



Northstone Power Corp.

Removal of the Nighttime Restriction and Implementation of Noise Mitigation at the Elmworth Generation Station

June 7, 2024

Alberta Utilities Commission

Decision 28897-D01-2024

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Implementation of Noise Mitigation at the Elmworth Generation Station

Proceeding 28897

Application 28897-A001

June 7, 2024

Published by the:

Alberta Utilities Commission

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1 Decision summary

1. In this decision, the Alberta Utilities Commission approves an application from Northstone Power Corp. to: (i) remove an existing approval condition that prohibits nighttime operation of the Elmworth Generation Station power plant; and (ii) implement noise mitigation that will reduce sound levels so that noise associated with future equipment modifications would remain compliant with Rule 012: *Noise Control*.

2 Application

2. Northstone Power Corp., pursuant to Approval 28306-D02-2023,¹ is the operator of the Elmworth Generation Station power plant (EGS or the project), which is located approximately 52 kilometres west-southwest of Grande Prairie, Alberta. There are other energy-related facilities in the project area, which include the ATCO Elmworth 731S Substation, Ferus Elmworth LNG Plant, and Cenovus Elmworth Gas Plant (the baseline case facilities). The Elmworth 731S Substation is regulated by the AUC and the other two baseline case facilities are regulated by the Alberta Energy Regulator (AER).

3. Northstone's Power Plant Approval stipulated that the project shall consist of two engine/generator sets, units 9 and 10, with a total generating capability of 18.7 megawatts (MW). The approval is subject to a condition that "Northstone shall not operate between 11 p.m. and 7 a.m. unless and until Northstone obtains approval from the Commission permitting otherwise." This condition will be referred to as "the nighttime restriction" in this decision.

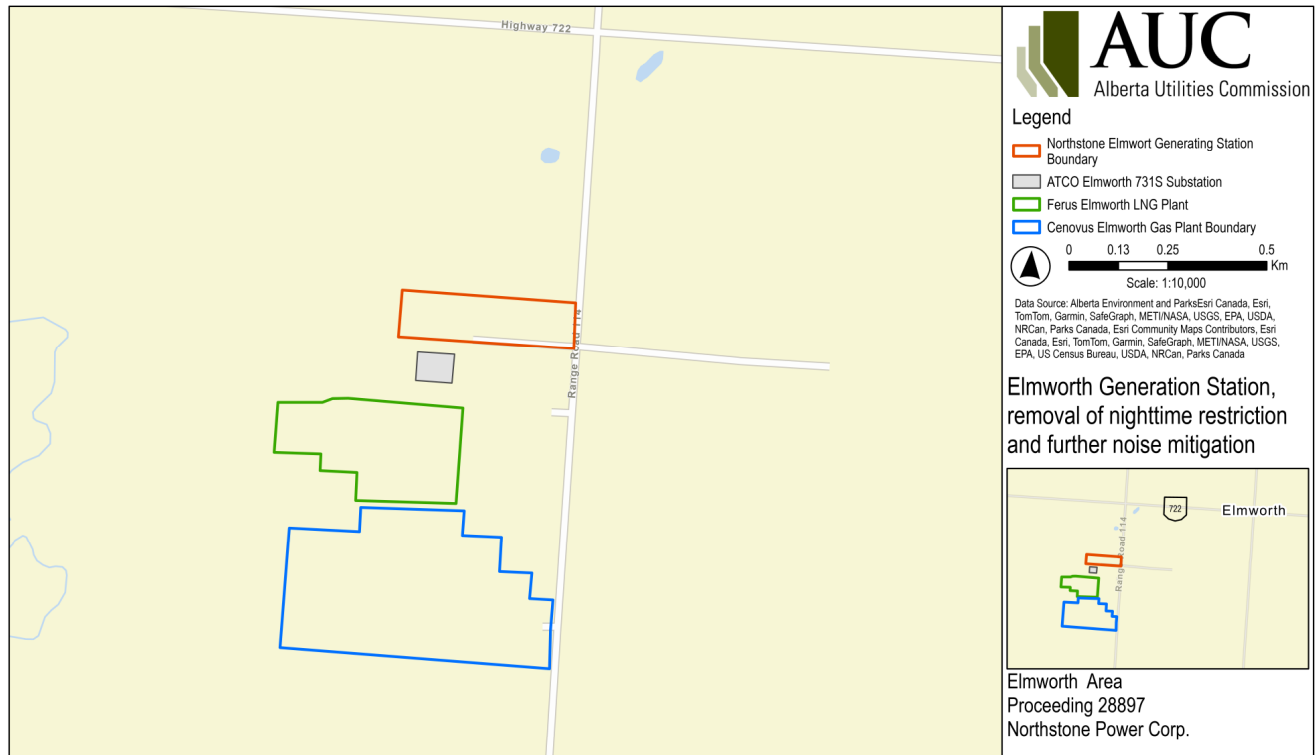
4. The current application from Northstone consists of two components:

- Request for removal of the nighttime restriction condition for the EGS.
- If the nighttime restriction is removed, approval to alter the EGS by implementing additional mitigation for Unit 9, so that noise associated with future equipment modifications would remain compliant with Rule 012.

5. The EGS and baseline case facilities are shown on the map in Figure 1.

¹ Power Plant Approval 28306-D02-2023, Proceeding 28306, Application 28306-A001, July 17, 2023.

Figure 1. Elmworth Generation Station area



6. Northstone indicated that in Decision 28306-D01-2023,² the Commission approved Northstone to alter the EGS by salvaging and removing the three 3-MW Cooper Bessemer engine/generator units. Northstone confirmed that the Cooper Bessemer engine/generator units were retired; subsequently, the total number of operational generation units at the EGS have been reduced from five to two, and the total generating capability of the EGS has decreased from 27.7 MW to 18.7 MW.³

7. Northstone explained that removal of the nighttime restriction is being requested because the power plant is expected to comply with Rule 012 in its current configuration, but the nighttime restriction is causing a significant financial loss, because “Pool prices during the night-time hours have been at record highs and are expected to continue above historical levels.”⁴

3 Discussion and findings

8. In the following sections, the Commission provides its findings on the application. The Commission begins with a consideration of whether removal of the nighttime restriction for operation of the EGS is in the public interest. This includes considering compliance with

² Decision 28306-D01-2023: Northstone Power Corp. – Salvage Works and Installations at the Elmworth Generation Station, Proceeding 28306, Application 28306-A001, July 17, 2023.
³ Exhibit 28897-X0003, Thermal Power Plant Application for Northstone Power Corp Removal of Night Time Restrictions, PDF page 1.
⁴ Exhibit 28897-X0003, Thermal Power Plant Application for Northstone Power Corp Removal of Night Time Restrictions, PDF page 4.

Rule 012, the adequacy of the participant involvement program (PIP), and the potential environmental effects. The Commission then considers if altering the EGS by implementing additional mitigation to accommodate future changes is in the public interest.

3.1 Removal of the nighttime restriction

9. In this section, the Commission approves Northstone's request for removal of the nighttime restriction, imposes conditions of approval, and summarizes the Commission's analysis and findings.

10. Northstone retained Acoustical Consultants Inc. (ACI) to conduct a noise impact assessment (NIA) to assess nighttime compliance with Rule 012 for the EGS.⁵ ACI identified eight residences within 1.5 kilometres of the EGS and/or nearby baseline case facilities as receptors (called Residence 1 and residences 4 through 10). In accordance with Rule 012, ACI determined that the EGS has a nighttime permissible sound level (PSL) of 40 dBA at these receptors. The NIA predicted the EGS can operate in compliance with Rule 012 during the nighttime period.

11. However, the NIA indicated that baseline sound levels (i.e., sound levels absent the noise contribution from the EGS) are already greater than 40 dBA at residences 4 through 9. As such, the NIA demonstrated EGS's compliance at these receptors based on the no net increase approach specified in Section 2.9 of Rule 012.

12. When deciding on Northstone's request for removal of the nighttime restriction, the Commission must decide:

- whether the EGS will comply with Rule 012 during the nighttime; and
- whether to allow the EGS to operate during the nighttime, even though several receptors have elevated baseline sound levels (i.e., baseline sound levels greater than 40 dBA).

