AUC
Alberta Utilities Commission

Enel Alberta Wind Inc.

Castle Rock Ridge Phase II Wind Power Project

June 27, 2019

Alberta Utilities Commission
Decision 23753-D01-2019
Enel Alberta Wind Inc.
Castle Rock Ridge Phase II Wind Power Project
Proceeding 23753
Application 23753-A001

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1 Decision summary

1. In this decision, the Alberta Utilities Commission considers whether to approve an application from Enel Alberta Wind Inc. to amend its existing approval to construct and operate Phase II of the Castle Rock Ridge Wind Power Project and more specifically, to: reduce the number of turbines, change the turbine type, update the turbine locations and make corresponding adjustments to the access roads and collector system (the project).

2. After consideration of the record of the proceeding, for the reasons outlined in this decision and subject to the specified conditions, the Commission approves the project, finding that it is in the public interest having regard to its social, economic, and other effects, including its effects on the environment. In summary, the conditions imposed by this decision require Enel to:

- Implement its updated noise curtailment scenario to achieve compliance with Rule 012: *Noise Control*;
- Conduct post-construction surveys at the receptors identified in this decision; and
- Implement and report on various measures to mitigate the potential environmental and other impacts of the project.

2 Introduction

3. Enel Alberta Wind Inc. is the owner of the Castle Rock Ridge Wind Power Plant (the power plant) operating in the Pincher Creek area[1] pursuant to AUC Approval 22539-D02-2017 (the existing approval). Under the existing approval, the power plant was to be constructed in two phases. Phase I has been constructed and is currently operating. Phase II was to consist of 14 wind turbines of 2.3 megawatts (MW) each with a total capacity of 32 MW.

4. This proceeding was initiated when Enel filed an application with the Commission on July 20, 2018, (Application 23753-A001), seeking approval for amendments to the existing approval for Phase II, described in detail below.

[1] Power Plant Approval 22539-D02-2017, Proceeding 22539, Application 22539-A001, April 13, 2017.

5. The Commission provided notice of the application in accordance with Rule 001: *Rules of Practice*, and received statements of intent to participate from five parties. The Commission determined that none of the parties that filed statements of intent to participate had standing in this proceeding.[2] Accordingly, no hearing was held.

6. The Commission is considering this application under sections 11 and 19 of the *Hydro and Electric Energy Act.* In accordance with Section 17 of the *Alberta Utilities Commission Act*, the Commission must assess whether the project is in the public interest, having regard to its social, economic and environmental effects.

7. The Commission considers that the public interest will be largely met if an application complies with existing regulatory standards, and the project's public benefits outweigh its negative impacts.[3] The Commission must take into account the purposes of the *Hydro and Electric Energy Act* and the *Electric Utilities Act*,[4] and cannot consider the need for the project or whether it is the subject of a renewable electricity support agreement under the *Renewable Electricity Act*. The Commission must also determine whether an applicant has met the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* and Rule 012: *Noise Control.* An applicant must also obtain all approvals required by other applicable provincial or federal legislation.

3 Application

8. The existing approval for Phase II of the power plant, allows for the construction and operation of 14 Enercon E82 2.3-MW turbines. Enel has proposed to amend the configuration of Phase II of the power plant to consist of seven Vestas V136 4.2-MW turbines, for a total nameplate capacity of 29.4 MW. Enel has also proposed different locations for each of the seven turbines from the locations previously approved. The current application also includes associated changes to access roads and to the project's underground collector system.

9. All of the turbines and associated infrastructure for the project are located on privately owned and cultivated land within the previously approved project boundary. The project is located in sections 14 and 15 of Township 7, Range 30, west of the Fourth Meridian and as shown in Figure 1 below. Enel anticipates commercial operation in December 2019.

[2] Exhibit 23753-X0060, AUC letter - Ruling on standing.

[3] EUB Decision 2001-111: EPCOR Generation Inc. and EPCOR Power Development Corporation 490-MW Coal-Fired Power Plant, Application No. 2001173, December 21, 2001, page 4.

[4] *Hydro and Electric Energy Act*, RSA 2000 c H-16, ss 2, 3.

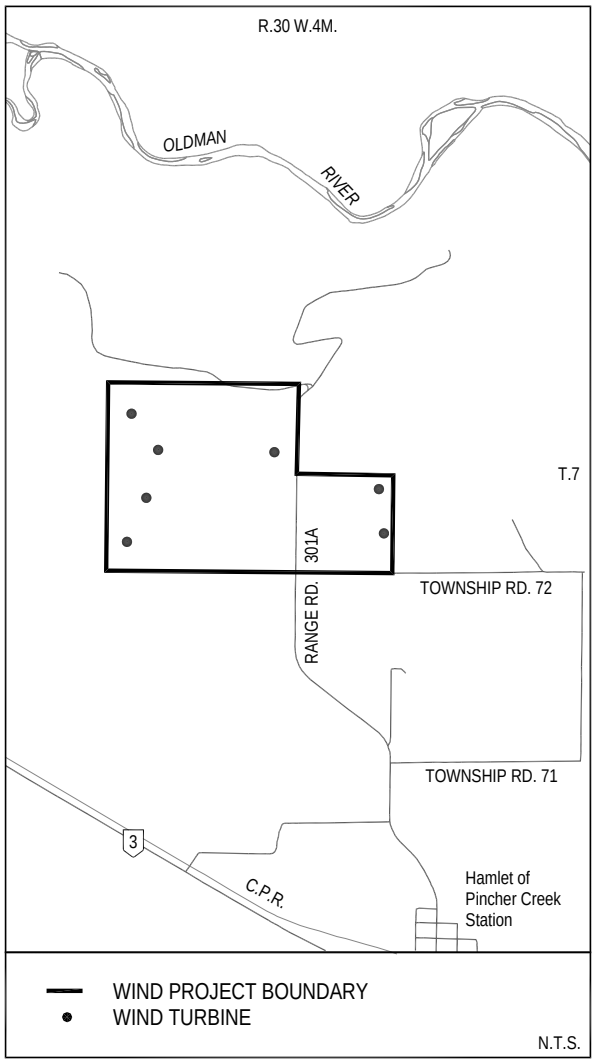

Figure 1: Project layout

10. Enel conducted a participant involvement program to identify and engage stakeholders, and to develop mitigation strategies to address stakeholder concerns where appropriate. Enel stated that it notified all stakeholders within 2,000 metres of the project boundary and consulted with stakeholders within 800 metres. As part of its project-specific information package, Enel provided stakeholders with updated information on the change in turbine locations and type, visual representations of the project, sound levels associated with the turbines and a shadow flicker analysis. Enel's application includes a list of inquiries and concerns raised by stakeholders as well as a description of how it responded and whether the concerns were resolved through its consultation process. Enel stated that it took into account stakeholder issues, concerns and input in the ongoing development of the project, the identification of site-specific constraints and potential mitigation measures to facilitate construction planning.[5]

[5] Exhibit 23753-X0009, Attachment LOE-PP-H PIP Summary Part 1 of 5, PDF page 10.

