the expert panels that conducted objective weight-of-evidence reviews of the scientific evidence, on behalf of national and international health, scientific, and government agencies, had concluded that the overall evidence supports the existence of any health effects in association with long-term exposure to EMF. These evaluations and reviews were conducted as recently as 2013 by organizations such as the World Health Organization and the International Commission on Non-Ionizing Radiation Protection (ICNIRP).²² The report explained that the "ICNIRP is an independent scientific organization of international experts in various disciplines necessary to study potential EMF effects. The ICNIRP guidelines for EMF are formally recognized by the WHO [World Health Organization] and the European Commission."²³

95. The results of the engineering model used by Dr. Mezei indicated that the electric field levels would be slightly higher following the completion of the project compared to existing levels. The maximum calculated electric field level for the existing transmission line was 0.26 kilovolts per metre (kV/m) while the maximum calculated electric field level for the proposed transmission line was 0.39 kV/m. However, the report points out that electric fields are easily shielded or blocked by conductive objects, such as trees or buildings, and that the magnitude of the electric and magnetic fields rapidly decreases with the distance away from the source.

96. However, the magnetic field levels will actually be lower after the completion of the project compared to levels with the existing configuration. The maximum calculated magnetic field level for the existing transmission line was 69 milligauss (mG) while the maximum calculated magnetic field level for the proposed transmission line was 28 mG.

97. ICNIRP guidelines for exposure to the public is 4.17 kV/m for electric fields and 2,000 mG for magnetic fields. The report further explained that because exposure from transmission lines is typically below these guideline limits, there are no federal standards in Canada or the United States.

98. Dr. Mezei asserted that both the electric fields and magnetic fields for the existing and proposed configurations were far below the scientifically based exposure limits set by international agencies to protect the public of adverse effects.

99. At the hearing, Dr. Mezei also explained that he had reviewed the information submitted by Lansdowne.²⁴ He stated that all the references appeared to be dated 2004 or prior. The majority of the references were articles or postings from the Internet and he did not consider such sources or references as scientific literature. In his opinion, the articles carried no weight in a proper scientific assessment.

²² Exhibit No. 48.01, Tab B, page 29.

²³ Exhibit No. 48.01, Tab B, page 24.

²⁴ Exhibit No. 58.01 through 58.09.

100. Dr. Mezei acknowledged that there was one scientific review submitted by Lansdowne. However, he asserted that the reviewers did not use the generally accepted weight-of-evidence scientific approach and that the conclusions of the review were not consistent with the conclusions of most major authoritative EMF health assessment reviews. He noted that this review contained a letter from the scientific advisory panel that oversaw the scientific review. The letter indicated that the authors of the review were scientists with similar and limited background, thus, the conclusions drawn might not generalize to those from other professions or to the general public.²⁵ Dr. Mezei recognized that there are some individual studies that suggest a negative association between EMF and health; however, he stressed that the correct way to assess the overall evidence is not to single out individual studies but to look at the totality of evidence.

101. In response to Lansdowne, Dr. Mezei indicated that placing the proposed upgraded transmission line underground would not reduce impacts to health. He explained that undergrounding a transmission line will result in shielding of the electric fields and reduction of the magnetic fields at a distance away from the line. However, it may also result in the elevation of the magnetic fields immediately above the underground transmission line in comparison to an overhead line because magnetic field exposure is significantly influenced by the proximity to the source. Dr. Mezei asserted that no negative health impacts, at the exposure levels anticipated with the proposed upgraded transmission line, had been established since the expected level of EMF is far below exposure guidelines established to protect public health.

4.2.2.2 Views of the intervener

102. Lansdowne was very concerned that EMF from the proposed upgraded transmission line would result in negative impacts to people's health. Lansdowne questioned whether the science being used to study such impacts was independent and not financed by power utility companies. Lansdowne argued that the extent of negative health impacts associated with EMF are uncertain.

103. Lansdowne submitted a number of Internet articles on EMF and their potentially negative health impacts and a scientific review paper from 2002, which were allowed into evidence as Exhibit No. 59. The authors of these documents were not called to speak to their respective documents at the hearing.