13. In addition to noise level compliance, the Commission has also considered whether stakeholders have outstanding concerns and whether the nighttime operation will result in adverse effects to the environment.

14. The above issues are discussed in detail in the following subsections of this decision.

3.1.1 Project compliance with Rule 012

15. Compliance of the EGS with Rule 012 during the nighttime is important to the Commission. The Commission must decide whether the EGS will comply with Rule 012 during the nighttime if the nighttime restriction is removed.

16. Rule 012 typically requires an NIA to predict compliance by comparing cumulative sound levels to applicable PSLs at receptors. For each receptor, the cumulative sound level is calculated as the sum of the baseline sound level and the noise contribution from the EGS. The baseline sound level is the sum of noise levels from the baseline case facilities and ambient sound level.

⁵ Exhibit 28897-X0006, Attachment 3 Northstone Elmworth Night-Time NIA.

17. As a part of the NIA, ACI conducted a comprehensive sound level (CSL) survey at two nearby residences (residences 1 and 4) to determine the existing sound levels without the EGS operating during the nighttime. The measured CSL at Residence 1 was less than 40 dBA, but the measured CSL at Residence 4 was greater than 40 dBA. ACI indicated that for both monitoring locations, the most significant sound source was the AER-regulated Elmworth Gas Plant, located approximately 560 metres south of the EGS.

18. ACI developed a computer model of the baseline case to predict baseline sound levels for all receptors. The baseline case model was “calibrated” to match the measured CSLs at residences 1 and 4 (i.e., these measured CSLs are equivalent to baseline sound levels). The baseline case model indicated that baseline sound levels are compliant with 40 dBA at residences 1 and 10 but exceed 40 dBA at residences 4 through 9.

19. After adding the predicted noise contribution from operation of the EGS, nighttime cumulative sound levels at residences 1 and 10 remain compliant with 40 dBA.

20. For residences 4 through 9, whose baseline sound levels are greater than 40 dBA, ACI used the no net increase approach described in Section 2.9 of Rule 012 to assess compliance for nighttime operation of the EGS.

21. Section 2.9 of Rule 012 states:

In cases where an applicant is proposing development of a facility where it is not practical or efficient to characterize baseline sound levels, the applicant may assume baseline compliance with the permissible sound level and use no net increase to justify that the proposed facility will have a negligible impact on cumulative sound levels. However, the predicted cumulative sound level must not exceed the permissible sound level by more than 0.4 dB.

22. In accordance with Rule 012, ACI first assumed that baseline sound levels at these receptors are exactly equal to 40 dBA, and then added the predicted noise contribution from the EGS to calculate cumulative sound levels. Using this technique, ACI demonstrated that the maximum difference between cumulative sound levels and baseline sound levels is 0.2 dBA, which is less than the 0.4 dBA no net increase threshold set out in Rule 012. In other words, ACI asserted that nighttime operation of the EGS would result in no net increase to baseline case sound levels.

23. The Commission finds the NIA properly applied the no net increase approach in Rule 012 to justify that nighttime operation of the EGS would have a negligible impact on cumulative sound levels at residences 4 through 9.

24. The Commission finds that Northstone’s NIA meets the requirements of Rule 012, and the Commission accepts the NIA’s conclusion that the EGS would comply with Rule 012 if permitted to operate during the nighttime hours.

3.1.2 Elevated baseline sound levels

25. As noted above, baseline sound levels at several receptors are greater than 40 dBA during the nighttime. In the previous section, the Commission concluded that nighttime operation of the EGS would comply with Rule 012 via no net increase. However, the Commission must also

decide whether to allow the EGS to operate during the nighttime given the elevated baseline sound levels in the area.

26. In the NIA, ACI explained that the AER-regulated Elmworth Gas Plant is the dominant sound source at residences 4 through 9. ACI noted that the Elmworth Gas Plant was constructed prior to 1988, and AER Directive 038: *Noise Control* allows sound levels for pre-1988 facilities to exceed the standard PSLs (also known as “deferred facility status”), and that “...although not compliant with the AUC Rule 012 PSLs, it is understood that the noise levels from the [Elmworth] Gas Plant are compliant with the regulatory criteria under which the [Elmworth] Gas Plant operates.”⁶

27. The NIA included a noise source order ranking table for each receptor. These tables indicated that noise contribution from the EGS at residences 4 through 9 is predicted to range from 22.5 dBA to 25.5 dBA, while the noise contribution from the Elmworth Gas Plant ranges from 40.8 dBA to 50.7 dBA. Therefore, the Commission is satisfied with Northstone’s explanation that elevated baseline sound levels at these receptors result from the dominant sound of the Elmworth Gas Plant and not from the EGS.