11. Enel applied for a development permit from the Municipal District of Pincher Creek No. 9. Enel also provided updated project information to NAV CANADA and to Environment and Climate Change Canada, and confirmed that it will notify Transport Canada prior to construction in accordance with its process for wind projects. Enel indicated that to reduce the impacts from turbine lighting, it is pursuing the installation of an aviation detection lighting system that would activate turbine lighting only when approaching aircraft are detected by a radar sensor.[6]

12. Enel retained Stantec Consulting Ltd. to conduct a shadow flicker assessment for the project. The assessment determined that there is the potential for shadow flicker at two residences, with the theoretical maximum occurrence duration of 10 hours and 50 minutes per year. The assessment concluded that shadow flicker for the project should not be a significant issue.

3.1 Noise impacts

Introduction

13. Enel retained SLR Consulting (Canada) Ltd. to conduct a noise impact assessment (NIA) for the project in accordance with Rule 012. The NIA process had three major components which will be collectively referred to as "the project NIA":

- The NIA report filed on July 20, 2018 (the NIA report);[7]
- An investigation of baseline compliance and a study of potential curtailment of wind turbines filed in response to information requests (IRs) arising from the Commission's review of the NIA report;[8] and
- A baseline report filed on May 23, 2019 (the baseline report), which detailed the results of a baseline comprehensive sound level (CSL) survey at seven receptors and proposed an updated curtailment scenario.[9]

14. Each of the seven Vestas V136 4.2-MW wind turbines proposed for the project is capable of operating in standard mode (P01), or in one of two sound optimized modes (S01 and S02). Sound power levels for the proposed wind turbines were established using acoustic specifications provided by the turbine manufacturer. The maximum sound power level for P01 mode is 103.9 dBA, the maximum sound power level for S01 mode is 102.0 dBA, and the maximum sound power level for S02 mode is 99.5 dBA. For the purposes of the NIA report, all seven turbines were modelled in P01 mode during the daytime period and in S02 mode during the nighttime period.[10]

[6] Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 4.

[7] Exhibit 23753-X0002, Attachment LOE-PP-K Updated Noise Impact Assessment.

[8] Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, Exhibit 23753-X0069, EGP CRR2 IR2 Response Document, and Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019.

[9] Exhibit 23753-X0090, Baseline Sound Survey (1).

[10] Exhibit 23753-X0002, Attachment LOE-PP-K Updated Noise Impact Assessment, PDF page 15.

15. The NIA report identified eight occupied dwellings located within approximately 1.5 kilometres of project wind turbines, and treated these dwellings as affected receptors (receptors 4, 5, 8, 9, 10, 11, 12 and 13). In response to Commission IRs,[11] Enel expanded the list of affected receptors to include five other occupied dwellings located within approximately 1.5 kilometres of the existing Castle Rock Ridge Phase I wind turbines (receptors 1, 7, 14, 15 and 16). The location of the 13 affected receptors is shown in Figure 1R "Area Map" of Exhibit 23753-X0075.[12]

16. In accordance with Rule 012, for all affected receptors, permissible sound levels (PSLs) were established as 40 dBA nighttime and 50 dBA daytime, and representative ambient sound levels were assumed to be 35 dBA nighttime and 45 dBA daytime.

17. Baseline sound levels and cumulative sound levels were predicted at all affected receptors. The baseline sound level was calculated as the sum of the assumed ambient sound levels, and the predicted noise contribution from baseline facilities (i.e., existing, approved and proposed regulated facilities with the potential to influence sound levels at affected receptors). The cumulative sound level was calculated as the sum of the baseline sound level and the noise contribution from the project.

18. Enel used a search radius of three kilometres from affected receptors to identify facilities for inclusion in the prediction of baseline sound levels. This resulted in the identification of those AUC-regulated facilities identified in Table 1, below, which were included in the predicted baseline sound levels:[13]

Table 1. Nearby facilities included in NIA

Existing facilities	Sinnott Wind Farm (five Nordex N60 turbines)
	Optimist Wind Project (one Nordex N60 turbine)
	Castle Rock Ridge Phase I Wind Power Plant (33 Enercon E-70 E4 turbines)
	Oldman River 1 Wind Power Plant (two Vestas V80 turbines)
	Oldman 2 Wind Farm (20 Siemens SWT-2.3 turbines)
	Castle Rock Ridge collector substation
	Oldman 2 Substation
	Fidler 312S Substation
Approved but not constructed facilities	Heritage Wind Farm (32 GE 3.63 MW-137 turbines)
	Heritage Substation
Proposed facilities	Riverview Wind Power Plant (28 Vestas V136-4.2 turbines)[14]
	Riverview collector substation

19. Two significant issues were identified as a result of the project NIA: baseline compliance and turbine curtailment.

[11] Exhibit 23753-X0069, EGP CRR2 IR2 Response Document, Enel-AUC-2018DEC07-001 (a) and (b), PDF pages 4 and 5.

[12] Exhibit 23753-X0075, Attachment IR3-002 Updated Figures, PDF page 2.

[13] Exhibit 23753-X0002, Attachment LOE-PP-K Updated Noise Impact Assessment, PDF pages 7 and 8, PDF page 20, Table 6, PDF page 37, Table A-1, and PDF page 41, Appendix C.

[14] Enel is also the proponent of the Riverview Wind Power Plant, which is currently being considered in another proceeding by the Commission (Proceeding 2402).

Baseline compliance

20. In the NIA report, Enel predicted that cumulative sound levels at receptors 4, 5, 8, 9 and 13 would exceed the nighttime PSL. In response to Commission IRs,[15] Enel indicated that cumulative sound levels at receptors 14 and 15 would also exceed the nighttime PSL. Enel stated this is because the predicted baseline sound levels at these seven receptors exceeded the nighttime PSL before the addition of the project facilities.[16]

21. In the NIA report, baseline sound levels at receptors 4, 5 and 8 were predicted to exceed the nighttime PSL by more than 0.4 dBA, which is indicative of non-compliance with Rule 012. To demonstrate project compliance at these three receptors, the NIA report assumed that baseline sound levels are exactly equal to the nighttime PSL of 40 dBA. In other words, the NIA report assumed that baseline sound levels at receptors 4, 5 and 8 are lower than the levels predicted by the baseline model. This assumption is referred to as the "baseline compliance assumption." Under the baseline compliance assumption, baseline facilities are assumed to contribute exactly 38.4 dBA at receptors 4, 5 and 8 because the sum of 38.4 dBA and the assumed nighttime ambient sound level of 35 dBA is exactly equal to the nighttime PSL of 40 dBA.[17]

22. During the IR process, Enel justified the baseline compliance assumption by referencing a post-construction survey which was conducted in 2013 for the existing Phase I facility at receptors 4 and 8 (the original CSL survey).[18] Enel submitted that Decision 2014-142[19] (which addressed the original CSL survey results) found that the measured sound levels at receptors 4 and 8 were compliant with Rule 012. Enel discussed that even though the original CSL survey had only a marginally sufficient amount of nighttime data, its results were accepted by the Commission and the conclusion was that the existing facilities were compliant with the PSLs.[20] Enel considered that it was therefore reasonable to rely on the original CSL survey results to validate the baseline compliance assumption.[21]