104. Lansdowne took issue with Dr. Mezei's statement that none of the expert panels had concluded there were negative health impacts associated with EMF. Lansdowne asserted that there were dissenting opinions in the scientific community and suggested a precautionary approach be taken when considering transmission line development.

105. Lansdowne stated that the upgraded transmission line should be routed underground for the portion of line adjacent to residences because it felt it was a safer alternative and would diminish any potential risks that there might be.

106. Lansdowne wanted to show three videos from the Internet at the hearing as evidence that people in Alberta are concerned with EMF. The Commission panel asked Lansdowne to describe the content of these videos to decide whether the videos need be shown. The Commission panel decided they did not need to view the videos to understand that Lansdowne and some Albertans have concerns about EMF and the explanation of the videos given by Lansdowne was sufficient.

²⁵ Exhibit No. 58.09, PDF pages 176 and 177.

4.2.2.3 Commission findings

107. The Commission is well aware of the concerns expressed in numerous transmission line proceedings by some Albertans regarding potential impacts of EMF from transmission lines on human or animal health. The Commission acknowledges that Lansdowne also expressed similar concerns about potential impacts of EMF from transmission lines on human health. The issue of whether long-term exposure to extremely low frequency electric and magnetic fields causes health effects has been the subject of considerable scientific review and debate for many years. In making its decision in this proceeding, as it was in previous proceedings, the Commission's mandate is not to resolve this debate. Rather, it is to assess, based on the evidence before it, what levels of magnetic fields are likely to be produced by the proposed transmission line upgrade and whether there is a need to impose measures to mitigate the effects of the electric and magnetic fields that will be produced by the proposed project.

108. The Commission has before it the evidence of the City of Medicine Hat regarding EMF produced by the proposed transmission line upgrade. This evidence was not controverted by any other expert. The Commission finds the results of the computer modelling of the EMF levels associated with the proposed transmission line upgrade prepared by Dr. Mezei to be credible. The profiles generated by the model show the electric field levels will be slightly higher following the completion of the proposed transmission line upgrade compared to existing levels. The maximum calculated electric field level for the existing transmission line was 0.26 kV/m while the maximum calculated electric field level for the proposed transmission line was 0.39 kV/m. The magnetic field levels will be lower after the completion of the project compared to levels with the existing configuration. The maximum calculated magnetic field level for the existing transmission line was 69 mG while the maximum calculated magnetic field level for the proposed transmission line was 28 mG.

109. In assessing the potential impacts of the EMF of the proposed transmission line upgrade, the Commission has taken into account that the ICNIRP guidelines for exposure to the public is 4.17 kV/m for electric fields and 2,000 mG for magnetic fields and that both the electric fields and magnetic fields for the existing and proposed configurations were far below these scientifically based exposure limits set to protect the public of adverse effects. Also, electric fields are easily shielded or blocked by conductive objects, such as trees or buildings. In addition, if the proposed transmission line upgrade were placed underground, the magnetic fields of the line would not dissipate in the same way as they would for an overhead line and would not reduce any potential impacts.

110. In addition, the Commission finds persuasive Dr. Mezei's conclusion that no negative health impacts, at the exposure levels anticipated with the proposed upgraded transmission line, had been established since the expected level of EMF is far below exposure guidelines established to protect public health. This conclusion was based on the fact that none of the expert panels that conducted objective weight-of-evidence reviews of the scientific evidence, on behalf of national and international health, scientific, and government agencies, have determined that the overall evidence supports the existence of any health effects in association with long-term exposure to EMF. These organizations include the World Health Organization and the International Commission on Non-Ionizing Radiation Protection (ICNIRP).²⁶ The report explained that the "ICNIRP is an independent scientific organization of international experts in

²⁶ Exhibit No. 48.01, Tab B, page 29.

various disciplines necessary to study potential EMF effects. The ICNIRP guidelines for EMF are formally recognized by the WHO [World Health Organization] and the European Commission.” Also, one such review referred to by Dr. Mezei was conducted in 2013.