28. With respect to pre-1988 facilities, Directive 038 states that “Facilities constructed and in operation before October 1988 are considered to be deferred facilities, meaning they do not have to demonstrate compliance with the PSL calculated using section 2.1 in the absence of a complaint.” In addition, Directive 038 indicates that if a noise complaint is filed against a “deferred facility”, then the PSL as determined based on Section 2.1 of Directive 038 (e.g., 40 dBA nighttime) would apply.

29. The Commission issued an information request to Northstone seeking information about applicable PSLs for the Elmworth Gas Plant and its compliance status with respect to Directive 038. Northstone searched the AER’s website for references to complaints and confirmed that there was no posted information related to noise complaints against the Elmworth Gas Plant.⁷

30. The Elmworth Gas Plant is regulated by the AER and is required to comply with the AER’s noise directive, Directive 038. Since there is no publicly available information indicating that the AER has made a decision about applicable PSLs for the Elmworth Gas Plant or its compliance status with respect to Directive 038, the Commission considers it reasonable to assume that the AER maintains this gas plant’s “deferred facility status” in the context of Directive 038, such that PSLs as determined based on Section 2.1 of Directive 038 (e.g., 40 dBA nighttime PSL) do not apply to this facility.

31. Given the lack of information to assess baseline case compliance, the Commission finds Northstone’s NIA reasonably assumed baseline sound levels to be exactly equal to 40 dBA and appropriately used the no net increase approach to assess compliance with Rule 012.

32. Based on the above analysis, the Commission considers it reasonable to allow the EGS to operate during the nighttime, even though some receptors have elevated baseline sound levels.

⁶ Exhibit 28897-X0006, Attachment 3 Northstone Elmworth Night-Time NIA, PDF page 4.

⁷ Exhibit 28897-X0023, Responses to AUC Information Request Round 1, PDF page 4.

3.1.3 Other factors considered

33. To determine if the removal of the nighttime restriction is in the public interest, the Commission also considered two other factors: the adequacy of the PIP and the potential effects on the environment of operating the facility during the nighttime.

34. Northstone conducted a PIP and submitted a PIP summary for the application. Specifically, Northstone mailed a project-specific information package to stakeholders within 2,000 metres of the project and conducted in-person consultation with stakeholders within 800 metres of the project.

35. During the PIP, Northstone identified three residents that expressed concerns about the removal of the nighttime restriction and objected to any increase to nighttime cumulative sound levels from the industrial area. Northstone's consultation with these residents is summarized below.⁸

- Northstone contacted these residents through multiple means, including registered mail, email, phone calls and/or in-person meetings.
- Northstone delivered a copy of NIA to the residents, as requested, and responded to their noise questions.
- Northstone explained to these residents that the EGS is not the dominant sound source at their residences and the nighttime operation of the EGS would comply with Rule 012.
- Northstone also explained that it planned to implement mitigation measures to reduce noise from the EGS.

36. Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines* states that "It is paramount that effective communications take place between the applicant and all potentially affected persons including Indigenous groups, the public, local authorities, agencies, industry and government so that concerns may be raised, properly addressed, and if possible, resolved."⁹ The Commission notes that Northstone made reasonable efforts to inform stakeholders of the project, address their concerns, and explain potential mitigation. As such, the Commission accepts that Northstone's PIP was conducted in accordance with Rule 007.

37. The Commission issued a notice of application to confirm whether stakeholders still had concerns about potential noise impacts related to the EGS's nighttime operations. The Commission did not receive any submissions in response to the notice. Therefore, the Commission is satisfied that there are no outstanding concerns.

