Enel Alberta Wind Inc., Alberta Electric System Operator and AltaLink Management Ltd.

Riverview Wind Power Plant and Interconnection

July 15, 2019

Alberta Utilities Commission
Decision 2402-D01-2019
Enel Alberta Wind Inc., Alberta Electric System Operator and AltaLink Management Ltd.
Riverview Wind Power Plant and Interconnection

Proceeding 2402
Applications 1609252-1, 1609252-2, 1609661-1 and 1609664-1

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1 Decision summary

1. In this decision, the Alberta Utilities Commission considers whether to approve facility applications from Enel Alberta Wind Inc. to construct and operate a 117.6-megawatt (MW) power plant designated as the Riverview Wind Power Plant and a collector substation in the Pincher Creek area (collectively, the project). The Commission also considers a needs identification document (NID) application from the Alberta Electric System Operator (AESO) as well as a facility application from AltaLink Management Ltd. requesting approval for facilities to provide transmission system access to the project (transmission facilities).

2. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission confirms the AESO's assessment of the need to be correct and finds that approval of the facility applications (with the exception of turbines 10, 11 and 12 and infrastructure specifically associated with them) is in the public interest having regard to the social, economic and other effects of the proposed facilities, including their effects on the environment.

3. The Commission's approval of the project is conditional on Enel implementing noise curtailments at nighttime, conducting post-construction noise surveys at receptors identified in this decision and implementing and reporting on various measures to mitigate the potential environmental and other impacts of the project.

4. Regarding turbines 10, 11 and 12, the Commission finds that Enel's post-construction monitoring and mitigation commitments are not sufficient to adequately mitigate the environmental impacts. As a result, the Commission does not approve the construction and operation of turbines 10, 11 and 12 as currently proposed.

2 Introduction

5. Enel filed Applications 1609252-1 and 1609252-2 with the AUC seeking approval to construct and operate the project.

6. The AESO filed Application 1609661-1 seeking approval of a NID application for the interconnection of the Riverview Wind Power Plant to the Alberta Interconnected Electric System via the Castle Rock Ridge 205S Substation.

7. AltaLink Management Ltd. filed Application 1609664-1, to meet the need identified by the AESO and for approval of the transmission facilities.

8. The above described applications were initially made in 2013, but were subsequently placed on hold on a number of occasions for reasons that include Enel's failure to respond to information requests (IRs) from the Commission, application deficiencies, Enel's advice that changes to its turbines and proposed layout were possible and requests by the AESO. The applicants filed updates to their respective applications in 2018,[1] although only Enel's update was material in nature. Enel's updated application proposed a new turbine model, fewer turbines and a reduced project boundary.

9. The Commission provided notice of the updated applications in 2018, in accordance with Rule 001: *Rules of Practice.* The Commission granted standing to four of those parties from whom it received statements of intent to participate.[2] After the standing ruling was issued, a letter was filed indicating that the parties granted standing had formed the Castleview Ridge Estates Resident Group, along with two other individuals residing in the area. The Commission issued a notice of hearing for the project but subsequently cancelled the hearing after receiving a letter from the Castleview Ridge Estates Resident Group formally withdrawing the group's objections to the project.[3]

10. The Commission is considering these applications under sections 11, 14, 15, 18 and 19 of the *Hydro and Electric Energy Act* and Section 34 of the *Electric Utilities Act.*

11. With regard to the AESO's NID application, Section 38(e) of the *Transmission Regulation* provides that the Commission must consider the AESO's assessment of the need to be correct unless an interested person satisfies it that the assessment is technically deficient or approval is not in the public interest.

12. In accordance with Section 17 of the *Alberta Utilities Commission Act*, the Commission must assess whether the proposed power plant, collector substation and transmission facilities are in the public interest, having regard to their social, economic and other effects including their effects on the environment.

