



Alberta Health Services

Foothills Medical Centre Power Plant Expansion Project

May 7, 2020

Alberta Utilities Commission

Decision 23958-D01-2020

Alberta Health Services

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Proceeding 23958

Applications 23958-A001 and 23958-A002

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1 Decision summary

1. In this decision, the Alberta Utilities Commission considers whether to approve applications from Alberta Infrastructure, on behalf of Alberta Health Services, to construct and operate an 8-megawatt power plant designated as the Foothills Medical Centre Power Plant expansion and to connect the power plant to the Alberta Interconnected Electric System.

2. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission finds that approval of the power plant expansion is in the public interest having regard to the social, economic, and other effects of the project, including its effect on the environment. However, for the reasons outlined in Section 5, the Commission has placed Alberta Infrastructure's connection application in abeyance.

2 Introduction

2.1 Project description

3. Pursuant to Exemption U2002-982¹ and Exemption U2010-173,² Alberta Health Services (Alberta Health)³ owns and operates the 15-megawatt (MW) Foothills Medical Centre (FMC) Power Plant at 3133 Hospital Drive N.W. in the city of Calgary. The FMC Power Plant generates steam and electricity for use by the FMC and University of Calgary buildings located within the FMC campus. Pursuant to Order U2002-983,⁴ Alberta Health has approval to connect the power plant to ENMAX Power Corporation's distribution system.

4. Alberta Infrastructure (AI), on behalf of Alberta Health, applied to the AUC for approval under sections 11 and 18 of the *Hydro and Electric Energy Act* to construct and operate an 8-MW expansion to the existing FMC Power Plant (power plant expansion, or project), and to connect this expansion to ENMAX's distribution system. The applied for expansion would involve the construction and operation of one 8-MW gas turbine generator which would be integrated with a new heat recovery steam generator (HRSG) unit. The proposed power plant expansion and new HRSG would use natural gas to co-generate electricity and steam for use by the FMC and the proposed expansion.

5. Alberta Health applied to connect the proposed power plant expansion to the Alberta Interconnected Electric System (AIES) to increase operational stability of the existing power plant and the proposed power plant expansion. Currently, when electricity generated by

¹ Exemption U2002-982, Application 1246604, October 25, 2002.

² Exemption U2010-173, Application 1606086, Proceeding 588, July 21, 2010.

³ To maintain consistency with the application, this decision will refer to Foothills Medical Centre as Alberta Health Services (AHS) throughout this decision since the applicant chose to refer to it as such in the application.

⁴ Connection Order U2002-983, Application 1246603, October 25, 2002.

the existing power plant reaches the onsite demand, the relay system trips off to avoid system overload. To avoid tripping the relay system, Alberta Health has been running the existing power plant at reduced capacity. Alberta Health would use the connection to export excess electricity to ENMAX's distribution system. This would allow the existing power plant and proposed expansion to run at full capacity, which would in turn provide the required amounts of steam to the FMC campus without tripping the system.

2.2 Application and hearing process

6. The Commission provided notice of the applications on December 14, 2018, in accordance with Rule 001: *Rules of Practice*, and received statements of intent to participate from local residents and an individual with an interest in projects that involve the on-site conversion of natural gas to electricity. On February 28, 2019, the Commission granted standing to Randy Beaton, Krista Hughes and Ellen Binns Dang and Dr. Dac Quy Dang.⁵

7. On May 3, 2019, in response to an information request (IR), Alberta Health stated that AI would be verifying the air quality assessment that was submitted with the applications through stack testing, and that due to the seasonal nature of the testing and availability of the consultant, AI expected to submit the results to Alberta Environment and Parks by July 8, 2019.⁶ The Commission paused processing the applications while Alberta Health amended its application materials.

8. On October 18, 2019, Alberta Health submitted amended application materials for the proposed power plant expansion and connection.⁷

9. On December 4, 2019, the Commission granted standing to Carol Hechtenthal.⁸

10. The Commission held a public hearing on February 3, 2020 in Calgary, Alberta. The hearing was attended by representatives from AI and Alberta Health, and Ms. Hughes. No other interveners registered appearances at the public hearing. Hearing participants are listed in Appendix A.

2.3 Consideration of the application and structure of the decision

11. Relevant to the Commission's consideration of the power plant expansion are sections 11 and 19 of the *Hydro and Electric Energy Act* and Section 17 of the *Alberta Utilities Commission Act*.

12. The application must meet the informational and other requirements set out in Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*, which applies to the construction and operation of power plants, substations and transmission lines governed by the *Hydro and Electric Energy Act*. Specifically, an applicant must provide technical and functional specifications, information on public consultation, environmental and land-use information, including a noise impact assessment (NIA). The application must also meet the requirements set out in Rule 012: *Noise Control*.

⁵ Exhibit 23958-X0029, AUC ruling on standing.

⁶ Exhibit 23958-X0032, Alberta Infrastructure Information Response to AUC – Round 3.

⁷ Exhibit 23958-X0036, Cover Letter to AUC enclosing AI Amended Application re Foothills Medical.

⁸ Exhibit 23958-X0052, AUC ruling on standing.

Further, an applicant must obtain all approvals under other applicable provincial or federal legislation.

13. Relevant to the Commission's consideration for the interconnection of the power plant to the AIES are Section 18 of the *Hydro and Electric Energy Act*, sections 101, 18 and 2 of the *Electric Utilities Act* and Subsection 2(g) of the *Fair, Efficient and Open Competition Regulation*.

14. In the sections that follow, the Commission sets out the reasons for which it finds that approval of the power plant is in the public interest. Since the interveners' primary concern with the proposed project was noise produced by the power plant, the decision is structured to discuss noise, other considerations relevant to the Commission's review of the power plant, and finally the connection order request.

3 Noise

3.1 Background

15. AI retained Stantec Consulting Ltd. to provide evidence on the project's noise impact and noise-related issues. Stantec prepared a NIA for the project that it first submitted on October 5, 2018 as part of the main application document⁹ and then re-submitted as a standalone document on October 18, 2019¹⁰ (the project NIA). Paul Wierzba was the primary author of the project NIA, prepared responses to IRs,^{11,12} and provided expert testimony at the hearing.

16. Ms. Hughes and Mr. Beaton raised concerns with the project's NIA and submitted IRs to AI.^{13,14}

17. The project NIA included five dwellings as noise receptors, presented in Figure 1 below. Four of the receptors (R1, R2, R3, R4) are located in the community of Parkdale. The fifth receptor (R5) is located in the community of University Heights. The distances of each of the five receptors from the project are as follows:

- R1 – located approximately 68 metres from project
- R2 – located approximately 63 metres from project
- R3 – located approximately 69 metres from project
- R4 – located approximately 78 metres from project
- R5 – located approximately 250 metres from project

⁹ Exhibit 23958-X0001, PP Application Report Attachments A through D, PDF page 69-126, Appendix D.

¹⁰ Exhibit 23958-X0041, Attachment D - Noise Assessment.