111. The Commission considers important the conclusion of Health Canada that exposure to EMF from transmission lines is not a demonstrated cause of any long-term adverse effect to human or animal health. Further, Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMF from transmission lines. Health Canada states that:

[b]ased on the available scientific evidence to date, the Federal Provincial Territorial Radiation Protection Committee (FPTRPC) concludes that adverse health effects from exposure to power-frequency EMFs, at levels normally encountered in homes, schools and offices, have not been established. ... [i]n summary, it is the opinion of the Federal-Provincial-Territorial Radiation Protection Committee that there is insufficient scientific evidence showing exposure to EMFs from power lines can cause adverse health effects such as cancer. Therefore, a warning to the public to avoid living near or spending time in proximity to power lines is not required. ... exposure in Canadian homes, schools and offices present no known health risk. ... [t]here have been many studies on the possible health effects from exposure to EMFs at ELFs. While it is known that EMFs can cause weak electric currents to flow through the human body, the intensity of these currents is too low to cause any known health effects.”... There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors.²⁷

112. The Commission did not give any weight to the Internet documents submitted by Lansdowne because none of the authors of the documents were present at the hearing and the information could not be tested.

113. For the reasons set out above, the Commission concludes that there is no evidence to suggest that there will be any adverse impacts from EMF produced by the proposed upgraded transmission line.

4.2.3 Commission findings

114. In this decision, the Commission has weighed the benefits associated with the proposed upgrades of the transmission line and substations for the transmission system of the City of Medicine Hat with the associated impacts. The Commission has concluded that the potential impacts of the proposed transmission line upgrade and alterations to the substations on the environment are minimal and that the participant involvement program of the City of Medicine Hat was conducted in accordance with AUC Rule 007. Further, the other requirements of AUC Rule 007 and AUC Rule 012 were met; thereby mitigating any other potential impacts.

115. In addition, the Commission determined that the evidence of the City of Medicine Hat was persuasive that the proposed transmission line upgrade and alterations to the substations will not impact property values or result in any adverse impacts from EMF.

²⁷ Exhibit No. 48.01, Tab B, pages 23 and 24.

116. Accordingly, the Commission finds that the proposed transmission line upgrade and alterations to the substations is in the public interest, pursuant to Section 17 of the *Alberta Utilities Commission Act*.

5 Decision

117. After careful consideration of the record of the proceeding and for the reasons set out above, the Commission finds that the approval of the project is in the public interest having regard to the social and economic effects of the proposed transmission line and substation upgrades and their effects on the environment.

118. The Commission approves the facility application pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, and grants the City of Medicine Hat Electric Utility the following approvals:

- Permit and Licence No. U2014-369 to alter and operate transmission line MH-20L as a 138-kV transmission line, as set out in Appendix 1.
- Permit and Licence No. U2014-370 to alter and operate the South Ridge substation, designated as MHS-3, as set out in Appendix 2.
- Permit and Licence No. U2014-371 to alter and operate the Riverview substation, designated as MHS-6, as set out in Appendix 3.

119. The appendices will be distributed separately.

Dated on December 17, 2014.

The Alberta Utilities Commission

(original signed by)

Willie Grieve, QC
Chair

(original signed by)

Kate Coolidge
Acting Commission Member

Appendix A – Proceeding participants

Name of organization (abbreviation) counsel or representative
City of Medicine Hat Electric Utility B. Gilmour C. Prentice
G. Eley
Lansdowne Equity Ventures Ltd. B. Sidorsky
E. Schmunk

The Alberta Utilities Commission
Commission Panel Willie Grieve, QC, Chair Kate Coolidge, Acting Commission Member
Commission Staff Giuseppa Bentivegna (Commission Counsel) Danielle Glover

Appendix B – Oral hearing – registered appearances

Name of organization Counsel or representative	Witnesses
Lansdowne Equity Ventures Ltd. B. Sidorsky	B. Sidorsky
City of Medicine Hat Electric Utility B. Gilmour C. Prentice	D. Clarke G. Mezei N. Pimblett D. Teske