23. In response to a subsequent Commission IR, Enel committed to collecting baseline measurements at the seven receptors where baseline sound levels were predicted to exceed the nighttime PSL (i.e., receptors 4, 5, 8, 9, 13, 14 and 15).[22] Enel's objective in collecting these measurements was to confirm that baseline facilities are operating in compliance with the applicable nighttime PSL and, to therefore, provide further justification for the baseline compliance assumption.[23]

24. SLR, at the direction of Enel, conducted a baseline CSL survey at receptors 4, 5, 8, 9, 13, 14 and 15 (the new CSL survey). The baseline report filed by Enel on May 23, 2019,

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15 Exhibit 23753-X0069, EGP CRR2 IR2 Response Document, Enel-AUC-2018DEC07-001 (c) and (e), PDF pages 5 and 6.

16 Exhibit 23753-X0090, Baseline Sound Survey (1), PDF page 6.

17 Exhibit 23753-X0002, Attachment LOE-PP-K Updated Noise Impact Assessment, PDF page 24.

18 Exhibit 0002.00.EAWI-3146, Enel Noise Study, Proceeding 3146, November 7, 2013.

19 Decision 2014-142: Castle Rock Ridge Phase 1 Comprehensive Sound Survey Report, Proceeding 3146, Application 1610435, May 23, 2014.

20 Exhibit 23753-X0069, EGP CRR2 IR2 Response Document, PDF page 18.

21 Exhibit 23753-X0044, Proceeding 23753 CRR2 IR1 Response 04OCT2018, PDF page 38; Exhibit 23753-X0069, EGP CRR2 IR2 Response Document, PDF page 18.

22 Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF pages 4 and 5.

23 Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF page 5.

summarized the results of this survey.[24] Specifically, Enel identified that after a cumulative period of 24 nights, it was not possible to collect valid data due to unfavourable conditions. Enel explained that the baseline report applied data isolation criteria in accordance with Rule 012, which only considers measurement data to be valid if it is collected under downwind conditions during a period of maximum operation for nearby wind turbines. The analysis also excludes measurement data contaminated by wind noise masking[25] or extraneous ambient sound events. After application of Rule 012 data isolation criteria, Enel found that no valid data remained for presentation in the baseline report.

25. As baseline compliance could not be demonstrated through measurements, Enel undertook modelling to develop a curtailment scenario that would achieve predicted baseline compliance at the seven receptors in question. Enel requested that the Commission approve the project based on this modelled curtailment scenario in the baseline report (the updated curtailment scenario). The updated curtailment scenario is described in detail below.

Turbine curtailments

26. Should the baseline compliance assumption not be demonstrated or accepted by the Commission, Enel discussed the implementation of nighttime operating curtailments for the project turbines as well as the baseline turbines. It proposed different curtailment scenarios over the course of this proceeding.

27. Initially, Enel proposed a curtailment scenario which included an assumption that the nighttime operation of wind turbines on the nearby Sinnott Wind Farm (the Sinnott turbines) would be curtailed.[26] Enel explained that the predicted noise contribution from the Sinnott turbines in isolation is greater than 38.4 dBA at receptors 5, 14 and 15.[27] Therefore, it would be impossible to demonstrate nighttime compliance for these three receptors without curtailing the Sinnott turbines. This curtailment scenario required nighttime shutdown of two existing Sinnott turbines (#2 and #5) and four existing Castle Rock Ridge Phase I turbines (#3, #20, #30 and #42). Based on this curtailment scenario, Enel predicted that baseline sound levels at all the affected receptors would comply with the nighttime PSL.[28]

28. Subsequently (at the time of the new CSL survey), Enel contacted TransAlta Corporation, who owns the Sinnott Wind Farm, to discuss noise emissions from the Sinnott turbines. Enel filed on the record of the proceeding a response letter from TransAlta, in which TransAlta stated that: its facility is regularly inspected, maintained and is in good working order; it has not found any issues with the performance of its Sinnott turbines; and it has not had a single complaint or issue raised about noise from the Sinnott turbines since commencing operations in 2001.[29] TransAlta further stated that it has no information to suggest that its facility has a noise issue or

[24] Exhibit 23753-X0090, Baseline Sound Survey (1).

[25] The masking of the sound from wind turbines due to the sound of the wind through vegetation and around structures near a dwelling. Masking results in a decreased audibility of the wind turbines.

[26] Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF pages 8 to 10.

[27] Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF page 9.

[28] Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF page 10.

[29] Exhibit 23753-X0091, TransAlta Letter to Enel Green Power, PDF page 1.

is non-compliant with Rule 012, and that it has never contemplated or discussed any arrangement with Enel whereby the Sinnott turbines would be shut down to accommodate Enel's projects.[30]

29. Based on TransAlta's letter, Enel submitted that it is reasonable to assume that the Sinnott turbines are operating in compliance with Rule 012 and more specifically, that the Sinnott turbines contribute a maximum of 38.4 dBA to baseline sound levels at receptors 5, 14 and 15.[31] This assumption was therefore relied on in the development of the updated nighttime curtailment scenario to achieve project compliance. The updated curtailment scenario requires nighttime shutdown of 11 existing Castle Rock Ridge Phase I turbines (#3, #30, #38, #39, #40, #41, #42, #46, #47, #48 and #49), nighttime operation of two Riverview Wind Power Plant turbines (#1 and #2) in S01 sound optimized mode, and nighttime operation of five Riverview turbines (#3, #4, #5, #6 and #9) in S02 sound optimized mode.[32] Riverview, like Castle Rock Ridge Phase I, is a wind power plant owned by Enel and proposed in the area. The updated curtailment scenario proposed by Enel also requires all of the project turbines to operate in the S02 sound optimized mode during the nighttime.[33]

30. The computer model developed for the baseline report was rerun based on the updated curtailment scenario to provide updated baseline and cumulative sound level predictions for all 13 affected receptors (i.e., receptors 1, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16).[34] The model predicted that cumulative sound levels will not exceed the daytime PSL at any of the 13 affected receptors, and will not exceed the nighttime PSL at any of the affected receptors by more than 0.4 dBA.[35] Enel explained that predicted cumulative sound levels at receptors 5, 8, 9, 14 and 15 exceed the nighttime PSL, but the magnitude of the exceedance is not greater than 0.4 dBA, which is considered compliant as a result of the "no net increase"[36] approach in Rule 012.[37]

31. In the baseline report, Enel committed to conducting a post-construction CSL survey after commissioning the project to evaluate compliance at receptors 4, 5, 8, 9, 13, 14 and 15. If the survey results identify exceedances of the applicable PSLs, Enel committed to implementing further curtailment until exceedances are resolved and compliance can be demonstrated.[38]

Other noise considerations

32. As further support for its submission that the project NIA demonstrated compliance with Rule 012, Enel submitted that its model predictions are conservative because all facilities were modelled to operate simultaneously at planned maximum sound power and affected receptors

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30 Exhibit 23753-X0091, TransAlta Letter to Enel Green Power, PDF page 2.