13. The Commission considers that the public interest will be largely met if the applications comply with existing regulatory standards, and the public benefits of the proposed facilities outweigh their negative impacts.[4] The Commission must take into account the purposes of the *Hydro and Electric Energy Act* and the *Electric Utilities Act*,[5] 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 also considers whether the applicant has met the requirements in Rule 007: *Applications for Power Plants, Substations, Transmission Lines,*

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1 Enel also filed an update to its application in 2017; however, the current amendments, filed on August 20, 2018, supersede that version of the project layout. Enel's updated application documents are located at Exhibits 2402-X0047 to 2402-X0067; Exhibit 2402-X0047, PDF pages 3 to 7 lists which documents relating to the original application have been superseded or have been updated. AltaLink's updated application documents are listed in Exhibit 2402-X0070. The AESO's updated application is located in Exhibit 2402-X0037 to 2402-X0042 and replaces the original application documents and renders its prior information responses inapplicable.

2 Exhibit 2402-X0124, Ruling on standing 2402, November 22, 2018.

3 Exhibit 2402-X0156, CRE Resident Group Letter of Non-Objection, March 28, 2018.

4 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.

5 *Hydro and Electric Energy Act*, RSA 2000 Ch. H-16, ss 2, 3; *Electric Utilities Act*, RSA 2003 Ch. E-5.1, ss 5.

Industrial System Designations and Hydro Developments and Rule 012: *Noise Control*. Applicants must obtain all approvals required by other applicable provincial or federal legislation.

3 Applications

14. By its facility applications, Enel requested approval of the Riverview Wind Power Plant, which would consist of the following components:

- 28 Vestas V136 4.2-MW turbines for a total capability of 117.6 MW. The turbines would have a hub height of 82 metres and rotor diameter of 136 metres.

- A 34.5-kilovolt (kV) collector system of underground cables connecting the turbines to the Riverview Project Collector Substation.

15. Enel also requested approval of a new substation, designated as the Riverview Project Collector Substation, which would be located adjacent to AltaLink's existing Castle Rock Ridge 205S Substation in the southwest quarter of Section 14, Township 7, Range 30, west of the Fourth Meridian. The substation would contain the following major equipment:

- one 34.5/240-kV, 69/92/115-megavolt ampere transformer
- five 34.5-kV circuit breakers
- one 240-kV motorized disconnect switch
- a chain link fence that will enclose the substation site

16. Enel stated that based on preliminary reactive studies the project will also require a 10-megavolt-ampere reactive (MVAR) capacitor bank however this equipment was not included as part of its substation application. Enel explained that further studies are to be conducted to assess whether the 10 MVAR would need to be segmented into smaller blocks (i.e., 6 MVAR and 4 MVAR blocks) or whether additional harmonic tuning would be required. Enel indicated it would file the results of those studies when they are complete. It stated that any potential equipment additions would be minimal, and would not impact the proposed fenced area of the substation.[6]

17. Enel anticipates commercial operation of the project in December 2019.

18. All of the turbines and associated infrastructure are located on privately-owned land in sections 4, 5, 6, 7, 8, and 18 of Township 7, Range 29, west of the Fourth Meridian, and as shown below.

[6] Exhibit 2402-X0136, Proceeding 2402 Riverview IR4 Response 11JAN2019, PDF page 4.