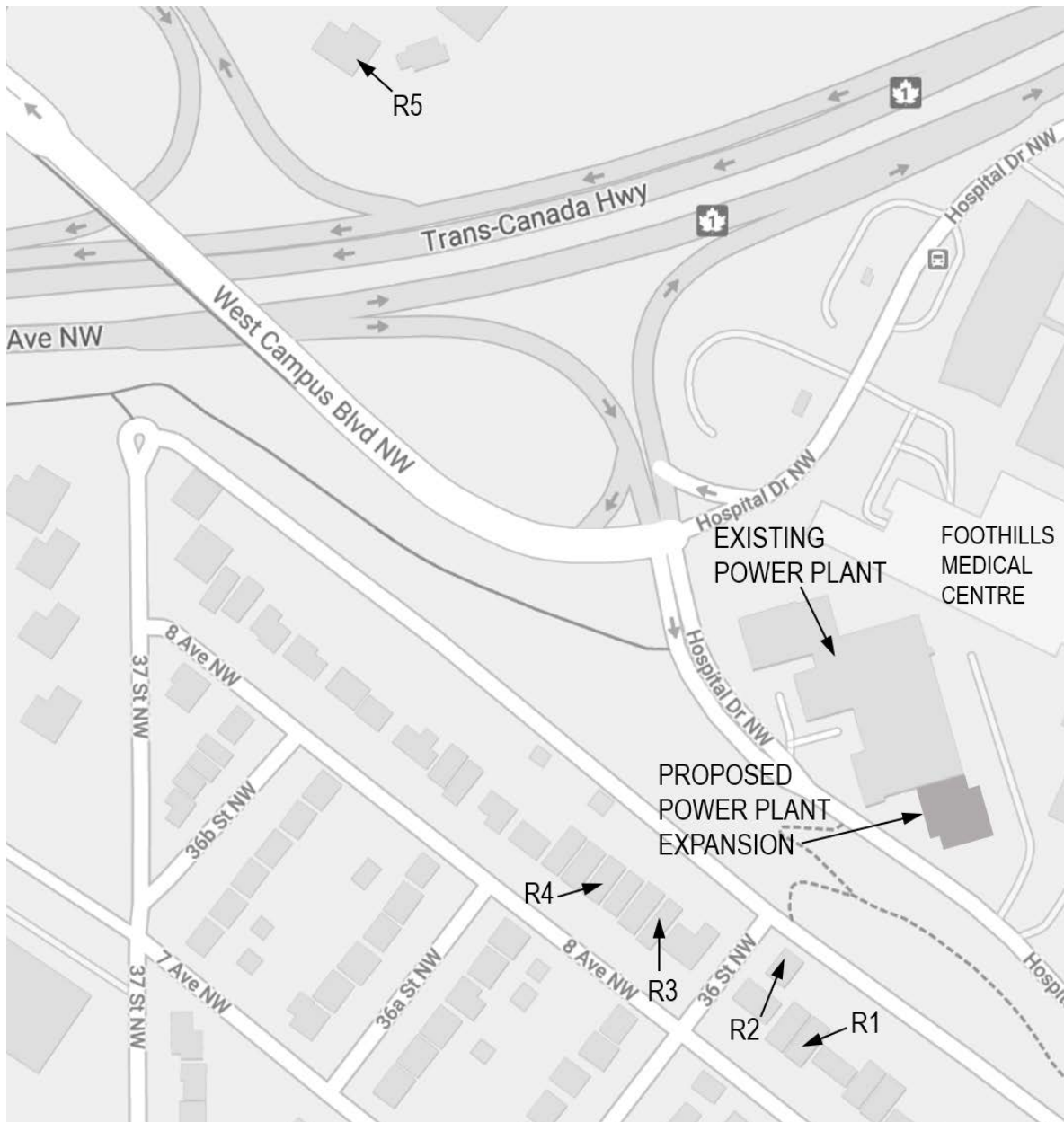
¹¹ Exhibit 23958-X0014, IR Responses of Alberta Infrastructure to the Information Request Round 1; Exhibit 23958-X0032, Alberta Infrastructure Information Response to AUC - Round 3; and Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4.

¹² Exhibit 23958-X0061, AI Responses_to_Beaton_Information_Requests; and Exhibit 23958-X0063, AI Responses to Hughes Information Request.

¹³ Exhibit 23958-X0059, Hughes information request to Alberta Infrastructure.

¹⁴ Exhibit 23958-X0058, Beaton IRs to Alberta Infrastructure.

Figure 1. Map of noise receptors



18. Noise issues discussed during the proceeding included deferred facility status and the applicable permissible sound level (PSL), compliance with Rule 012, mitigation measures, noise from steam release, noise resulting from open doors, and post-construction noise surveys. These issues are discussed in the following subsections.

3.2 Deferred facility status and applicable permissible sound level

19. In previous versions of Rule 012, including versions prior to and including the 2017 version, a facility constructed and in operation before October 17, 1988 was considered a deferred facility and was not required to demonstrate compliance with the PSL established under Section 2 of Rule 012. Effective October 17, 2018, the Commission eliminated deferred status. As a result, PSLs for previously deferred facilities must now meet the requirements of Section 2 of Rule 012.

20. AI stated that the FMC Power Plant was constructed and in operation prior to 1988 and has been operating as a deferred facility under Rule 012. AI acknowledged that deferred facility status was eliminated as of October 17, 2018, however, it submitted that the initial expansion project application was filed before October 17, 2018, and that, as such, deferred facility status should continue to apply based on the version of Rule 012 that was in force at the time the application was filed.¹⁵ Accordingly, AI submitted that the project was not obliged to demonstrate compliance with the nighttime PSL of 51 dBA in Section 2 of the current version of Rule 012.¹⁶

21. Stantec submitted that because the FMC Power Plant is a deferred facility, the applicable PSL should be the greater of the nighttime PSL of 51 dBA or the existing sound levels at the receptors. Stantec established the applicable nighttime PSL¹⁷ to be 55 dBA for each of receptors R1, R2, R3, R4 and 51 dBA for Receptor R5.¹⁸

22. AI further submitted that if the Commission finds that the FMC Power Plant exceeds the PSLs in Rule 012 and that deferred facility status no longer applies, the project application could nevertheless be approved under Subsection 1.4 of Rule 012, which gives the Commission discretion to permit site-specific PSLs in excess of the PSLs described in Rule 012.¹⁹

23. Ms. Hughes submitted that AI should not be allowed to rely on the grandfathering provision that was historically contained in Rule 012, and that the deferred facility status²⁰ referred to in Rule 012 was eliminated effective October 17, 2018.²¹

24. Ms. Hughes claimed that AI materially amended its application in October 2019, almost a year after the date that deferred facility status was eliminated. Ms. Hughes therefore submitted that AI should be subject to the current version of Rule 012 and be required to mitigate noise from the FMC Power Plant to achieve compliance with the PSLs described in the current version of Rule 012, regardless of the costs associated with this mitigation.²²

3.2.1 Commission findings

25. The version of Rule 012 that was in force when the application was initially filed in October 2018 was effective from July 4, 2017 to July 31, 2019 (the 2017 version). The current version of Rule 012 came into effect on March 2, 2020 (the 2020 version). Additionally, there was a version of Rule 012 that was in effect from August 1, 2019 to March 1, 2020 (the 2019 version). Subsection 2.2 of each of these three versions of Rule 012 discusses the determination of PSLs for pre-1988 facilities.

¹⁵ Transcript, Volume 1, page 144, lines 17-25, and page 145, lines 1-3.

¹⁶ Exhibit 23958-X0014, IR Responses of Alberta Infrastructure to the Information Request Round 1, PDF page 2.

¹⁷ Because the nighttime PSL is a more stringent limit for noise compliance than the daytime PSL and the project NIA predicted that cumulative sound levels at the noise receptors are compliant with Rule 012, this decision is focused on noise compliance during the nighttime period.

¹⁸ Exhibit 23958-X0041, Attachment D - Noise Assessment, PDF page 21, Table 3.

¹⁹ Transcript, Volume 1, page 148, lines 19-25, and page 149, lines 1-2.

²⁰ Deferred status allowed facilities that were constructed and in operation prior to October 1988 to demonstrate compliance with Rule 012 in the absence of a complaint.

²¹ Transcript, Volume 1, page 172, lines 6-11.

²² Transcript, Volume 1, page 172, lines 12-25.

26. Subsection 2.2 has not been revised since the 2019 version of Rule 012. The 2019 version is identical to the 2020 version. Subsection 2.2 states:²³

- (1) Previous versions of Rule 012 considered a facility constructed and in operation before October 17, 1988, to be a deferred facility.
- (2) Effective October 17, 2018, the Commission eliminated the deferred status for facilities built and in operation prior to 1988. Permissible sound levels for these facilities must be established in accordance with Section 2 of this rule.

27. Subsection 2.2 of the 2017 version of Rule 012 stated:²⁴

- (1) A facility constructed and in operation before October 17, 1988, is considered to be a deferred facility, meaning that it does not have to demonstrate compliance with the permissible sound level established under Section 2.1 of this rule, in the absence of a noise complaint.
- (2) If a noise complaint is filed with the Commission against a deferred facility where a permissible sound level has not been previously established, the licensee must establish the permissible sound level in accordance with Section 2 of this rule.
- (3) In the absence of a noise complaint in respect of a deferred facility, where the licensee applies to modify the facility, the permissible sound level will be the measured sound level as determined from a prior or new comprehensive sound level survey. However, a licensee must reduce noise from a deferred facility to accommodate the introduction of new noise sources at the facility so that there is no net increase in total noise at the most impacted dwelling(s).
- (4) Effective October 17, 2018, the Commission will eliminate the deferred status for facilities built and in operation prior to 1988. Any application received after this date for modification of a deferred facility must demonstrate compliance with the permissible sound level as determined in Section 2 of this rule.