31 Exhibit 23753-X0092, Response to Request for Further Information, PDF page 1.

32 Exhibit 23753-X0090, Baseline Sound Survey (1), PDF page 25.

33 Exhibit 23753-X0096, IR4 Response Main Document, PDF page 5.

34 Updated predictions are presented in tables 8 and 9 of Exhibit 23753-X0095.

35 Exhibit 23753-X0095, IR4 Response Associated Tables Attachment, PDF page 2, Tables 8 and 9.

36 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 the concept of 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.

37 Exhibit 23753-X0090, Baseline Sound Survey (1), PDF page 26.

38 Exhibit 23753-X0090, Baseline Sound Survey (1), PDF page 5.

were modelled as being simultaneously downwind from all noise sources.[39] Enel analyzed the level of model conservatism relative to expected real-world conditions, and concluded that an appropriate degree of conservatism is included in the computer model. As such, Enel indicated that it expects model predictions are higher than sound levels that would be measured at affected receptors once the project commences operation.[40]

33. With respect to the ground attenuation factor identified for the project NIA, Enel stated that the ISO 9613 standard indicates a ground factor of 1.0 is representative of ground covered by grass, trees or vegetation, and all other ground surfaces suitable for the growth of vegetation, such as farming land. Because the project study area consists primarily of agricultural land, Enel suggested that a ground factor of 1.0 was suitable for use in the project NIA. In addition, Enel confirmed that other baseline facilities considered in the NIA report (i.e., Oldman River 1 Wind Power Plant, Oldman 2 Wind Farm Project, Heritage Wind Farm, and Riverview Wind Power Plant) used a ground factor of 1.0 in their NIAs.[41]

34. Finally, Enel evaluated the potential for low frequency noise impacts from the project and indicated that the difference between dBC and dBA sound levels is predicted to be less than 20 at all affected receptors except receptor 12. At receptor 12, the difference between dBC and dBA sound levels is predicted to be slightly larger than 20. However, Enel reviewed the acoustic specifications provided for the Vestas V136 4.2-MW turbine and found that tonality would not occur for the selected turbine. Because low frequency noise concerns may only arise in cases where the difference between dBC and dBA noise levels is greater than or equal to 20 and there is a low frequency tonal component to the sound spectrum, Enel concluded that low frequency noise concerns are not likely to arise at any affected receptor.[42]

3.2 Environmental impacts

35. The environmental reports for the entire Castle Rock Ridge Wind Power Project (the power plant) were submitted with the original application which the Commission approved. For the current application, Enel updated Alberta Environment and Parks (AEP) about the project and the new environmental surveys completed. Enel also provided to AEP (and filed with the current application) a post-construction monitoring plan, a construction and operation mitigation plan and an environmental protection plan for the project.[43] AEP issued a renewable energy referral report in April 2018 (initial referral report).[44]

36. The power plant is sited on private land, with over 80 per cent of its footprint located on cultivated crop and modified and tame pasture. The updated turbine locations for the project were adjusted to avoid impacts to native grassland, resulting in a total temporary disturbance to

[39] Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 41.
[40] Exhibit 23753-X0073, CRR2 23753 IR3 Response 26FEB2019, PDF page 24.
[41] Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 33.
[42] Exhibit 23753-X0002, Attachment LOE-PP-K Updated Noise Impact Assessment, PDF page 22.
[43] Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF pages 35, 52 and 64.
[44] Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 120.

native grassland of 0.08 hectares to install the collector system.[45] No part of the project is sited within 100 metres of any wetlands which are Class 3 or higher.[46]

37. Enel's updated environmental surveys for the project included spring and fall bird migration surveys in 2017, which identified a number of different species in the area. 12 provincial or federal species at risk were detected in or moving through the area, both incidentally and through the survey process. The pre-construction avian and bat assessment conducted in 2017 concluded that overall, the project is expected to have low to moderate risk for individual raptors and waterfowl, low risk to shorebirds, and low to moderate risk for land birds.[47]

38. In contrast, AEP's initial referral report concluded that the project poses an overall high risk to wildlife and wildlife habitat. AEP noted that the new project turbines have a larger rotor-swept area which increases the potential for turbine-related bird and bat mortality. Further, the project is sited in close proximity to the Oldman Reservoir, an important habitat feature for birds and bats.[48]

39. Turbine siting is paramount to limit the mortality risk for birds. In its initial referral report, AEP recommended that Turbine 9 not be constructed as proposed, due to the very high mortality risk to birds associated with that turbine, including potential cumulative effects on a nearby golden eagle nest. Turbine 9 was initially located on a high point, surrounded on three sides by the Oldman reservoir, which significantly increased the risk of bird mortality for species using the reservoir, and due to the limited post-construction mitigation measures available to reduce bird mortality.

40. In response to recommendations in AEP's initial referral report, Enel relocated Turbine 9 approximately 3,700 metres to the southeast to avoid native grassland. It also removed the overlap between an access road and the golden eagle nest setback buffer and maximized the distance between Turbine 9 and the Oldman reservoir. Enel submitted an updated environmental report to AEP indicating that with these changes, the project maintains all recommended environmental setbacks in accordance with guidance from AEP.[49]

41. AEP then provided an amendment to the initial referral report, updating its risk assessment based on the relocation of Turbine 9. More specifically, AEP indicated that the new turbine location directly addresses a number of the issues identified in the initial referral report, including reducing the risk of disturbance to the golden eagle nest site and the risk of golden eagle mortality. The new location also reduced the impact on native grassland from 0.8 hectares to zero. AEP determined that, with the relocation of Turbine 9, the project poses an overall moderate risk to wildlife and wildlife habitat.[50]

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45 Exhibit 23753- X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 8.

46 Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 19; Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 12.

47 Exhibit 23753-X0042.01, PDF pages 5 and 6.

48 Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 131.

49 Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 139.

50 Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 144.

42. Enel confirmed in response to a Commission IR that the project may contribute to cumulative impacts on breeding activity and local populations of raptor species. In the event that the project contributes to cumulative effects across a population of a provincial or federal species at risk, Enel stated that it would work with AEP to provide compensation funding to the Alberta Raptor Conservation Fund or another directly relevant conservation or rehabilitation effort.[51]

43. Enel's updated environmental surveys also included spring and fall acoustic bat activity surveys in 2017. These surveys found high levels of migratory bat species at risk and moderate levels of non-migratory, species-at-risk bat activity, which indicated an overall high risk of bat fatalities during operation.

44. AEP similarly concluded in its initial referral report, and reiterated after the relocation of Turbine 9, that the project poses a high risk for bat mortality due to the high bat activity rate.[52] Further, the initial referral report noted that the project is sited in an area with a significant number of other operating wind projects, many of which have high bat mortality, and AEP has not assessed the cumulative mortality risk of adding additional wind turbines to this landscape.[53]

45. In its IRs, the Commission asked Enel whether it would commit to implementing any and all AEP-recommended mitigation measures if the project was constructed and resulted in contributions to unsustainable cumulative effects on migratory bats, such that mortality rates exceeded a cumulative threshold for the area as determined by AEP.