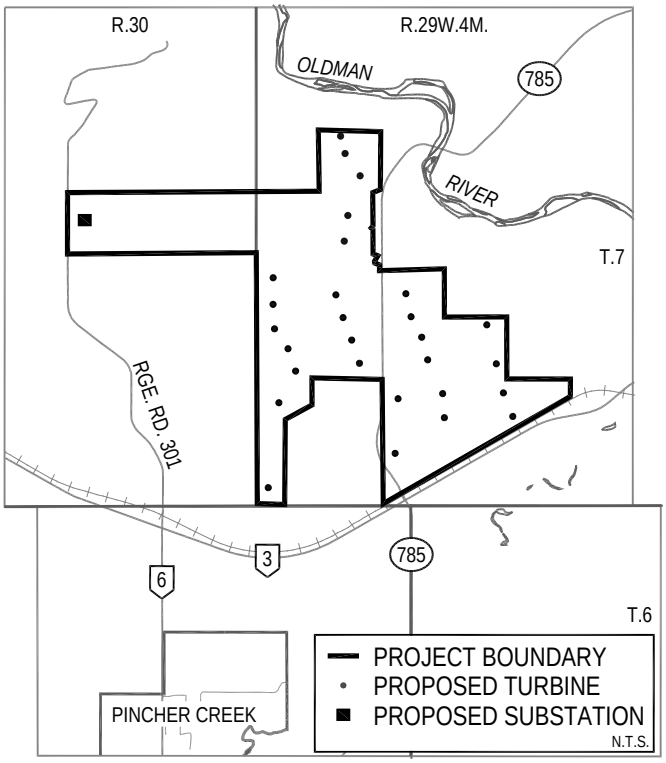

Figure 1 Map of project

19. The AESO's NID application requested approval of the need to respond to Enel's system access service request to connect the project to the Alberta Interconnected Electric System. The AESO's preferred transmission facilities to meet the need identified include modifying the Castle Rock Ridge 205S Substation by adding a 240-kV circuit breaker, and connecting the project to the Castle Rock Ridge 205S Substation.

20. The AESO conducted power flow, transient stability and short-circuit analyses to assess the impact of the project and the transmission facilities on the Alberta Interconnected Electric System. The analyses indicated that a thermal criteria violation occurs under certain N-1 conditions, both prior to and following the connection of the project, but that this issue could be mitigated using an existing remedial action scheme.

21. The AESO directed AltaLink to file a facility application with the Commission for the facilities to meet the need identified and to assist the AESO in conducting a participant involvement program.

22. AltaLink's facility application requested approval to alter the existing Castle Rock Ridge 205S Substation by adding one 240-kV circuit breaker and associated switching equipment. AltaLink also applied to connect its Castle Rock Ridge 205S Substation to Enel's Riverview Project Collector Substation. The Castle Rock Ridge 205S Substation is located in the southeast quarter of Section 14, Township 7, Range 30, west of the Fourth Meridian. AltaLink confirmed that the proposed transmission facilities meet the AESO's functional specifications.

23. Enel conducted a participant involvement program to identify and engage stakeholders, and develop mitigation strategies to address stakeholder concerns where appropriate. Enel indicated that it contacted all stakeholders within 800 metres of the project, and notified all stakeholders within 2,000 metres of the project. Enel stated that the project layout was revised during the consultation process to incorporate feedback from stakeholder consultation as well as technical considerations.[7]

24. Enel indicated that it had consulted with the Municipal District of Pincher Creek No. 9 and received approval of its development permit.[8] Enel committed to radar-activated navigational lights for the project as part of the municipal permitting process.[9] Enel also confirmed that it had updated Environment and Climate Change Canada on its application and had obtained approval from NAV CANADA on its updated turbine locations prior to a minor move of Turbine 25 by three metres. Enel stated it would provide an additional update informing NAV CANADA of this move.[10]

25. The AESO and AltaLink conducted a participant involvement program to notify stakeholders about the need for development and the AESO's preferred transmission facilities to address the need. AltaLink described the various consultation activities which included consultation with stakeholders directly adjacent to the proposed alterations, and mail outs of project-specific information packages to stakeholders within a minimum of 800 metres of the Castle Rock Ridge 205S Substation. The AESO advised that no concerns or objections have been raised regarding the need or the preferred development option, and AltaLink indicated that it was unaware of any outstanding stakeholder concerns.

26. Enel completed a shadow flicker analysis that found that no residence will experience shadow flicker in excess of three hours and 55 minutes per year or exceed a daily maximum of 20 minutes of shadow flicker.[11]

27. Enel received *Historical Resources Act* approval for the project in 2015, which addressed concerns from Alberta Culture and Tourism respecting the intersection of some turbine locations with lands with moderate to high potential for archaeological and historic sites. Enel submitted an updated application in 2018, relating to its updated layout and received approval in August 2018, subject to conditions relating to a historic homestead site.[12]

3.1 Noise impacts

3.1.1 Introduction

28. AltaLink did not complete a noise impact assessment (NIA) as it stated that no continuous noise sources would be added as part of the alterations to the substation. Accordingly, this section only relates to Enel's facility applications.

[7] Exhibit 2402-X0047, Riverview AUC Application 28 Turbine Layout 2018, PDF page 9.
[8] Exhibit 2402-X0108, Attachment IR3-001 MD Development Permit.
[9] Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 4.
[10] Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF pages 6-7.
[11] Exhibit 2402-X0051, Attachment 4 - PIP Appendix A to I - Part 1 of 6, PDF page 155.
[12] Exhibit 2402-X0060.01, PDF pages 5-8.