28. These versions of Rule 012 make clear that deferred facility status was eliminated on October 17, 2018 and that after this date, pre-1988 facilities must demonstrate compliance with the PSL established in Section 2.1 of Rule 012.

29. Based on the foregoing, the Commission finds that the PSLs previously established for the FMC Power Plant are no longer valid. Pursuant to Table 1 of Rule 012, the Commission finds that applicable PSLs at the five noise receptors are 61 dBA for the daytime period and 51 dBA for the nighttime period.

30. In argument, AI submitted that the Commission should exercise its discretion (found in Subsection 1.4 of Rule 012) to allow PSLs to be assessed on a site-specific basis and allow a PSL in excess of the PSL determined in accordance with Section 2.²⁵ At this time, the Commission is not prepared to exercise its discretion to allow a nighttime PSL in excess of the conventional PSL of 51 dBA for the FMC Power Plant expansion for a number of reasons. First, the affected noise receptors are located in residential communities and any changes to the

²³ Rule 012: *Noise Control*, PDF page 13.

²⁴ Rule 012: *Noise Control* (Effective from July 4, 2017 to July 31, 2019), PDF pages 11 and 12.

²⁵ Rule 012: *Noise Control*, PDF page 5.

applicable PSL would affect a large number of residents who are adjacent to the FMC Power Plant. These residents' concerns and the potential effects of noise levels in excess of the Rule 012 requirements on them were therefore considered. In addition, AI's noise consultants identified potential noise mitigation measures that would reduce noise impacts and could bring the FMC Power Plant into compliance with the nighttime PSL of 51 dBA. As further discussed below, AI indicated that it would be feasible to implement some of these noise mitigation measures, and that the feasibility of other measures could be determined at a later date.

3.3 Compliance with Rule 012: Noise Control

31. While Ms. Hughes' residence was not included in the project NIA, she indicated during the hearing that based on the predicted results, the FMC Power Plant would not be compliant with the current version of Rule 012 or applicable PSLs,²⁶ and submitted that AI should adhere to the current version of Rule 012 and should achieve compliance with the applicable PSLs.²⁷

32. Although AI opined that deferred facility status should continue to apply and that the project was not obliged to demonstrate compliance with the nighttime PSL of 51 dBA, its project NIA assessed compliance with both the elevated PSL established for the FMC Power Plant as a deferred facility and with the nighttime PSL. For Receptor R5, the project NIA concluded that both baseline sound levels (i.e., sound levels associated with the existing FMC Power Plant) and predicted cumulative sound levels (i.e., sound levels following development of the project) will meet the nighttime PSL of 51 dBA. For receptors R1, R2, R3 and R4, the project NIA concluded that baseline sound levels and predicted cumulative sound levels will meet the nighttime PSL of 55 dBA established for a deferred facility, but will exceed the conventional nighttime PSL of 51 dBA.²⁸

33. Notwithstanding, AI expressed confidence that in reality, the cumulative sound levels experienced at receptors R1, R2, R3, and R4 will be compliant with the PSL of 51 dBA because the noise model used conservative assumptions and parameters, which likely resulted in over-prediction of sound levels at the noise receptors;^{29,30,31} and the magnitude of the predicted exceedances is not discernable to human receptors.³²

34. In a post-hearing undertaking, AI completed modeling to predict the sound levels at Ms. Hughes' residence and concluded that the project would comply with the nighttime PSL of 51 dBA.³³

²⁶ Transcript, Volume 1, page 101, lines 15-25, and page 102, lines 1-10.

²⁷ Transcript, Volume 1, page 172, lines 12-25.

²⁸ Exhibit 23958-X0041, Attachment D - Noise Assessment, PDF page 44.

²⁹ Exhibit 23958-X0041, Attachment D - Noise Assessment, PDF pages 44 and 45.

³⁰ Exhibit 23958-X0032, Alberta Infrastructure Information Response to AUC - Round 3, PDF page 2.

³¹ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 15.

³² Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 11.

3.3.1 Commission findings

35. Prior to October 2018, as a deferred facility, the FMC Power Plant was compliant with the then established nighttime PSL of 55 dBA at receptors R1, R2, R3 and R4.

36. However, as stated earlier, deferred facility status was eliminated on October 17, 2018, and a more stringent nighttime PSL of 51 dBA is now applicable to the FMC Power Plant. AI conducted an exhaustive mitigation study at the noise prediction stage. In the next section of this decision, the Commission directs AI to implement certain mitigation measures before the project commences operations. However, as shown in Table 5 below, despite the implementation of those measures, predicted cumulative sound levels at receptors R1, R2, R3, and R4 nonetheless exceed the nighttime PSL of 51 dBA by up to 1.1 dB.

37. Notwithstanding the predicted exceedances, the Commission considers that the noise-related aspects of the application weigh in favour of project approval because of the following unique circumstances:

- i. The FMC Power Plant generates electricity for use by a medical facility, and restricting the operations of such a facility for the purpose of resolving a noise issue solely on a predicted basis would not be in the public interest.
- ii. Prior to October 2018, the FMC Power Plant was compliant with the elevated nighttime PSL consistent with its status as a deferred facility.
- iii. Project noise impacts may be overestimated because the model utilized to predict noise levels incorporated conservative assumptions and parameters. These conservative assumptions combined with the relatively minor predicted exceedances, may result in cumulative noise levels that are in compliance with the applicable nighttime PSL once the project commences operations.
- iv. AI conducted an exhaustive study to identify potential noise mitigation measures and predicted that the project would result in reduced sound levels, relative to existing conditions, at the Parkdale receptors. Where technically feasible, AI has also committed to implementing further mitigation measures if non-compliance is identified in the post-construction comprehensive sound level (CSL) survey.

38. While the Commission is comfortable approving the project in the light of the circumstances outlined above and subject to the conditions set out herein, given the potential for the post-construction CSL survey to demonstrate exceedances of the nighttime PSL at one or more of the receptors, the Commission emphasizes that AI may be required to mitigate any future non-compliance with Rule 012 to the satisfaction of the Commission.

3.4 Mitigation measures

39. Ms. Hughes submitted that AI should be required to mitigate noise from the FMC Power Plant to achieve compliance with the 2020 version of Rule 012.³⁴

³⁴ Transcript, Volume 1, page 172, lines 12-25.

40. In its NIA, Stantec recommended 11 noise mitigation measures to reduce sound levels from the existing and proposed facilities at the FMC Power Plant.³⁵ These 11 mitigation measures are summarized in Table 1.³⁶ During the hearing, AI committed to implementing all 11 of the mitigation measures.³⁷

Table 1. Mitigation measures in the project NIA

Mitigation ID	Location	Sound source	Description
M _{NIA} 1	Existing powerhouse	Doors and opening	Upgrade the ventilation system in the existing powerhouse to ensure that the equipment doors in the south wall and the service opening in the west wall can be kept closed at all times.
M _{NIA} 2	Existing powerhouse	Steam vents on the roof	Eliminate steam vents on the roof of the existing powerhouse or install silencers.
M _{NIA} 3	Project building	Gas turbine combustion air inlet (CAI)	Install a silencer on the gas turbine CAI.
M _{NIA} 4	Project building	Gas turbine combustion exhaust stack	Install a silencer on the gas turbine combustion exhaust stack.
M _{NIA} 5	Project building	Lube oil cooler	Install a low noise lube oil cooler.
M _{NIA} 6	Project building	Ventilation inlet openings	Install acoustic louvers on the ventilation inlet openings in the project building.
M _{NIA} 7	Project building	Ventilation openings in the fuel gas compartment	Install acoustic louvers on the ventilation openings in the fuel gas compartment of the project building.
M _{NIA} 8	Project building	Ventilation exhaust fans	Install silencers on the project building's ventilation exhaust fans.
M _{NIA} 9	Project building	Doors	Install overhead doors in the project building.
M _{NIA} 10	Project building	Walls and roof	Use high-transmission loss materials (or insulation) in the walls and roof of the project building.
M _{NIA} 11	Project building	Ventilation openings (inlet and discharge)	Install silencers on the ventilation openings (inlet and discharge) in the gas turbine enclosure.

41. To demonstrate the effectiveness of these mitigation measures, Stantec modelled sound levels both with and without all 11 mitigation measures. A summary of this comparison is presented in Table 2. The predicted sound level was calculated for both the baseline sound level, including noise from the existing FMC Power Plant, and the cumulative sound level, which incorporates the additional noise from the proposed project.^{38, 39}

³⁵ Exhibit 23958-X0041, PDF page 42, Section 8.0 Noise Mitigation Measures, PDF page 42.