46. Enel confirmed that it would commit to implementing mitigation measures, including temporarily curtailing turbines during specific weather conditions, and during specific periods of the year and times of day in which migratory bats are more active. In response to whether it would schedule maintenance activities during peak periods of migratory bat activity, Enel stated that because the peak activity period is a short duration, some maintenance activities may need to be scheduled before the peak migration to ensure successful completion of those activities.[54] Enel also confirmed that the individual turbines will be equipped with a bat mitigation control system allowing any individual turbine to be temporarily shut down during seasonal nighttime weather conditions, and that the system can define sets of exclusion ranges for combinations of parameters such as wind speed, temperature, rain, date and time, that represent conditions that increase the potential for bat mortalities.[55] Available mitigation measures include increasing the cut-in speed, altering the angle of the blades, temporary curtailment during certain periods of the year, and stoppage of individual turbines during weather and environmental conditions that increase the risk of bat mortality.

47. The initial referral report concluded that Enel's commitment to three years of post-construction monitoring and its commitment to implement mitigation measures is expected to reduce overall bird and bat mortality to acceptable levels.[56] Enel confirmed that it will conduct

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51 Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 15.

52 6.79 migratory bat passes per detector night during the fall migration period: Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 143.

53 Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF page 130.

54 Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 13.

55 Exhibit 23753-X0044, Proceeding 23753, CRR2 IR1 Response 04OCT2018, PDF page 12.

56 Exhibit 23753-X0003.01, Attachment LOE-PP-J AEP Consultation, PDF pages 130 and 131.

at least two additional years of monitoring if operational mitigation is recommended by AEP during any of the first three years of monitoring.

48. Finally, Enel acknowledged that it has a statutory obligation to decommission and reclaim the project in accordance with the *Environmental Protection and Enhancement Act* and any development permit issued by the Municipal District of Pincher Creek No. 9, to which Enel has already submitted a decommissioning and reclamation plan. Enel committed to ensuring that sufficient funds will be available to do so, and noted that project leases place an obligation on Enel to restore the premises to substantially the same condition as of the date the lease was signed.

4 Findings

49. Although Phase II of the power plant was previously approved, the current application was required to be made as it proposes, among other things, different turbine locations and technology. As well, significant time has elapsed since the existing approval was issued and land use and the environment may have changed over that period. In recognition of the foregoing, the project has been assessed anew and on its own merits.

50. The Commission has considered the project in light of the applicable legislative framework and has assessed whether the requirements outlined in Rule 007 and Rule 012 have been satisfied. For the reasons that follow, the Commission finds that the requirements of Rule 007 and Rule 012 have been satisfied and that the project is in the public interest, having regard to its social, economic and environmental effects.

51. Under Rule 007, applicants must provide technical and functional specifications of the project, environmental and land-use information, including an NIA. The Commission is satisfied that the application contained the information required by Rule 007.

52. Rule 007 also requires an applicant to conduct a participant involvement program before an application is filed with the Commission. The purpose of the participant involvement program is to allow affected parties to understand the nature of a proposed project and afford them a reasonable opportunity to express concerns and engage in meaningful discussions with the applicant with the goal of eliminating, or mitigating to an acceptable degree, the affected party's concerns about the project. Enel's evidence demonstrates that accurate project information was presented to potentially affected stakeholders, that they were given an opportunity to have their concerns heard and that stakeholder feedback was taken into consideration in developing the project. The Commission is satisfied that Enel conducted a participant involvement program that is in accordance with Rule 007.

4.1 Noise

53. The purpose of Rule 012 is to ensure that noise from a proposed facility, measured cumulatively with noise from other energy-related facilities, does not exceed PSLs at affected receptors.

54. Before detailing the Commission's specific findings with respect to Rule 012, and to provide context for the discussion that follows, general comment on Enel's approach to the project NIA is warranted.

55. While the current proceeding is only concerned with Phase II, the inclusion of receptors within 1.5 kilometres of both Castle Rock Ridge Phase II turbines and Castle Rock Ridge Phase I turbines is reasonable and helpful as it facilitates the Commission's assessment of compliance with Rule 012 at all affected receptors.

56. The Commission recognizes that the noise study area for the project contains a significant number of energy-related facilities that potentially influence cumulative sound levels at affected receptors. The Commission finds that Enel reasonably identified baseline facilities with the potential to influence cumulative sound levels at affected receptors and used reasonable sound power levels to estimate the contribution of baseline facilities to cumulative sound levels at affected receptors. The Commission further finds that PSLs were properly established as 40 dBA nighttime and 50 dBA daytime for all affected receptors.

57. The Commission acknowledges the effort made by Enel to undertake a baseline survey to measure CSLs at receptors 4, 5, 8, 9, 13, 14 and 15 and finds that Enel applied appropriate and reasonable data processing and isolation methods that meet the requirements of Rule 012. The Commission recognizes that Enel could not present any valid data after the data isolation analysis.

58. Because the new CSL survey failed to demonstrate baseline compliance despite reasonable efforts by Enel to collect valid data, Enel used computer modelling to develop a turbine curtailment scenario that could achieve baseline compliance with nighttime PSLs. This was appropriate in the circumstances and the Commission finds that Enel made reasonable efforts to develop a number of turbine curtailment scenarios which became more restrictive as the project NIA evolved.

Compliance with Rule 012

59. For the reasons that follow, the Commission finds that: (i) baseline compliance cannot reasonably be assumed on the basis of the original CSL survey as argued by Enel; (ii) the updated curtailment scenario proposed by Enel in the baseline report is reasonable; (iii) the predicted results presented in the baseline report support that, with implementation of the updated curtailment scenario, Rule 012 compliance will likely be achieved at receptors 8 and 9; (iv) the predicted results presented in the baseline report further support that compliance at receptors 5, 14 and 15 will likely be achieved based on the assumption that the Sinnott turbines are exactly compliant with the nighttime PSL and by implementing the updated curtailment scenario; and (v) subject to the enumerated conditions, the project NIA submitted by Enel, meets the requirements of Rule 012.

The original CSL survey

60. The Commission is not convinced that the original CSL survey is, on its own, sufficient to justify the assumption that baseline sound levels comply with the nighttime PSL at the affected receptors. Enel conducted the original CSL survey at receptors 4 and 8 in 2013, to demonstrate Rule 012 compliance for Castle Rock Ridge Phase I. Six years have elapsed since that survey was conducted, during which time changes may have occurred at relevant energy-related facilities. Further, the original CSL survey did not include approved but not constructed facilities that Enel must account for in the current application. Finally, the original CSL survey measured sound levels at only two of the seven receptors where Enel has predicted

that baseline sound levels may exceed the nighttime PSL. In other words, the original CSL survey provides no information about baseline sound levels at receptors 5, 9, 13, 14 or 15. The Commission is therefore not persuaded that the results of the original CSL survey can reasonably be considered conclusive of baseline compliance in the context of the current proceeding.