29. Enel retained SLR Consulting (Canada) Ltd. to conduct an NIA for the project in accordance with Rule 012. The NIA process had three major components, collectively referred to as "the project NIA":

a. The NIA report filed on August 20, 2018 (the NIA report);[13]

b. An investigation of baseline compliance and a study of potential curtailment of wind turbines filed in response to IRs arising from the Commission's review of the NIA report;[14] and

c. A baseline report filed on May 23, 2019 (the baseline report), which detailed the results of a baseline comprehensive sound level (CSL) survey at two receptors and proposed an updated curtailment scenario.[15]

30. Each of the 28 Vestas V136 4.2-MW wind turbines proposed for the project is capable of operating in standard (P01) mode, or in one of two sound optimized (S01 and S02) modes. Sound power levels for the proposed wind turbines were established using acoustic specifications provided by the turbine manufacturer. The maximum sound power levels for the P01, S01 and S02 modes are 103.9 dBA, 102.0 dBA and 99.5 dBA, respectively. For the purposes of the NIA report, all 28 turbines were modelled in P01 mode during the daytime and nighttime periods.[16]

31. The NIA report identified 16 occupied dwellings located within approximately 1.5 kilometres of project wind turbines, and treated these dwellings as affected receptors (receptors 8, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 26, 27, 31, 41 and 42). Among them, receptors 17 and 18 are representative of the hamlet of Pincher Station and receptor 26 is representative of Castleview Estates.[17]

32. In accordance with Rule 012, for all affected receptors except receptors 17, 18 and 26, 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. Based on their dwelling density and proximity to transportation, for receptors 17 and 26, PSLs were established as 43 dBA for nighttime and 53 dBA for daytime, and for receptor 18, PSLs were established as 48 dBA for nighttime and 58 dBA for daytime.[18]

33. 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.

[13] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment.
[14] Exhibit 2402-X0115, Enel RV IR3 14NOV2018, Exhibit 2402-X0136, Proceeding 2402 Riverview IR4 Response 11JAN2019, and Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019.
[15] Exhibit 2402-X0169, Baseline Sound Survey (1).
[16] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF page 15.
[17] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF page 8.
[18] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF pages 12 and 13.

34. 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:[19]

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
	Castle Rock Ridge Phase II (seven Vestas V136-4.2 turbines)[20]

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

3.1.2 Baseline compliance

36. In the NIA report, Enel predicted that cumulative sound levels at receptors 8, 13 and 14 would exceed the nighttime PSL.[21] However, as receptor 13 exceeds the nighttime PSL by 0.1 dBA, Enel asserted that it is nevertheless compliant with Rule 012 based on the no net increase approach. Concerning the predicted baseline sound levels at receptors 8 and 14, Enel stated that these are at or above the nighttime PSL before the addition of noise contribution from the project facilities.[22]

37. The baseline model predicted that baseline sound levels at receptors 8 and 14 exceed the nighttime PSL by more than 0.4 dBA, which indicates non-compliance with Rule 012. To demonstrate project compliance at these two 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 8 and 14 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 8 and 14 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.[23]

[19] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF page 7, PDF page 19, Table 6, PDF page 39, Table B-1, and PDF page 43, Appendix D.
[20] Enel is also the proponent of the Castle Rock Ridge Phase II Wind Power Plant, which was recently approved in Decision 23753-D01-2019.
[21] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF page 25.
[22] Exhibit 2402-X0169, Baseline Sound Survey (1), PDF page 6.
[23] Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF pages 25 and 26.

38. During the IR process, Enel justified the baseline compliance assumption by referencing a post-construction survey conducted in 2013, for the existing Castle Rock Ridge Phase I facility at receptors 4 and 8 (the original CSL survey).[24] Enel submitted that Decision 2014-142[25] (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.[26] Enel considered that it was therefore reasonable to rely on the original CSL survey results to validate the baseline compliance assumption.[27]

39. In response to a subsequent Commission IR, Enel committed to collecting baseline measurements at the two receptors where baseline sound levels were predicted to exceed the nighttime PSL by more than 0.4 dBA (i.e., receptors 8 and 14). Enel's objective in collecting these measurements was to confirm that baseline facilities are operating in compliance with the applicable nighttime PSL and to provide further justification for the baseline compliance assumption.[28]

40. SLR, at the direction of Enel, conducted a baseline CSL survey at receptors 8 and 14 (the new CSL survey). The baseline report filed by Enel on May 23, 2019, summarized the results of this survey.[29] 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[30] 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.