38. The Commission considers that the requested change would result in negligible impacts from an environmental perspective, as the power plant is pre-existing and operational, and

⁸ Exhibit 28897-X0003, Thermal Power Plant Application for Northstone Power Corp Removal of Night Time Restrictions, PDF page 10; Exhibit 28897-X0012, Attachment 9 Public Disclosure and Consultation Summary.

⁹ Rule 007, PDF page 121.

air emissions from nighttime operation are the only element relative to the environment that is changing.

39. The air quality assessment predicted that the EGS will not cause exceedances of the ambient air quality objectives for all relevant concentrations (NO₂, PM_{2.5} and CO). Therefore, the Commission finds that the operation of the EGS for an additional eight hours per day (i.e., removal of the nighttime restriction) will not result in adverse effects to the environment.

3.1.4 Conclusion on removal of the nighttime restriction

40. In summary, the Commission approves Northstone's request for removal of the nighttime restriction for the EGS for the following reasons:

- The AER-regulated Elmworth Gas Plant is the dominant sound source at residences where baseline sound levels are elevated (i.e., residences 4 through 9). Because there is no publicly available information about the Elmworth Gas Plant's compliance with Directive 038, the Commission assumes the AER considers it to be a "deferred facility" in the context of Directive 038, such that the 40 dBA nighttime PSL does not apply.
- Northstone predicted the EGS will comply with Rule 012 during nighttime operation. In particular, the noise impact of the EGS at residences 4 through 9 is predicted to be negligible relative to the noise impact of the Elmworth Gas Plant. The difference in sound levels with and without nighttime operation of the EGS is effectively zero (i.e., no net increase).
- Even if baseline case facilities, including the Elmworth Gas Plant, were required to comply with 40 dBA (a more restrictive threshold than is applied to "deferred facilities"), noise from nighttime operation of the EGS would remain compliant with the conventional 40 dBA nighttime PSL.
- Stakeholders have no outstanding concerns about the project.
- No adverse environmental effects are expected since the EGS will continue to comply with ambient air quality objectives if operated in the nighttime period.

41. Although the EGS is expected to be compliant with Rule 012 during the nighttime and the Commission did not receive any submissions in response to its notice of application, given elevated baseline sound levels in the area, the Commission imposes the following condition of approval to ensure any complaints about changes to cumulative sound levels once the EGS commences nighttime operations are addressed appropriately.

- a. If Northstone Power Corp. receives any noise complaint about the Elmworth Generation Station and/or nearby baseline case facilities, Northstone shall inform the licensee(s) of relevant third-party baseline case facilities, the Alberta Utilities Commission and the Alberta Energy Regulator. Northstone shall also submit a report to the Commission detailing the complaint and its response to the complaint, including whether Northstone has implemented any mitigation, within three months of receiving the noise complaint.

42. The above condition will alert the Commission to any noise complaints once the EGS commences nighttime operations. In response to a noise complaint, the AUC may initiate an

investigation, either alone or jointly with the AER. If the investigation determines that the EGS is the facility responsible for the complaint, the Commission may require Northstone to implement mitigation measures and/or restore the nighttime restriction.

43. In addition to reporting noise complaints to the Commission in a timely manner, the Commission also requires Northstone to file a report confirming whether it has received any complaints. Therefore, the Commission imposes the following condition of approval.

- b. After the first year of nighttime operations, Northstone Power Corp. shall file a report with the Commission confirming it has received no noise complaints or identifying any noise complaints about the Elmworth Generation Station and/or nearby baseline case facilities. Northstone shall file the report no later than 13 months after the removal of the nighttime restriction.

44. The NIA included a CSL survey for baseline case facilities. The Commission has considered if it is necessary to order another CSL survey once the EGS commences nighttime operations. Based on the information on the record, the Commission acknowledges that several receptors have elevated baseline sound levels, a third-party facility dominates sound levels at these receptors, and the EGS will comply with Rule 012 during the nighttime based on the no net increase approach. The Commission does not believe another CSL survey would provide useful information beyond what has already been filed as part of the current application. Therefore, the Commission does not require Northstone to conduct another CSL survey at the current time.

3.2 Noise mitigation for Unit 9

45. In addition to its request for removal of the nighttime restriction, Northstone proposed to implement noise mitigation measures to the EGS, so that it will have “noise room” for future equipment modifications.