Updated turbine curtailment is reasonable

61. As previously noted, to address the potential that the baseline compliance assumption might not be accepted or demonstrated, Enel developed a number of turbine curtailment scenarios which became more restrictive as the project NIA evolved. The last of those scenarios, the updated curtailment scenario detailed in the baseline report, resulted from Enel's use of computer modelling to develop a turbine curtailment scenario that could achieve baseline compliance with nighttime PSLs after the new CSL survey failed to demonstrate baseline compliance despite reasonable efforts by Enel to collect valid data. This was reasonable and appropriate in the circumstances.

62. The various curtailment scenarios proposed by Enel over the course of the project NIA are summarized in the following table.

Table 2. Evolution of proposed curtailments

Curtailments		NIA report (Exhibit 23753-X0002)	IR Enel-AUC-2019FEB06-001 (Exhibit 23753-X0073)	Baseline report (Exhibit 23753-X0090)
Shutdown		n/a	Sinnott #2 Sinnott #5 CRR1 #3 CRR1 #20 CRR1 #30 CRR1 #42	CRR1 #3 CRR1 #30 CRR1 #38 CRR1 #39 CRR1 #40 CRR1 #41 CRR1 #42 CRR1 #46 CRR1 #47 CRR1 #48 CRR1 #49
Sound Optimized Mode	S01 Mode	n/a	CRR2 #1 CRR2 #2 CRR2 #9	Riverview #1 Riverview #2
	S02 Mode	All seven CRR2 turbines	CRR2 #3 CRR2 #4 CRR2 #5 CRR2 #8	Riverview #3 Riverview #4 Riverview #5 Riverview #6 Riverview #9 All seven CRR2 turbines
Assumption		Enel assumed that baseline sound levels at receptors 4, 5 and 8 are compliant with the nighttime PSL.	Enel assumed that TransAlta would shut down Sinnott turbines #2 and #5.	Enel assumed that Sinnott turbines were exactly compliant with the nighttime PSL at receptors 5, 14 and 15.

Notes:

1. N/A: no turbines are required to shut down or operate in this sound optimized mode.
2. CRR1: Castle Rock Ridge Phase I turbines; and CRR2: Castle Rock Ridge Phase II turbines.

63. The updated curtailment scenario proposed by Enel in the baseline report[57] includes curtailment of a number of turbines from Enel's proposed Riverview Wind Power Plant project, for which it has applied, but not received, Commission approval. The Commission finds that it was reasonable for Enel to have included Riverview in its updated curtailment scenario as it is a proposed project for which Enel has an application currently before the Commission, regardless of what decision the Commission ultimately makes on the Riverview application. In the context of assessing the project's compliance with Rule 012, the Commission has therefore considered curtailment of both Castle Rock Ridge and Riverview turbines (as further described below).

64. The updated curtailment scenario assumed that the Sinnott turbines are exactly compliant with the nighttime PSL. The reasonability of that assumption is discussed below in the context of assessing compliance of receptors 5, 14 and 15.

Noise compliance

65. The Commission accepts the predicted results of the baseline report, as presented in tables provided in response to IRs. These predicted baseline sound levels and cumulative sound levels have been summarized and are presented in the following table, along with an assessment of compliance with the PSL. Note that the table only presents results for the nighttime period, since the nighttime PSL is a more restrictive compliance threshold than the daytime PSL.

Table 3. Predicted nighttime sound levels (curtailment scenario proposed in baseline report)[58]

Receptor	1	4	5[1]	7	8	9	10	11	12	13	14[1]	15[1]	16
Assumed nighttime ambient sound level (dBA)	35	35	35	35	35	35	35	35	35	35	35	35	35
Predicted contribution from baseline facilities (dBA)	28.0	38.2	38.7	37.3	38.3	38.5	29.9	29.1	33.2	34.8	39.0	38.7	35.7
Baseline sound level[2] (dBA)	35.8	39.9	40.2	39.3	39.9	40.1	36.2	36.0	37.2	37.9	40.4	40.2	38.4
Predicted contribution from the project (dBA)	16.3	20.3	25.1	16.5	30.1	23.5	19.6	19.3	24.9	22.1	17.1	14.6	13.6
Predicted cumulative sound level[3] (dBA)	35.8	39.9	40.4	39.3	40.4	40.2	36.3	36.1	37.5	38.0	40.4	40.3	38.4
Nighttime PSL (dBA)	40	40	40	40	40	40	40	40	40	40	40	40	40
Compliance margin[4] (dB)	4.2	0.1	-0.4	0.7	-0.4	-0.2	3.7	3.9	2.5	2.0	-0.4	-0.3	1.6

Notes:

1. Results for this receptor are based on the assumption that Sinnott turbines are exactly compliant with the nighttime PSL (i.e., the contribution from Sinnott turbines is 38.4 dBA).
2. Baseline sound level is the sum of the assumed Ambient Sound Level, and the noise contribution from baseline facilities (i.e., existing, approved and proposed regulated facilities that have potential to influence sound levels at affected dwellings).
3. Cumulative sound level is the sum of the baseline sound level and the noise contribution from the project.
4. Compliance margin is the difference between PSL and cumulative sound level (i.e., PSL minus cumulative sound level).

66. Based on the above table, the Commission accepts that with the updated curtailment scenario in place, the cumulative sound levels will likely be below the daytime PSL at all affected receptors and will be below the nighttime PSL at all affected receptors, except receptors

[57] Exhibit 23753-X0090, Baseline Sound Survey (1).
[58] Exhibit 23753-X0095, IR4 Response Associated Tables Attachment, PDF page 2, tables 8 and 9.

5, 8, 9, 14 and 15. The question of nighttime compliance at receptors 5, 8, 9, 14 and 15 is addressed in the following paragraphs.

67. With the updated curtailment scenario in place, the cumulative sound levels at receptors 8 and 9 are predicted to exceed the nighttime PSL by 0.4 dBA and 0.2 dBA, respectively. Consequently, the Commission finds that Enel has successfully demonstrated compliance at receptors 8 and 9 using the "no net increase" approach from Rule 012. Pursuant to Rule 012, "no net increase" refers to a situation where cumulative sound levels do not exceed the PSL by more than 0.4 dBA.[59] The Commission notes that compliance at receptors 8 and 9 does not rely on the assumption that the Sinnott turbines are exactly compliant with the nighttime PSL.

68. Cumulative sound levels at receptors 5, 14 and 15 are predicted to exceed the nighttime PSL by 0.4 dBA, 0.3 dBA and 0.4 dBA, respectively. However, these sound level predictions are premised not only on implementation of the updated curtailment scenario but also the assumption that the Sinnott turbines are exactly compliant with the nighttime PSL (i.e., the Sinnott turbines contribute 38.4 dBA to baseline sound levels). The Commission must therefore determine the reasonability of this assumption before assessing project compliance at receptors 5, 14 and 15.