41. 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 two receptors in question (receptors 8 and 14) and allow Enel to establish compliance for the project based on the no net increase approach. 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.

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24 Exhibit 0002.00.EAWI-3146, Enel Noise Study, Proceeding 3146, November 7, 2013.
25 Decision 2014-142: Castle Rock Ridge Phase 1 Comprehensive Sound Survey Report, Proceeding 3146, Application 1610435, May 23, 2014.
26 Exhibit 2402-X0136, Proceeding 2402 Riverview IR4 Response 11JAN2019, PDF page 11.
27 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 47; Exhibit 2402-X0136, Proceeding 2402 Riverview IR4 Response 11JAN2019, PDF page 11.
28 Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019, PDF page 5.
29 Exhibit 2402-X0169, Baseline Sound Survey (1).
30 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.

3.1.3 Turbine curtailments

42. 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.

43. 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.[31] Enel explained that the predicted noise contribution from the Sinnott turbines in isolation is greater than 38.4 dBA at receptor 14.[32] Therefore, it would be impossible to demonstrate nighttime compliance at receptor 14 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) as well as the nighttime operation of three Castle Rock Ridge Phase I turbines in S01 sound optimized mode. Both Castle Rock Ridge Phase I and II are owned by Enel. Based on this curtailment scenario, Enel predicted that baseline sound levels at receptor 14 (and all other affected receptors) would comply with the nighttime PSL.[33]

44. 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.[34] TransAlta further stated that it has no information to suggest that its facility has a noise issue or 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.[35]

45. 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 receptor 14.[36] Enel relied upon this assumption in the development of the updated nighttime curtailment scenario to achieve project compliance.

46. 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.[37] The updated curtailment scenario proposed by Enel also requires

[31] Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019, PDF pages 8 to 10.
[32] Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019, PDF page 9.
[33] Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019, PDF page 9.
[34] Exhibit 2402-X0170, TransAlta Letter to Enel Green Power, PDF page 1.
[35] Exhibit 2402-X0170, TransAlta Letter to Enel Green Power, PDF page 2.
[36] Exhibit 2402-X0169, Baseline Sound Survey (1), PDF page 19.
[37] Exhibit 2402-X0169, Baseline Sound Survey (1), PDF page 20.

all of the Castle Rock Ridge Phase II turbines to operate in the S02 sound optimized mode during the nighttime.[38]

47. The computer model developed for the baseline report was re-run based on the updated curtailment scenario to provide updated baseline and cumulative sound level predictions for all 16 affected receptors.[39] The model predicted that cumulative sound levels will not exceed the daytime PSL at any of the 16 affected receptors, and will not exceed the nighttime PSL at any of the affected receptors by more than 0.4 dBA.[40] Enel explained that predicted cumulative sound levels at receptors 8 and 14 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"[41] approach in Rule 012.[42]

48. In the baseline report, Enel committed to conducting a post-construction CSL survey after commissioning the project to evaluate compliance at receptors 8 and 14. 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.[43]

3.1.4 Other noise considerations

49. 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 were modelled as being simultaneously downwind from all noise sources.[44] 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.[45]

50. 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 Castle Rock Ridge Phases I and II Wind Power Plants) used a ground factor of 1.0 in their NIAs.[46]

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38 Exhibit 2402-X0175, IR6 Response Main Document, PDF page 5.
39 Updated predictions are presented in tables 3 and 4 of Exhibit 2402-X0174.
40 Exhibit 2402-X0174, IR6 Response Tables, PDF page 3, Tables 3 and 4.
41 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.
42 Exhibit 2402-X0169, Baseline Sound Survey (1), PDF page 21.
43 Exhibit 2402-X0169, Baseline Sound Survey (1), PDF pages 5 and 21.
44 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 53.
45 Exhibit 2402-X0146, Enel 2402 RV IR5 Response 26FEB2019, PDF page 13.
46 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF pages 44 and 45.