³⁶ AI submitted two sets of mitigation measures in the proceeding. One set of 11 mitigation measures was included in the project NIA; while the other set of eight mitigation measures was discussed during the IR process. To distinguish these two sets of mitigation measures, the 11 mitigation measures in the project NIA will be referred to as “M_{NIA}1” to “M_{NIA}11”, while the eight mitigation measures discussed in the IR responses will be referred to as “M_{IR}1” to “M_{IR}8”.

³⁷ Transcript, Volume 1, page 51, lines 17-21.

³⁸ Exhibit 23958-X0041, Attachment D - Noise Assessment, PDF page 28, Table 6.

³⁹ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 4, table under (b).

Table 2. Noise reduction from mitigation measures M_{NIA}1 through M_{NIA}11

Noise receptor	Predicted sound level (dBA)		Noise reduction ¹ (dB)
	Baseline sound level	Cumulative sound level	
R1	54.1	51.7	2.4
R2	54.4	52.0	2.4
R3	53.7	52.3	1.4
R4	52.5	52.1	0.4
R5	48.4	48.4	0.0

1. Noise reduction is difference between cumulative sound level and baseline sound level (cumulative – baseline).

42. Based on the results in Table 2, Stantec concluded that implementing the 11 mitigation measures from the NIA would result in reduced noise levels at each of receptors R1, R2, R3 and R4 by up to 2.4 dB; however, predicted cumulative sound levels at these four receptors would continue to exceed the nighttime PSL of 51 dBA by up to 1.3 dBA.⁴⁰ The cumulative sound levels at Receptor R5 are predicted to meet the nighttime PSL even without the implementation of the 11 mitigation measures, which do not further reduce predicted noise at this receptor.

43. In response to Commission IRs, AI ranked existing and proposed sources of noise at the FMC Power Plant based on the amount of noise each source contributes at nearby receptors. AI then identified an additional, specific mitigation measure that could be considered for each of the eight sources with highest noise contribution. These eight additional mitigation measures are summarized in Table 3.⁴¹

Table 3. Mitigation measures identified as part of the IR process

Mitigation ID	Location	Sound source	Mitigation description
M _{IR} 1	Existing powerhouse	Cooling tower inlet – south side	Construct a noise barrier along Hospital Drive.
M _{IR} 2	Existing powerhouse	Cooling tower – west plenum	Add additional mass to the west façade of the existing cooling tower (west plenum).
M _{IR} 3	Project building	Gas turbine CAI filter face	Install an additional silencer on the gas turbine CAI.
M _{IR} 4	Existing powerhouse	Cooling tower – Fan #1 and Fan # 2 stack casings	Add acoustical insulation to the stack casings for Fan #1 and Fan #2 of the existing cooling tower.
M _{IR} 5	Existing powerhouse	South section air handling unit (AHU) inlet	Install a silencer on the inlet for the south section AHU of the existing powerhouse.
M _{IR} 6	Project building	Gas turbine CAI filter house shell	Install an acoustic blanket on the filter house shell of the gas turbine CAI.
M _{IR} 7	Existing powerhouse	Cooling tower – Fan # 1 discharge	Replace the existing cooling tower fans with low-noise models.
M _{IR} 8	Project building	Ventilation discharges	Install an additional duct silencer on the ventilation discharges for the project building.

44. AI explained that constructing a noise barrier along Hospital Drive to mitigate noise from the cooling tower inlet (i.e., M_{IR}1) would not be feasible because Hospital Drive would have to be closed to perform the demolition of the existing foundation and to construct the new barrier. As it is the main route for the entire FMC, AI did not know whether its closure would be permitted. AI also noted that there are existing and planned services, including a high pressure

⁴⁰ Exhibit 23958-X0041, Attachment D - Noise Assessment, PDF page 44.

⁴¹ Exhibit 23958-X0032, Alberta Infrastructure Information Response to AUC - Round 3, PDF pages 3 and 4.

gas line, that would interfere with, or otherwise complicate the ability to construct a noise barrier in this location.⁴²

45. AI submitted that measure M_{IR}7 for noise related to the cooling tower fan discharge is also not feasible.^{43,44} AI explained that the discharge fans were replaced with quieter performance fans during the 2005 expansion,⁴⁵ and “it is very unlikely that a new fan that provides the same air flow at substantially lower noise emissions can be found.”⁴⁶

46. AI further submitted that mitigation measures M_{IR}3 and M_{IR}6 for the proposed gas turbine combustion air inlet (CAI) are not necessary. After submission of the project NIA, AI received updated engineering data from the manufacturer of the gas turbine being proposed for the project that showed significantly lower noise emissions for the CAI than were modelled in the project NIA. After updating the noise model with the manufacturer data for the CAI, AI found that the CAI is no longer the dominant sound source and concluded that mitigation measures M_{IR}3 and M_{IR}6 are now unnecessary.^{47,48}

47. AI stated that a detailed engineering study would be required to determine the technical feasibility of mitigation measures M_{IR}2 and M_{IR}4. AI and Alberta Health committed to conducting a detailed engineering study of mitigation measures M_{IR}2 and M_{IR}4 if a post-construction CSL survey demonstrates non-compliance with the PSL, and to implementing these mitigation measures if the study concludes that they are technically feasible.⁴⁹

48. AI submitted that mitigation measures M_{IR}5 and M_{IR}8 are technically feasible. As such, AI and Alberta Health committed to implementing mitigation measures M_{IR}5 and M_{IR}8, if a post-construction CSL survey demonstrates non-compliance with the PSL.⁵⁰

49. AI included noise mitigation measures M_{IR}2, M_{IR}4, M_{IR}5, and M_{IR}8 in an updated noise model of the project. The updated model was used to predict cumulative sound levels at receptors and to characterize the relative noise reduction associated with each of these four mitigation measures. Noise reduction results from the updated model are provided in the following table.⁵¹

⁴² Exhibit 23958-X0014, IR Responses of Alberta Infrastructure to the Information Request Round 1, PDF pages 3 and 4.

⁴³ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 9.

⁴⁴ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 3.

⁴⁵ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 3; and Exhibit 23958-X0015, Attachments to IR Response AI-AUC-2019JAN09-002 (a), PDF page 2.

⁴⁶ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 3.

⁴⁷ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 9.

⁴⁸ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 3.

⁴⁹ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 2.

⁵⁰ Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 2.

⁵¹ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 10.

Table 4. Noise reduction from mitigation measures M_{IR2}, M_{IR4}, M_{IR5} and M_{IR8}

Noise receptor	Reduction in cumulative sound level (dB)			
	Measure M _{IR2}	Measure M _{IR4}	Measure M _{IR5}	Measure M _{IR8}
R1	0.3	0.5	0.2	0.2
R2	0.3	0.4	0.2	0.0
R3	0.5	0.6	0.2	0.1
R4	0.5	0.6	0.0	0.0
R5	0.1	0.3	0.0	0.0

50. AI submitted that AI and Alberta Health would explore additional mitigation measures that may reduce noise emissions from the FMC Power Plant as design work progressed on the project. In addition, Alberta Health indicated that it is prepared to explore building upgrades and/or modifications at receptors R1, R2, R3 and R4 to mitigate noise from the FMC Power Plant and, if the owners of these residences consent to implement building upgrades or modifications that prove to be technically and economically feasible.⁵²

3.4.1 Commission findings

51. As stated earlier, AI committed to implementing the 11 mitigation measures recommended in the project NIA (M_{NIA1} through M_{NIA11}) and measures M_{IR5} and M_{IR8} in the event that a post-construction CSL survey shows a non-compliance with the PSL. Table 5 demonstrates the effectiveness of each of these mitigation measures (M_{NIA1} through M_{NIA11}, M_{IR5} and M_{IR8}), by comparing predicted baseline sound levels to cumulative sound levels. Cumulative sound levels were calculated based on the modelled results in tables 2 and 4.