46. Northstone retained ACI to conduct a noise assessment for the proposed mitigation measures.¹⁰ ACI submitted that noise mitigation efforts were focused on Unit 9’s aerial coolers and exhaust stack, because these are main noise sources at the EGS. Northstone proposed the following mitigation measures:

- Replacing the aerial coolers for Unit 9 with a new bank of radiator/fan units.
- Replacing the exhaust silencer for Unit 9 to reduce noise levels from the exhaust stack.

47. ACI indicated that the goal of the above mitigation measures was to reduce noise emissions from Unit 9 to a level consistent with noise emissions from Unit 10. Northstone submitted that once the proposed mitigation measures have been implemented, noise levels from the EGS would be reduced by up to 3.7 dBA at receptors.

48. The Commission is satisfied that Northstone adequately assessed the noise reduction at the EGS from the proposed mitigation measures and approves Northstone’s proposal to implement noise mitigation for Unit 9. Northstone aims to complete the mitigation measures by December 31, 2024. Therefore, the Commission imposes the following condition of approval.

¹⁰ Exhibit 28897-X0007, Attachment 4 Northstone_Elmworth_G9_Noise_Mitigation.

- c. Northstone Power Corp. shall implement noise mitigation measures to Unit 9 as proposed in the application, or alternative mitigation measures that achieve or exceed the noise reduction described in the application, no later than December 31, 2024. Northstone shall file a letter with the Commission that details the mitigation measures it has implemented, no later than January 31, 2025.

49. If Northstone considers any future modifications that may increase noise levels, the Commission requires Northstone to file an amendment application. Therefore, the Commission imposes the following condition of approval.

- d. Northstone Power Corp. shall file an amendment application with the Commission for any future equipment modifications that may increase noise levels.

4 Conclusion

50. The Commission finds that the application has satisfied the information requirements of Rule 007 and Rule 012. For the reasons outlined in the decision and subject to the conditions of approval enumerated herein, the Commission approves the application in accordance with Section 17 of the *Alberta Utilities Commission Act*.

5 Decision

51. Pursuant to sections 11 and 19 of the *Hydro and Electric Energy Act*, the Commission approves Application 28897-A001 and grants Northstone Power Corp. the approval set out in Appendix 1 – Power Plant Approval 28897-D02-2024 to alter and operate the Elmworth Generation Station with no nighttime operation restriction. Appendix 1 will be distributed separately.

Dated on June 7, 2024.

Alberta Utilities Commission

(original signed by)

Dennis Frehlich
Acting Commission Member

Appendix A – Summary of Commission conditions of approval in the decision

This section is intended to provide a summary of all conditions of approval specified in the decision for the convenience of readers. Conditions that require subsequent filings with the Commission will be tracked as directions in the AUC's eFiling System. In the event of any difference between the 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 28897-D01-2024 that require a subsequent filing with the Commission:

- b. After the first year of nighttime operations, Northstone Power Corp. shall file a report with the Commission confirming it has received no noise complaints or identifying any noise complaints about the Elmworth Generation Station and/or nearby baseline case facilities. Northstone shall file the report no later than 13 months after the removal of the nighttime restriction.
- c. Northstone Power Corp. shall implement noise mitigation measures to Unit 9 as proposed in the application, or alternative mitigation measures that achieve or exceed the noise reduction described in the application, no later than December 31, 2024. Northstone shall file a letter with the Commission that details the mitigation measures it has implemented, no later than January 31, 2025.

The following are conditions of Decision 28897-D01-2024 that may or do not require a subsequent filing with the Commission:

- a. If Northstone Power Corp. receives any noise complaint about the Elmworth Generation Station and/or nearby baseline case facilities, Northstone shall inform the licensee(s) of relevant third-party baseline case facilities, the Alberta Utilities Commission and the Alberta Energy Regulator. Northstone shall also submit a report to the Commission detailing the complaint and its response to the complaint, including whether Northstone has implemented any mitigation, within three months of receiving the noise complaint.
- d. Northstone Power Corp. shall file an amendment application with the Commission for any future equipment modifications that may increase noise levels.