51. 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 dB at receptors 8, 13, 14, 16 and 17, but exceed 20 dB at receptors 12, 14, 18, 19, 20, 21, 22, 26, 27, 31, 41 and 42. The maximum difference of dBC-dBA values are 22.7 dB and 22.3 dB for daytime and nighttime operation respectively. 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.[47]

3.2 Environmental impacts

3.2.1 General environmental effects

52. Enel's project is located south of the Oldman Reservoir, on privately owned lands and lands owned by the MD of Pincher Creek which are primarily cultivated and previously disturbed.[48]

53. Enel provided detailed information to Alberta Environment and Parks (AEP) respecting changes made to the original project layout (the updated project layout), and its environmental effects. Enel prepared an Environmental Protection Plan with a number of project-specific measures to be implemented during project development and finalized prior to construction, as well as a Post-Construction Monitoring Plan for the project.[49] AEP issued a renewable energy referral report relating to the updated project layout in May 2018 (the referral report).[50]

54. Enel conducted a number of pre-construction wildlife surveys for the project from 2007-2018, in accordance with the applicable *Wildlife Directive for Alberta Wind Energy Projects* in place at the time. These surveys were reviewed by AEP and summarized in the referral report.[51] Enel committed to keeping wildlife surveys current by completing additional site-specific surveys every two years until the project is commissioned.

55. AEP concluded in the referral report that the project poses a low risk to wildlife habitat because it is sited primarily on previously disturbed land. Although the project will disturb 1.16 hectares of native grassland, AEP expressed the view that Enel's alternative mitigations will likely reduce the overall effects to native grassland and therefore its effects on wildlife and wildlife habitat.[52] In response to a Commission IR, Enel provided an updated draft of its Environmental Protection Plan containing strategies, criteria, guidelines and best management

47 Exhibit 2402-X0064, Attachment 11 - Noise Impact Assessment, PDF page 23.
48 Exhibit 2402-X0047, Riverview AUC Application 28 Turbine Layout 2018, PDF page 35.
49 Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 36; Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 28; Exhibit 2402-X0112, Attachment IR3-011-2 Draft Environmental Protection Plan, Exhibit 2402-X0117, Attachment 10 - Environmental Reporting - Part 3, PDF page 6.
50 AEP had previously issued a referral report for a previous version of the project layout in 2015.
51 Exhibit 2402-X0072, ENEL RV SIP Joshua Anderson Response Letter 25AUG2018, PDF page 1; Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 20.
52 Exhibit 2402-X0059, Attachment 7 - AEP Correspondence, PDF pages 7 and 16.

practices for restoring native grassland.[53] Enel also conducted a rare plant survey in the summer of 2018, which identified no rare plants.[54]

56. Construction activities will result in seven wetland setback encroachments by project infrastructure affecting eight different wetlands, including three Class 3 wetlands and one Class 5 wetland.[55] However, all turbines and associated infrastructure are sited outside of applicable wildlife setbacks.

57. Enel committed to a number of alternative mitigations in addition to those committed to in respect of the original project layout, including limiting the timing of construction activities in certain areas to avoid the restricted activity period for breeding birds and to construct in dry or frozen ground conditions.[56] Enel also confirmed in response to a Commission IR that it plans to conduct pre-construction amphibian surveys following AEP protocols.[57]

58. In the referral report, AEP recommended two additional mitigations: that Enel use a wildlife monitor with stop-work authority, and extend the restricted activity period if amphibians are found to be active in the area. Finally, a finalized mitigation plan for wetlands must be submitted and agreed to by AEP prior to construction.

59. Enel submitted a decommissioning plan for the end of the project's life to the MD of Pincher Creek as part of its development permit application, described its expected decommissioning activities in its application, and confirmed that reclamation standards at the time of decommissioning will be followed.[58]

60. Enel acknowledged its statutory obligation to decommission and reclaim the project in accordance to the *Environmental Protection and Enhancement Act*, the *Conservation and Reclamation Directive for Renewable Energy Operations*[59] and its development permit, and committed to ensuring sufficient funds will be available to do so. Enel indicated in response to a Commission IR that it expects that all or a majority of the project's reclamation costs will be recovered from the salvage value associated with project components. Project leases also have a clause requiring restoration of the premises to substantially the same condition as of the signing of the lease.