Table 5. Noise reduction from mitigation measures M_{NIA1} through M_{NIA11}, M_{IR5} and M_{IR8}

Noise receptor	Predicted sound level (dBA)		Noise reduction ¹ (dB)
	Baseline sound level	Cumulative sound level	
R1	54.1	51.3	2.8
R2	54.4	51.8	2.6
R3	53.7	52.0	1.7
R4	52.5	52.1	0.4
R5	48.4	48.4	0.0

1. Noise reduction is difference between cumulative sound level and baseline sound level (cumulative – baseline).

52. While the results in Table 5 demonstrate that the implementation of mitigation measures M_{NIA1} through M_{NIA11}, M_{IR5} and M_{IR8} would result in reduced noise levels at noise receptors R1, R2, R3 and R4 by up to 2.8 dB, predicted cumulative sound levels at these four noise receptors will continue to exceed the nighttime PSL of 51 dBA by up to 1.1 dBA. As a result, the Commission considers that each of mitigation measures M_{NIA1} through M_{NIA11}, M_{IR5} and M_{IR8} must be implemented to reduce the sound levels from the FMC Power Plant. It is not clear, however, whether these mitigation measures will sufficiently reduce the CSL such that the facility is able to achieve the nighttime PSL of 51 dBA at noise receptors R1, R2, R3 and R4 in a post-construction CSL survey.

⁵² Exhibit 23958-X0085, AI Response to Undertakings 2, 3 and 7, PDF page 3.

53. Based on the above analysis, the Commission imposes the following as a condition of approval:

- a. During project construction, Alberta Health Services shall implement the mitigation measures (M_{NIA1} through M_{NIA11}) presented in Table 1 of this decision, and measures M_{IR5} and M_{IR8} presented in Table 3 of this decision. On or before the date the project commences operations, Alberta Health Services shall file a letter with the Commission confirming implementation of these mitigation measures.

54. The Commission understands that the implementation of mitigation measures M_{IR2} and M_{IR4} presented in Table 3 would be challenging from an engineering or technical perspective, and that the engineering analysis of the feasibility of these measures was not available during the proceeding. However, if a post-construction CSL survey demonstrates non-compliance with Rule 012, the Commission will require that AI conduct an engineering analysis for mitigation measures M_{IR2} and M_{IR4}, including an analysis of the technical feasibility, the construction timeline, and the cost of implementing each of these mitigation measures. Given that the current modelling shows that the predicted cumulative sound levels from the FMC Power Plant and the expansion project exceed the nighttime PSL prescribed in Rule 012 at several receptors, and the associated risk that a post-construction CSL survey could demonstrate non-compliance with Rule 012, the Commission strongly recommends that AI proactively study the feasibility of these noise mitigation measures in advance of constructing and energizing the project.

3.5 Noise from steam release

55. Mr. Beaton submitted that AI only assessed noise associated with routine operation of the FMC Power Plant, and noted that the plant also produces intermittent noise that far exceeds routine operating levels. Both Ms. Hughes and Mr. Beaton noted that steam release events related to the tripping of a pressure safety valve are particularly noisy and were not addressed in the project NIA.⁵³

56. Ms. Hughes requested that the applicant provide information about the frequency of past steam releases at the FMC Power Plant, describe each steam release over the last ten years, and provide existing mitigation plans associated with steam releases.⁵⁴

57. In response to intervenor IRs, AI submitted that neither AI nor Alberta Health have records of the frequency of steam releases at the FMC Power Plant prior to January 2019 and that records for steam releases after January 2019 do not state the circumstances or causes of the releases.⁵⁵

58. AI noted that steam releases at the FMC Power Plant can be divided into two categories: low-pressure and high-pressure steam releases. It indicated that noise levels associated with low-pressure steam releases are very low and unlikely to affect the surrounding community, and acknowledged that high-pressure steam releases can result in elevated noise levels relative to normal operations.⁵⁶

⁵³ Exhibit 23958-X0058, Beaton IRs to Alberta Infrastructure, PDF page 7.

⁵⁴ Exhibit 23958-X0059, Hughes information request to Alberta Infrastructure, PDF page 2.

⁵⁵ Exhibit 23958-X0063, AI Responses to Hughes Information Request, PDF page 8.

⁵⁶ Exhibit 23958-X0063, AI Responses to Hughes Information Request, PDF page 8.

59. AI submitted that since January 2019, there have been three recorded low-pressure steam releases and that none of these releases were planned. It further submitted that noise from low-pressure steam releases have not historically been a concern to the surrounding community.⁵⁷

60. In its responses to information requests⁵⁸ pertaining to high-pressure steam releases, AI explained that in the fall of 2017, there was a long duration, high-pressure steam release which was required as part of the burn-in procedure of the new steam bypass system. The burn-in procedure, an essential component of the installation of the new bypass system, was completed using high-pressure steam to clean out the pipes of the bypass system.⁵⁹ AI indicated that one year later, in the fall of 2018, a bypass system was installed to minimize the occurrence of unplanned steam releases at the existing power plant, and that there have been no high-pressure steam releases since then. AI added that a similar steam bypass system will be installed for the FMC Power Plant expansion to mitigate high-pressure steam releases at the power plant, and that a similar burn-in procedure will occur during construction of the bypass system.

3.5.1 Commission findings

61. AI considers a steam release to be an unplanned activity. In this regard, Rule 012 states that “[i]n the case of an emergency, which is an unplanned event requiring immediate action to prevent loss of life or property, the permissible sound level determined under this rule does not apply. However, if an event occurs more than four times per year at a facility, the event is not considered an unplanned event and the facility must comply with its permissible sound level.”⁶⁰

62. Frequency of occurrence is an important criterion when determining if noise from a particular activity must comply with the PSL. However, prior to January 2019, neither AI nor Alberta Health recorded the frequency of steam releases at the FMC Power Plant. In the absence of pre-2019 records, the Commission must rely on information recorded since 2019 to determine the frequency of steam releases.

63. AI asserted that noise from low-pressure steam releases has not historically been a concern to the surrounding community. Since 2019, there have been three recorded low-pressure steam release events and none of these was planned. The Commission finds it reasonable for AI to have treated low-pressure steam releases as unplanned events and to have omitted low-pressure steam releases from the project NIA.

64. Concerning high-pressure steam releases, AI pointed to the installation of a bypass system in the fall of 2018 to minimize the occurrence of unplanned steam releases at the existing power plant and to the lack of any high-pressure steam releases since that time. Based on the information currently available, the Commission also considers it reasonable for AI to have treated high-pressure steam releases as unplanned events and to have omitted high-pressure steam releases from the project NIA.

65. Furthermore, the Commission is of the view that a burn-in procedure should be treated as a component of the bypass system construction. While Rule 012 does not require construction

⁵⁷ Exhibit 23958-X0063, AI Responses to Hughes Information Request, PDF page 8.

⁵⁸ Exhibit 23958-X0061, AI Responses to Beaton Information Requests, PDF page 6, and Exhibit 23958-X0063, AI Responses to Hughes Information Request, PDF pages 8 and 9.

⁵⁹ Transcript, Volume 1, page 25, lines 1-14.

⁶⁰ Rule 012: *Noise Control*, PDF page 6.

noise to be compliant with the PSLs established for regular operations, the Commission requires that AI and Alberta Health follow mitigation measures for construction noise in Subsection 2.11 of Rule 012 to manage the impact of bypass system construction on nearby dwellings, wherever applicable.

66. Lastly, from this point forward, the Commission expects AI to properly record low-pressure and high-pressure steam releases. Records should include the frequency, duration and cause of each steam release, and indicate if the release was planned or unplanned. Records should be made available to any residents in the neighbouring communities who may have concerns with the steam releases. Moreover, if AI receives a noise complaint related to noise from steam release, it shall make every reasonable attempt to resolve the complaint and will retain records of all communication with the complainant.

67. Consequently, the Commission imposes the following as conditions of the approval:

- b. On the date the project commences operations, Alberta Health Services shall file a letter with the Commission confirming the date of installation of a steam bypass system in the expanded power plant.
- c. Three years after the project has commenced operations, Alberta Health Services shall file a letter with the Commission that sets out data from the records of steam releases for the first three years of operation, including the frequency, duration and cause of each steam release, and indicates whether the release was planned or unplanned. The letter must also summarize any noise complaints related to steam releases from the first three years of operation.
- d. Alberta Health Services shall send a notice to all residences located within 1.5 kilometres of the FMC Power Plant boundary indicating the planned time and duration of the burn-in procedure for the steam bypass system, and providing contact information for any concerned residents. This notice shall be sent at least 30 days before the start of the burn-in procedure.