69. The assumption that the Sinnott turbines are exactly compliant with the nighttime PSL is much narrower and more specific than the baseline compliance assumption initially relied on in the NIA report. In recognition of this and for the following additional reasons, the Commission is satisfied based on the available evidence, and for the purposes of this proceeding, that it is reasonable to accept that the Sinnott turbines are exactly compliant with the nighttime PSL:

- Enel made reasonable efforts to conduct a baseline CSL survey; however, it could not gather valid data to demonstrate baseline compliance through measurement.

- Most significantly, Enel provided evidence from TransAlta that indicated: (i) the Sinnott wind turbines are regularly inspected, maintained and are in good working order; (ii) TransAlta has not found any performance issues with the performance of its Sinnott turbines; (iii) TransAlta has not received a single noise complaint since commencing operations in 2001 and has no information to suggest that its facility has a noise issue or is non-compliant with Rule 012.

70. Additionally, the Commission finds that Enel incorporated a number of conservative assumptions into computer models developed for the project NIA. In particular, the Commission finds that modelling all turbines at maximum sound power level and modelling all receptors downwind from all turbines will overestimate cumulative sound levels during other operating and environmental conditions. This level of conservatism helps to further satisfy the Commission that the noise modelling in the project NIA (and the updated curtailment scenario, in particular) does not underestimate actual noise contribution from the project or cumulative sound levels at the affected receptors. While not the most conservative, the Commission accepts Enel's explanation that a ground factor of 1.0 is a realistic representation of the project study area and is consistent with previous NIAs conducted for facilities in the same area.

[59] Rule 012: *Noise Control*, PDF page 36.

71. Having accepted the assumption that the Sinnott turbines are exactly compliant with the nighttime PSL and given that cumulative sound levels at receptors 5, 14 and 15 are predicted to exceed the nighttime PSL by 0.4 dBA, 0.3 dBA and 0.4 dBA, respectively, the Commission finds that Enel has reasonably demonstrated project compliance at receptors 5, 14 and 15 using the "no net increase" approach from Rule 012.

Conditions of approval

72. Based on the above analysis, the Commission finds that nighttime curtailments are required to achieve baseline compliance and project compliance at affected receptors. Therefore, compliance with the following nighttime curtailments is a condition of approval:

- Shutdown: 11 Castle Rock Ridge Phase I turbines (#3, #30, #38, #39, #40, #41, #42, #46, #47, #48 and #49);

- S02 mode: all seven Castle Rock Ridge Phase II turbines.

73. The Commission emphasizes that its determination on compliance is premised, in part, on Enel's commitment to nighttime curtailment of certain turbines included in its Riverview project, which is the subject of a separate proceeding before the Commission. Specifically Enel committed to operating Riverview turbines #1 and #2 in SO1 mode and operating turbines #3, #4, #5, #6 and #9 in SO2 mode. The Commission considers that adherence to this commitment by Enel is material to its decision to approve this project and the Commission will have regard to that commitment as part of its consideration of the Riverview project in proceeding 2402. Failure of Enel to abide by this commitment, should the Riverview project be approved, could constitute grounds for the Commission to review its approval of this project on its own motion.

74. The following related but additional conditions are also placed on the project's approval:

- Enel shall implement the required curtailments as of the date the project turbines commence operation; and

- On the date the project commences operations, Enel shall file a letter with the Commission confirming operating conditions and curtailments for project turbines and for turbines associated with relevant baseline facilities.

Post-construction CSL survey

75. Project compliance with applicable PSLs is of paramount importance to the Commission. A post-construction CSL survey is one method of demonstrating PSL compliance once the project begins operating. Enel committed to complete a post-construction CSL survey at receptors 4, 5, 8, 9, 13, 14 and 15.

76. The Commission considers many criteria when selecting appropriate locations for a post-construction CSL survey. The Commission may consider ordering a post-construction CSL survey at any affected receptor where the cumulative sound level is predicted to be close to the nighttime PSL. However, other criteria, including the noise contribution of the project relative to other noise sources, the degree of conservatism in the computer modelling for the project, prevailing wind direction(s), commitments made by the applicant, and concerns brought forward

by local residents, must also be considered when selecting appropriate locations for a post-construction CSL survey.

77. Given that the predicted cumulative sound levels at receptors 5, 8, 9, 14 and 15 exceed 40 dBA and that there is a relatively small margin of compliance at receptor 4 (i.e., 0.1 dB), the Commission considers it reasonable to require Enel to conduct a post-construction CSL survey at all of these receptors to confirm compliance. Therefore, the following is a condition of approval:

- In accordance with Rule 012, Enel shall conduct a post-construction CSL survey at receptors 4, 5, 8, 9, 14 and 15. Enel shall file all studies and reports pertaining to the post-construction CSL survey within one year of connecting the project to the Alberta Interconnected Electric System.

78. The Commission finds that a post-construction CSL survey is not required at receptor 13 since the margin of compliance with the nighttime PSL is predicted to be 2.0 dBA and the predicted contribution from the project is just 22.1 dBA, which is more than 10 dBA below the assumed nighttime ambient sound level of 35 dBA.

Low frequency noise

79. The Commission finds that the low frequency noise analysis conducted by Enel is reasonable and consistent with Rule 012. Based on the results of this analysis, the Commission accepts that low frequency noise issues are unlikely to exist at any affected receptors.

4.2 Environment

80. The Commission has considered the environmental effects of the project, having reviewed Enel's application documents and responses to IRs, the initial referral report prepared by AEP and AEP's subsequent amendment to that report. The Commission has also considered the recommendations made by AEP for monitoring and mitigation measures in AEP's referral report and has expressly relied on Enel's commitment to a number of mitigation measures in its application documents and responses to IRs.

81. The Commission acknowledges the project's potential impacts on wildlife habitat, but finds that these impacts have been mitigated to a reasonable degree by Enel's relocation of Turbine 9 as well as its siting of the project primarily on cultivated land (thereby avoiding native grassland) and maintenance of all recommended environmental setbacks from AEP.

82. The Commission also acknowledges the project's potential impacts on wildlife. The project is sited in the vicinity of a number of operating wind projects and the Oldman reservoir, which AEP identified as an important habitat feature for birds and bats. Given this, the Commission acknowledges that the project's location has the potential to contribute to cumulative effects on wildlife. AEP assessed the project as having a moderate risk for wildlife and a high risk for bat mortality although it concluded that the monitoring and mitigation commitments made by Enel are expected to reduce bird and bat mortality to acceptable levels.

83. The Commission is likewise satisfied that Enel's adherence to AEP-recommended setbacks for environmental features (which include raptor nests), and Enel's adherence to its own proposed mitigation measures to address, among other things, potential bat mortalities (including curtailment), mitigate the risks of the project to wildlife to an acceptable degree. The curtailment

of Castle Rock Ridge Phase I turbines (under the updated curtailment scenario) will also likely mitigate the cumulative effects to bats.