61. The environmental effects associated with the NID and transmission facilities applications were collectively addressed in AltaLink's facility application.[60] AltaLink expects that the potential environmental effects associated with the transmission facilities will be minimal, because construction will occur within the footprint of the existing

53 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 18; Exhibit 2402-X0112, Attachment IR3-011-2 Draft Environmental Protection Plan.
54 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 15.
55 Exhibit 2402-X0113, PDF page 2.
56 Exhibit 2402-X0059, Attachment 7 - AEP Correspondence, PDF page 17; Exhibit 2014-X0063.01, Attachment 10 - Environmental Reporting, PDF page 80; Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 21-22.
57 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 21.
58 Exhibit 2402-X0047, Riverview AUC Application 28 Turbine Layout 2018, PDF page 23-25.
59 Exhibit 2402-X0136, Proceeding 2402 Riverview IR4 Response 11JAN2019, PDF page 14.
60 Exhibit 2402-X0042, Amended Appendix D - TFO Info re AUC Rule 007 S 6.2.2 NID 23(3) and NID 25, PDF page 2.

Castle Rock Ridge 205S Substation.[61] AltaLink conducted an environmental evaluation for the transmission facilities and prepared an Environmental Specifications and Requirements document containing mitigations for construction activities.[62]

3.2.2 Effects on birds and bats

62. In the referral report, AEP determined that the project's overall risk to birds is moderate based on the species at risk identified in the project area and the project's proximity to raptor nests and the Oldman Reservoir.

63. Enel followed applicable raptor nest setbacks, and no sharp-tailed grouse leks were found during surveys. The project's siting is subject to AEP's 2011 *Wildlife Guideline for Alberta Wind Energy Projects* rather than AEP's 2017 *Wildlife Directive for Alberta Wind Energy Projects* and is therefore not required to meet a 1,000 metre setback from the Oldman Reservoir.[63] Nevertheless, AEP recommended that all project infrastructure be sited to meet a 1,000 metre setback due to known high quality habitat.

64. AEP explained that the proximity of turbines 10, 11 and 12 to the reservoir was a factor in its conclusion that the project posed a higher risk to wildlife. A map of the turbines' location relative to the Oldman Reservoir is shown below. AEP noted in the referral report that currently operating wind projects near the Oldman Reservoir have produced high bird and bat mortality rates. AEP stated in the referral report that based on its knowledge of the wildlife and wildlife habitat in the area and mortality at existing wind facilities, it strongly suspects that mortality will be high at the project.

[61] Exhibit 2241.11.AML-2402.01, AML Riverview Wind Power Facility Application, PDF page 44.
[62] Exhibit 0052.00.AML-2402.01, AML Appendix J - Environmental Evaluation.
[63] AEP's Wind Energy Review Process: Transition from old (2011) *Wildlife Guideline for Alberta Wind Energy Projects* to new (2017) *Wildlife Directive for Alberta Wind Energy Projects* indicates that for projects that had initiated pre-application wildlife work prior to a certain date, the *2011 Wildlife Guideline for Alberta Wind Energy Projects* may be to applied to all pre-construction activities. The project's construction, operation, and post-construction monitoring and mitigation are subject to the *2017 Wildlife Directive for Alberta Wind Energy Projects*.