3.6 Noise from open doors

68. Mr. Beaton stated that from 2001 to 2002, the community of Parkdale engaged with the Calgary Health Region and the FMC operator to address noise concerns related to the FMC Power Plant. Mr. Beaton stated that a Calgary Health Region investigation found that open doors were a major noise source associated with the operation of the FMC Power Plant and concluded that these doors should be closed to reduce noise impacts to nearby residents. According to Mr. Beaton, the operator of the FMC Power Plant assured residents that it would change its operating procedures to keep facility doors closed during regular operations.

69. Mr. Beaton noted that the project NIA modelled the FMC power plant expansion with all the doors closed. However, he observed that a number of doors are routinely left open during operation of the power plant. Mr. Beaton provided photographs showing open doors in Exhibit 23958-X0058. Mr. Beaton also requested that the applicant explain why the project NIA

assumed closed-door operations and re-model noise with open doors to reflect actual operating conditions of the FMC Power Plant.⁶¹

70. AI submitted that a baseline study performed by Stantec in July of 2018 concluded that the existing power plant could operate with three doors open (the overhead wash bay door, overhead access door near the wash bay, and second story roll-up door in the south wall) while maintaining compliance with the nighttime PSL established for the FMC Power Plant as a deferred facility (i.e., 55 dBA).⁶² As such, AI submitted that it was appropriate to operate the existing FMC Power Plant with open doors.

71. AI further explained that the project NIA modelled closed doors because the proposed expansion of the FMC Power Plant would require the post-expansion facility to operate with its doors closed. AI committed to keeping existing doors closed as one of the noise mitigation measures identified in the project NIA (i.e., M_{NIA}1). AI explained that it would upgrade ventilation for the existing powerhouse as a part of the FMC Power Plant expansion and that this ventilation upgrade would allow all doors to be closed during operation.⁶³

72. During the hearing, AI explained that the ventilation system upgrade would be contingent on the expansion project being approved as the ventilation system must be designed in conjunction with the final design of the expansion.⁶⁴

3.6.1 Commission findings

73. As remarked by Mr. Beaton, while the equipment doors on the south wall and the service opening on the west wall of the existing powerhouse were modelled as closed in the project NIA, these doors/openings were modelled as open in previous applications for the FMC Power Plant. Given the FMC Power Plant's earlier status as a deferred facility, the Commission is satisfied that prior to 2018, the FMC Power Plant was able to maintain compliance with the elevated nighttime PSL without closing equipment doors in the south wall or the service opening in the west wall of the existing powerhouse.

74. In addition, AI committed to upgrading the ventilation system for the existing power plant to ensure that the equipment doors on the south wall and the service opening on the west wall can be kept closed at all times. Because the project NIA reflects future operations of the power plant following the expansion, the Commission finds it unnecessary for AI to update the project NIA to include noise from doors that are currently open.

75. The Commission recognizes that in 2001 and 2002 the Calgary Health Region and the FMC operator engaged with residents of the community of Parkdale to try to alleviate noise concerns. The Commission expects that Alberta Health will likewise engage with residents of the community to address any future concerns. The Commission notes that the name and contact information for the director of facilities maintenance and engineering for the FMC power plant was stated on the record.⁶⁵ The evidence before the Commission shows that noise emissions resulting from open doors of the existing powerhouse area contribute to overall noise levels experienced at receptors. In this regard, AI has committed to upgrading the ventilation system in

⁶¹ Exhibit 23958-X0058, Beaton IRs to Alberta Infrastructure, PDF pages 3 to 6.

⁶² Exhibit 23958-X0061, AI Responses_to_Beaton_Information_Requests, PDF page 4.

⁶³ Exhibit 23958-X0061, AI Responses_to_Beaton_Information_Requests, PDF page 4.

⁶⁴ Transcript, Volume 1, page 56, lines 1-4.

⁶⁵ Exhibit 23958-X0083, AI Response to Undertaking 4, February 4, 2020.

the existing powerhouse to ensure that the equipment doors on the south wall and the service opening on the west wall can be kept closed at all times. The Commission consequently imposes the following as a condition of approval:

- e. Alberta Health Services shall upgrade the ventilation system in the existing powerhouse prior to the in-service date of the proposed power plant and subsequently ensure that doors and openings in the existing powerhouse and the project building are closed during normal operations.

3.7 Post-construction noise surveys

76. Ms. Hughes suggested that as a condition of any project approval, the Commission require AI to conduct a post-construction CSL survey to verify the project's compliance with Rule 012.⁶⁶ Ms. Hughes did not offer any recommendations on appropriate monitoring locations for a CSL survey but stated that the interests of the residents in the area where the generation facility operates should be considered.⁶⁷

77. AI submitted that a post-construction CSL survey would be reasonable to evaluate project compliance,⁶⁸ a view that was confirmed by Mr. Wierzba during the hearing.⁶⁹ AI submitted that "[a] suitable location for a post-construction comprehensive sound survey would be north of 8th Avenue NW and in the vicinity of residences R2 – R4".⁷⁰

78. AI submitted that because the predicted noise contribution from the expanded FMC Power Plant is 45.0 dBA at Ms. Hughes' residence, which is lower than the nighttime ambient sound level (ASL) of 46 dBA, and that the predicted cumulative sound level is 48.5 dBA, which is 2.5 dB lower than the nighttime PSL of 51 dBA, her residence is not a suitable location for a post-construction CSL survey for the purpose of verifying the project's compliance with Rule 012.⁷¹

3.7.1 Commission findings

79. In light of the predicted noise exceedances at four receptors in the project NIA, the interveners' concerns with noise, and AI's commitment to conduct a post-construction survey, the Commission agrees that AI should complete a post-construction CSL survey to verify compliance with Rule 012 once the project commences operation.

80. The Commission finds that receptors R1, R2, R3 and R4 would be appropriate for the post-construction CSL survey because (i) these receptors are the closest dwellings to the FMC Power Plant, (ii) the predicted cumulative sound levels at these receptors exceed the nighttime PSL of 51 dBA, (iii) the predicted noise contribution from the expanded FMC Power Plant at these receptors is greater than the assumed nighttime ASL of 46 dBA (which means the FMC Power Plant is a major noise contributor at these receptors), and (iv) selection of these receptors is consistent with AI's recommendation.

⁶⁶ Transcript, Volume 1, page 174, lines 8-14.

⁶⁷ Transcript, Volume 1, page 173, lines 22-25, and page 174, lines 1-2.

⁶⁸ Exhibit 23958-X0055, Alberta Infrastructure (AI) - Responses to AUC Information Request Round 4, PDF page 15.

⁶⁹ Transcript, Volume 1, page 104, lines 16-22.

⁷⁰ Exhibit 23958-X0086, AI Response to Undertaking 6, PDF page 1.

⁷¹ Exhibit 23958-X0086, AI Response to Undertaking 6, PDF page 1.

81. The Commission agrees that Ms. Hughes' residence, at which the predicted nighttime cumulative sound level is 48.5 dBA, is not an ideal location for the post-construction CSL survey. If a post-construction CSL survey demonstrates compliance at dwellings where noise modelling predicts PSL exceedances (e.g., noise receptors R1, R2, R3 and R4), it is reasonable to assume that noise levels at a more-distant dwelling where modelling predicts PSL compliance are also likely to be compliant.

82. AI indicated that it intends to measure noise emissions from the FMC Power Plant once the project commences operations to verify the effectiveness of mitigation measures. Given that mitigation is crucial for the FMC Power Plant to achieve compliance with the nighttime PSL, the Commission finds that in this case a study is necessary to characterize sound emissions of dominant sound sources and to verify mitigation measures.

83. Based on the foregoing, approval of the project is subject to the following conditions:

- f. Alberta Health Services shall conduct a post-construction comprehensive sound level survey, including an evaluation of low frequency noise, at receptors R1, R2, R3 and R4. The post-construction comprehensive sound level survey must be conducted under representative conditions and in accordance with Rule 012: *Noise Control*. Alberta Health Services shall file a report summarizing measurements and results of the post-construction comprehensive sound level survey with the Commission within one year of the project's in-service date.
- g. If a post-construction CSL survey demonstrates non-compliance with Rule 012, Alberta Health Services shall conduct an engineering analysis of other potential mitigation measures, including an analysis of the technical feasibility, the construction timeline, and the cost of implementing each mitigation measure. Alberta Health Services shall submit a letter to the Commission summarizing the results of the engineering analysis.
- h. Alberta Health Services shall conduct a post-construction near-field sound level survey at the FMC Power Plant. The near-field survey shall characterize sound emissions from major pieces of sound-generating equipment and evaluate the effectiveness of noise mitigation measures implemented at the FMC Power Plant. Alberta Health Services shall file a report summarizing measurements and results of the post-construction near-field sound level survey with the Commission within one year of the project commencing operations.