84. Based on the evidence before it, the Commission is satisfied that the potential environmental impacts of the project can be adequately mitigated, with diligent implementation of the various mitigation measures committed to by Enel which are incorporated into the conditions of approval below. The Commission imposes the following conditions on the project's approval:

- Enel will abide by all of AEP's requirements, recommendations, and directions outlined in the AEP referral report and by all additional commitments made in its responses to IRs from AEP.

- The siting, construction and operation of the project's infrastructure will meet all of AEP's recommended minimum setbacks from wetlands, watercourses and wildlife species-at-risk habitat features for the project, unless AEP has agreed to a reduced setback and/or alternative mitigation.

- If any changes are made to any infrastructure associated with the project, the construction schedule, or the proposed wildlife mitigation measures, Enel will submit these changes to AEP for its further review to ensure wildlife and wildlife habitat are protected.

- Enel shall abide by all of the commitments and recommendations included in its final version of the environmental protection plan, construction and operation mitigation plan and post-construction monitoring plan developed for the project. Enel shall implement all mitigation measures identified in these documents.

- Enel shall communicate to AEP the discovery of any carcasses of species at risk that might be observed near project infrastructure during construction, operation and maintenance and, if required, implement mitigation measures in consultation with AEP.

- To the extent practicable, Enel shall schedule any non-emergency, regularly scheduled (e.g., annual or semi-annual) maintenance activity during the peak August period of migratory bat activity to reduce potential migratory bat mortalities.

- Enel shall abide by all of AEP's recommendations pertaining to post-construction mitigation and monitoring, as outlined in AEP's referral report.

- Enel shall abide by all of the requirements and commitments outlined in the referral report, as well as the final version of its post-construction wildlife monitoring and mitigation plan and environmental protection plan as accepted and reviewed by AEP.

- After the project is operational, Enel shall carry out site-specific post-construction monitoring surveys in the manner and for the period recommended by AEP in the referral report or as required by the *Wildlife Directive for Alberta Wind Energy Projects*. A report summarizing the results of these surveys is to be submitted annually to AEP and the Commission, along with any correspondence from AEP providing its views on the report.

- All post-construction monitoring must be conducted under the direction of an experienced wildlife biologist, as defined in the *Wildlife Directive for Alberta Wind Energy Projects*.

- As part of its post-construction wildlife monitoring program, Enel shall communicate to AEP the corrected mortality rates for birds and bats (using an AEP approved "fatality estimator") and upon the discovery of any carcasses of species at risk, must report the discovery to AEP. Enel must abide by any AEP requirements to implement new mitigation measures to prevent or reduce further mortalities.

85. With respect to project reclamation at its end of life, the Commission notes that wind projects are subject to the reclamation obligations in the *Environmental Protection and Enhancement Act* and its regulations, which include the requirement to obtain a reclamation certificate at the project's end of life. The reclamation process is administered by AEP pursuant to the *Conservation and Reclamation Directive for Renewable Energy Operations*, which provides more detailed information on conservation and reclamation planning and reclamation certificate requirements for renewable energy operators in Alberta. The Commission accordingly considers the following condition appropriate in the circumstances:

- Enel will comply with all applicable reclamation standards in accordance with the *Environmental Protection and Enhancement Act,* its regulations and directives, and any applicable development permits. If no legislative requirements pertaining to reclamation are in place at the time of decommissioning, Enel will submit a reclamation plan to the Commission for approval.

4.3 Land use and other considerations

86. The project is located adjacent to the existing Castle Rock Ridge Phase I Power Plant. The Commission considers that this serves to mitigate some of its potential impacts as land use (and perhaps the environment) may have adapted to having turbines and associated infrastructure in the area. The location of the project also allows for efficient use of infrastructure such as substations and transmission lines. However, the Commission acknowledges that the project's proximity to the Castle Rock Ridge Phase I Power Plant, and other operating wind projects in the area, will result in an increase in cumulative effects, particularly noise, wildlife and visual impacts. Noise and environmental impacts have been addressed above. The Commission's findings in relation to visual effects are as follows.

87. Based on the report prepared by Stantec, the Commission is satisfied that shadow flicker from the project will not be a significant issue.

88. Concerning the effects of turbine lighting, the Commission notes that the authority for turbine lighting requirements lies with Transport Canada and not the Commission. However, the Commission is cognizant that turbine lighting is an existing issue in the Pincher Creek area and that the project will contribute to that issue. In view of this, the Commission expects Enel to act consistently with its representation that it will attempt to reduce the impacts from turbine lighting by pursuing the installation of aircraft sensing radar and the Commission imposes the following as a condition of the project's approval:

- Enel shall provide a report summarizing the results of discussions with Transport Canada, the measures it implemented to reduce turbine lighting and any additional mitigation measures it intends to implement, within six months of the project becoming operational.

4.4 Conclusion

89. Based on the foregoing and subject to the conditions of approval enumerated herein, the Commission considers the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*.

5 Decision

90. Pursuant to Sections 11 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the application and grants to Enel Alberta Wind Inc. the approval set out in Appendix 1 – Amendment to Phase II of the Castle Rock Ridge Wind Power Project – Approval 23753-D02-2019 – June 27, 2019 (Appendix 1 will be distributed separately).

Dated on June 27, 2019.

Alberta Utilities Commission

(original signed by)

Carolyn Hutniak
Panel Chair

(original signed by)

Joanne Phillips
Commission Member

(original signed by)

Kristi Sebalj
Commission Member

Appendix A – Summary of Commission directions and conditions requiring further submissions

This section is intended to provide a summary of those directions and conditions that require follow-up with the Commission, for the convenience of readers. It is not intended to summarize all of the conditions imposed on the applicant. 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. These directions and conditions will be tracked as conditions of Approval 23753-D02-2019 using the AUC's eFiling system.

1. Compliance with the following nighttime curtailments is a condition of approval:

   (a) Shutdown: 11 Castle Rock Ridge Phase I turbines (#3, #30, #38, #39, #40, #41, #42, #46, #47, #48 and #49);

   (b) S02 mode: all seven Castle Rock Ridge Phase II turbines.

2. On the date the project commences operations, Enel shall file a letter with the Commission confirming operating conditions and curtailments for project turbines and for turbines associated with relevant baseline facilities.

3. In accordance with Rule 012, Enel shall conduct a post-construction CSL survey at receptors 4, 5, 8, 9, 14 and 15. Enel shall file all studies and reports pertaining to the post-construction CSL survey within one year of connecting the project to the Alberta Interconnected Electric System.

4. After the project is operational, Enel shall carry out site-specific post-construction monitoring surveys in the manner and for the period recommended by AEP in the referral report or as required by the *Wildlife Directive for Alberta Wind Energy Projects*. A report summarizing the results of these surveys is to be submitted annually to AEP and the Commission, along with any correspondence from AEP providing its views on the report.

5. Enel shall provide a report summarizing the results of discussions with Transport Canada, the measures it implemented to reduce turbine lighting and any additional mitigation measures it intends to implement, within six months of the project becoming operational.