4 Other power plant considerations

4.1 Environmental and health concerns

84. In its application filed October 5, 2018, AI included an air quality assessment with a predicted application case of 11 microgram/metre³ (µgrams/m³) for fine particulate matter, which exceeds the Alberta Ambient Air Quality Objectives maximum of 10 µgrams/m³. AI explained that the air quality assessment used stack test measurements from 2014 that AI deemed inaccurate and unreliable.⁷² In response to an information request, AI explained that it had

⁷² Exhibit 23958-X0001, PP Application Report Attachments A through D, PDF page 47.

received correspondence from Alberta Environment and Parks expressing concern with the air quality assessment. To address AEP's concern, AI stated that it would redo stack test measurements.⁷³

85. AI filed a revised air quality assessment as part of its amended October 18, 2019, application, which predicted 9.1 µgrams/m³ for fine particulate matter, achieving the Alberta Ambient Air Quality Objectives. AI also filed correspondence from Alberta Environment and Parks stating it had no further concerns.⁷⁴

86. In its amendment to the application AI filed the results of an electromagnetic field (EMF) survey. In response to Commission counsel, AI's project manager, Nick Pettipas explained that the EMF results were much lower than the maximum recommended dosage by the International Commission on Non-Ionizing Radiation Protection and confirmed that Alberta Health would be willing to repeat the EMF survey post construction if requested by stakeholders.⁷⁵

87. In their joint statement of intent to participate (SIP), Dr. Dang and Ms. Dang expressed health concerns with respect to large power generators and questioned whether there would be an increase in heavy metals and other air pollutants as a result of the expansion.

88. In her SIP, Ms. Hechtenthal submitted that several of her colleagues have developed EMF sensitivity due to illnesses such as Chronic Fatigue Syndrome, Lyme Disease and cancer. Ms. Hechtenthal expressed concern that patients of FMC and surrounding area residents may be adversely affected by increased EMF levels.

4.1.1 Commission findings

89. From an air quality perspective, the Commission accepts that the predicted 9.1 µgrams/m³ for fine particular matter is below the Alberta Ambient Air Quality Objectives maximum of 10 µgrams/m³, and is satisfied that AEP's concerns have been addressed.

90. The Commission is also satisfied that the EMF levels are expected to be much lower than the maximum dosage recommended by the International Commission on Non-Ionizing Radiation Protection. As a condition of approval, the project is subject to the following:

- i. If requested by a stakeholder, Alberta Health Services must repeat the electromagnetic field survey post-construction. Alberta Health Services must notify the Commission of the request and provide the electromagnetic field survey to the stakeholder and others that may request it.

4.2 Purpose of the expansion

91. AI explained that the primary purpose of the cogeneration expansion project is to meet steam and heat requirements for the FMC. Mr. Pettipas stated that while the expansion project would be able to help meet the load of the future cancer centre, AI would have applied for approval of the project regardless of the cancer centre load. Mr. Pettipas explained that there is

⁷³ Exhibit 23958-X0032, PDF pages 9 and 10.

⁷⁴ Exhibit 23958-X0046, Attachment I - Alberta Environment and Parks Letter, PDF page 2.

⁷⁵ Transcript Volume 1, pages 60-61, lines 1-22.

currently a temporary rented boiler in the existing power plant that is providing steam and heat that will be removed once the expansion project is built.

92. When questioned about the timing of the project by Ms. Hughes, Allan Roles of Alberta Health stated that while the cancer centre is expected to open in 2023, its construction and therefore the load associated with it will begin in 2020 and that the load will be significant by 2021.⁷⁶

93. In his SIP, Mr. Beaton asked the Commission to consider whether having a facility of the magnitude of the expansion project would be precedent-setting for other large businesses to construct similar projects in residential areas. Mr. Beaton also questioned whether it was appropriate for a health care provider to build and operate its own power plant rather than purchase power from ENMAX, and requested that the Commission cap the amount Alberta Health would be able to export to the AIES.

94. Ms. Hughes suggested that AI should be required to give the Commission the assurance that the expansion is necessary in the near future for specific FMC activity, and is neither larger than required, nor earlier than necessary to provide a revenue generating opportunity to AI from selling power instead of meeting the reasonable needs of FMC. Ms. Hughes also requested that other alternatives to expanding the power plant that were considered to meet FMC needs be described, including the rationale for rejection.

4.2.1 Commission findings

95. When the AUC considers and makes decisions about the siting of power plants it considers concerns such as potential property impacts, environmental impacts, and noise, among other issues, however it does not determine if and where in the province power generation should be sited as electric generation is deregulated. Because electric generation is deregulated, the Commission cannot assess the need for a power plant. While the Commission acknowledges Mr. Beaton's concern about other power plants being constructed in or near residential areas, the Commission is required to separately consider the individual impacts of each power plant for which an application is filed.

96. The interveners' concerns about the sizing and use of the power plant are addressed below in Section 5.

5 Connection order

5.1 Background

97. Alberta Health has approval to connect the existing FMC to ENMAX's distribution system pursuant to Order U2002-983. However, as a condition under Exemption U2002-982, no electric energy produced by the power plant may flow back to ENMAX's distribution system.

98. In the existing configuration, the generators are operated in a manner such that they do not export electricity to the AIES. Reverse power relays and other protection equipment disconnect the FMC Power Plant when power generation runs close to exceeding demand. When

⁷⁶ Transcript Volume 1, page 37, lines 7-12.

the disconnect is triggered, the FMC must rely on emergency diesel generators until the connection to ENMAX's distribution system is restored.⁷⁷

99. As part of its power plant expansion application, AI also applied for an amendment that would allow for the export of excess electricity from the power plant to ENMAX's distribution system. AI explained that the intention of the connection order was not to sell excess electricity but to allow the power plant to operate at full capability when steam and heat demands are high without the potential of triggering the reverse power relays and other protection equipment.

5.2 Views of Alberta Infrastructure

100. AI submitted that an amendment to its existing interconnection order to allow for the occasional export of electricity would be compliant with the applicable statutory scheme. AI stated that it intends to use the power generated by the FMC Power Plant for its own use, on its own property, such that any electric energy generated is exempt from the requirements of the *Electric Utilities Act* as contemplated under Subsection 2(1)(b) of the *Electric Utilities Act*.

101. AI identified several projects approved by the Commission that allow an applicant to sell excess generation to the AIES through the local distribution owner. Specifically, AI noted that the University of Calgary owns and operates a 12-MW cogeneration facility whose primary purpose is to provide heat and electricity to the various buildings on campus and that the university sells excess electricity through the grid. AI noted that this was similar to approvals received by each of the Town of Okotoks for a solar project, the City of Calgary for the Bonnybrook Power Generation and Heating Plant and ENMAX Generation Portfolio Inc. for its downtown district energy centre.

102. In further support of Alberta Health's intention to use the electricity produced by the FMC Power Plant solely for its own use, Alberta Health committed to providing any excess electricity without receiving payment.⁷⁸

103. AI explained that the reason for the proposed connection is to provide reliability and increase efficiency. Mr. Roles explained that when the protection equipment is triggered to disconnect, the hospital suffers a number of issues including medical equipment failure.⁷⁹ As such, while the existing generators are operated with an 'import buffer' to limit the chance of tripping, the efficiency of the generators are reduced. Alberta Health indicated that efficiencies gained by allowing the export of electricity and approval of the power plant expansion would result in approximately \$5.3 million per year in savings for Alberta Health.

104. Mr. Roles of Alberta Health indicated that the Calgary Cancer Centre load will come online in 2020, and that by 2021, it is expected that two separate distribution feeders would be required to supply the FMC. The existing generators will supply electricity to part of the FMC and the expansion project will supply electricity to other parts. This will split the electrical load, requiring Alberta Health to maintain two import buffers to avoid inadvertent exports if the connection and ability to export is not approved.

105. Mr. Roles also indicated that if the import buffers were eliminated, Alberta Health would be able to produce 91 per cent of the electricity required by the FMC, compared to

⁷⁷ Exhibit 23958-X0010, Letter to AUC, PDF page 6, January 3, 2019.

⁷⁸ Transcript Volume 1, page 91, lines 2-8.

⁷⁹ Transcript Volume 1, pages 73-74, lines 17-7.

74 per cent if the import buffers were required. Alberta Health expects that it would export 7,600 megawatt-hours (MWH) per year while importing 17,300 MWH, making it a net importer on an annual basis.

106. Mr. Roles added that the ability to export to the AIES would also reduce the possibility of unplanned, loud high-pressure steam releases.

5.3 Statutory scheme

107. Whether a market participant can generate electricity for the purposes of self-supply and export to the AIES is informed by sections 101, 18 and 2 of the *Electric Utilities Act* and Subsection 2(f) of the *Fair, Efficient and Open Competition Regulation*.

108. In summary, Subsection 101(1) of the *Electric Utilities Act* requires a person wishing to obtain electricity for use on a property to make arrangements for the purchase of electric distribution service from the owner of the electric distribution system in whose service area the property is located.

109. Subsection 18(2) of the *Electric Utilities Act* and Subsection 2(f)(i) of the *Fair, Efficient and Open Competition Regulation* give direction on how electricity generated in Alberta can be transacted (exported) through the AIES and the power pool. Subsection 18(2) states that all electric energy entering or leaving the AIES must be exchanged through the power pool of Alberta unless otherwise provided by regulation.

110. Subsection 2(f) of the *Fair, Efficient and Open Competition Regulation* complements Subsection 18(2) and states that subject to certain exceptions, not offering to the power pool all electric energy from a generating unit that is capable of operating is conduct that does not support the fair, efficient and openly competitive operation of the electricity market. One of the exceptions to Subsection 2(f) is electric energy used on property for the market participant's own use.

111. Lastly, Subsection 2(1) of the *Electric Utilities Act* exempts self-supply from the operation of the act, including sections 18 and 101. Subsection 2(1)(b), which sets out the "self-supply exemption," states:

2(1) This Act does not apply to

(b) electric energy produced on property of which a person is the owner or a tenant, and consumed solely by that person and solely on that property;

5.4 Commission findings

112. In Decision 23418-D01-2019, the Commission considered whether the statutory scheme allows a market participant to generate electricity for the purposes of self-supply and export to the AIES. For the reasons set out in paragraphs 75 to 102 of that decision, the Commission found that the statutory scheme does not allow for such conduct except in specific circumstances:

...the Commission is satisfied that the statutory scheme expressly authorizes the owners of industrial systems and micro-generators to self-supply and transact any electric energy that is in excess of their own use through the interconnected electric system. Absent from the statutory scheme, however, is any express authorization for a party that relies upon

the exemption in subsection 2(1)(b) to export electric energy that is in excess of the person's own use on the property. Given that such express authorization exists for the other two self-supply mechanisms, the Commission considers its omission for subsection 2(1)(b) operations to be intentional and reflective of the drafter's intent to require that all the electricity produced on site be consumed on site.⁸⁰

113. While the Commission recognizes that there are several benefits to allowing Alberta Health to export electricity from the FMC Power Plant and its expansion project, it does not have the authority to approve a connection order that would allow for the self-supply and export of electricity as requested by Alberta Health.

114. The Commission also acknowledges that although this is not consistent with its past practice prior to the issuance of Decision 23418-D01-2019, there is a current and ongoing consultation on the issue of self-supply and export. As noted on its external website, "[t]he AUC received 33 thoughtful submissions in response to Bulletin 2019-16, the majority of which favoured Option 3: Unlimited self-supply and export. While the Commission does not have the authority to amend the relevant legislation, it has shared these submissions with the Department of Energy. In response, the Department of Energy requested that the Commission proceed with a second round of consultation focused on the market and tariff implications of unlimited self-supply and export."⁸¹

115. Given the Department of Energy's request to continue consultation and the potential for amendments to the applicable legislation, rather than deny the connection order, the Commission will place the connection application in abeyance and will provide direction to Alberta Health and AI once consultation is finalized.

6 Conclusion

116. For the reasons set out herein and subject to all the conditions outlined in this decision (which have been listed in Appendix B), the Commission finds that Alberta Infrastructure, on behalf of Alberta Health, will satisfy the requirements of Rule 007 and Rule 012, and that in accordance with Section 17 of the *Alberta Utilities Commission Act*, approval of the power plant expansion is in the public interest having regard to the social, economic, and other effects of the project, including its effect on the environment.

117. For the reasons outlined in this decision, the Commission find that the interconnection does not meet the statutory scheme and places the application for interconnection to the AIES in abeyance until further notice.

⁸⁰ Decision 23418-D01-2019: EPCOR Water Services Inc. – E.L. Smith Solar Power Plant, Proceeding 23418, Application 23418-A001, February 20, 2019, paragraph 101.

⁸¹ <https://engage.auc.ab.ca/Self-SupplyAndExport>.

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118. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approves Application 23958-A001 and grants Alberta Health Services the approval set out in Appendix 1 – Power Plant Approval 23958-D02-2020 – May 7, 2020 (Appendix 1 will be distributed separately).

Dated on May 7, 2020.

Alberta Utilities Commission

(original signed by)

Anne Michaud
Vice-Chair

(original signed by)

Kristi Sebalj
Commission Member

Appendix A – Oral hearing – registered appearances

Name of organization (abbreviation) Name of counsel or representative	Witnesses
Alberta Infrastructure and Alberta Health Services A. Ross D. Johnson	R. Roth N. Pettipas A. Roles Y. Wong P. Wierzba T. Joyal D. Hildebrand
Krista Hughes, in her own stead	K. Hughes

Appendix B – Summary of Commission conditions of approval

This section is intended to provide a summary of all conditions of approval for the convenience of readers. The conditions have been split into those that require follow-up information to be submitted to the Commission, and those that do not. In the event of any difference between the directions and conditions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

The following are conditions of Decision 23958-D01-2020 that require follow-up with the Commission, and will be tracked as conditions of Power Plant Approval 23958-D02-2020 using the AUC's eFiling System:

- During project construction, Alberta Health Services shall implement the mitigation measures (M_{NIA1} through M_{NIA11}) presented in Table 1 of this decision, and measures M_{IR5} and M_{IR8} presented in Table 3 of this decision. On or before the date the project commences operations, Alberta Health Services shall file a letter with the Commission confirming implementation of these mitigation measures.
- On the date the project commences operations, Alberta Health Services shall file a letter with the Commission confirming the date of installation of a steam bypass system in the expanded power plant.
- Three years after the project has commenced operations, Alberta Health Services shall file a letter with the Commission that sets out data from the records of steam releases for the first three years of operation, including the frequency, duration and cause of each steam release, and indicates whether the release was planned or unplanned. The letter must also summarize any noise complaints related to steam releases from the first three years of operation.
- Alberta Health Services shall conduct a post-construction comprehensive sound level survey, including an evaluation of low frequency noise, at receptors R1, R2, R3 and R4. The post-construction comprehensive sound level survey must be conducted under representative conditions and in accordance with Rule 012: *Noise Control*. Alberta Health Services shall file a report summarizing measurements and results of the post-construction comprehensive sound level survey with the Commission within one year of the project's in-service date.
- If a post-construction CSL survey demonstrates non-compliance with Rule 012, Alberta Health Services shall conduct an engineering analysis of other potential mitigation measures, including an analysis of the technical feasibility, the construction timeline, and the cost of implementing each mitigation measure. Alberta Health Services shall submit a letter to the Commission summarizing the results of the engineering analysis.
- Alberta Health Services shall conduct a post-construction near-field sound level survey at the FMC Power Plant. The near-field survey shall characterize sound emissions from major pieces of sound-generating equipment and evaluate the effectiveness of noise mitigation measures implemented at the FMC Power Plant. Alberta Health Services shall file a report summarizing measurements and results of the post-construction near-field

sound level survey with the Commission within one year of the project commencing operations.

- If requested by a stakeholder, Alberta Health Services must repeat the electromagnetic field survey post-construction. Alberta Health Services must notify the Commission of the request and provide the electromagnetic field survey to the stakeholder and others that may request it.

The following are conditions of Decision 23958-D01-2020 that do not require follow-up with the Commission:

- Alberta Health Services shall send a notice to all residences located within 1.5 kilometres of the FMC Power Plant boundary indicating the planned time and duration of the burn-in procedure for the steam bypass system, and providing contact information for any concerned residents,. This notice shall be sent at least 30 days before the start of the burn-in procedure.
- Alberta Health Services shall upgrade the ventilation system in the existing powerhouse prior to the in-service date of the proposed power plant and subsequently ensure that doors and openings in the existing powerhouse and the project building are closed during normal operations.