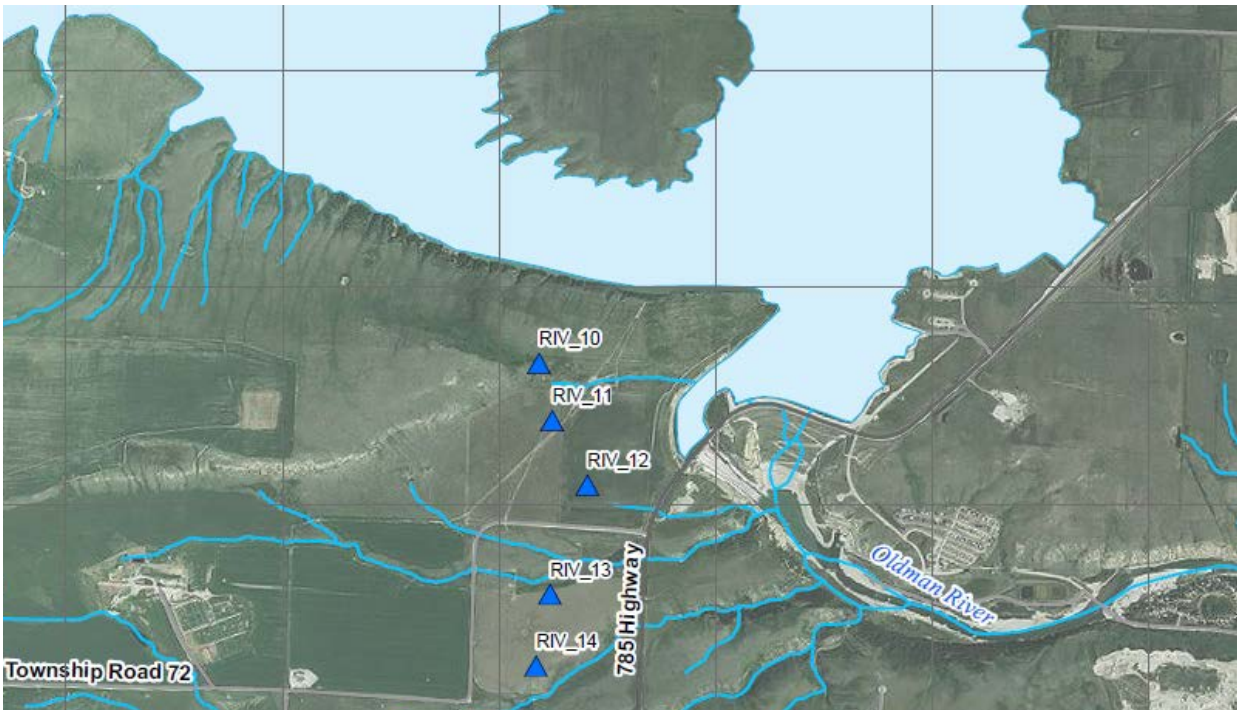

Figure 2 Turbines 10, 11 and 12 and the Oldman Reservoir[64]

65. Enel's environmental consultant, Stantec Consulting Ltd., likewise stated that "[b]ased on post-construction carcass surveys at the adjacent Castle Rock Ridge Wind Power Plant" and pre-construction surveys for Riverview, there is "increased mortality risk for certain species including raptors, particularly immature red-tailed hawks or prairie falcons," among others.[65] Enel committed to implementing mitigation, including operational curtailment.

66. There were a number of species at risk recorded during breeding bird surveys. Enel's Environmental Protection Plan contains procedures and mitigation measures for reducing the project's potential adverse effects on migratory birds during spring and fall migration periods.[66] Enel also committed to post-construction monitoring and implementation of mitigation if bird mortality is found to be high, as determined by AEP.

67. AEP concluded in the referral report that with the implementation of appropriate post-construction monitoring and mitigation as committed to by Enel, the mortality risk to birds would be reduced to acceptable levels but that "it may not be possible to reduce mortality of species of management concern."[67] AEP recommended that turbines 10, 11 and 12 not be constructed as proposed due to "the specific risks associated with these turbines" and in particular, raptor mortality risk (turbines 10, 11 and 12 are located just outside the 1,000 metre setback of two prairie falcon nests). AEP acknowledged that the project abides by the required setback for addressing breeding disturbance of prairie falcon nests, but expressed concern that the setback distance may not be adequate to reduce the mortality risk to the individual birds using the nests.

64 Exhibit 2402-X0169, Baseline Sound Survey (1), PDF page 8.
65 Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 17.
66 Exhibit 2402-X0112, Attachment IR3-011-2 Draft Environmental Protection Plan, PDF pages 31-33.
67 Exhibit 2402-X0059, Attachment 7 - AEP Correspondence, PDF page 21.

68. Enel stated that it was unable to replace turbines 10, 11 or 12 with alternate locations because, subsequent to its submission for AEP's review, Enel had already eliminated other turbine locations due to noise impacts or because turbines would have infrastructure located in native grassland, raptor nest setbacks, and/or wetlands.

69. In response to Commission IRs on AEP's recommendation to remove turbines 10, 11 and 12, Enel committed to monitoring all five raptor nests in the project area for three years, and working with AEP to develop appropriate mitigation measures should the project result in increased raptor mortalities.[68]

70. Enel acknowledged in an IR response that the project has the potential to contribute to cumulative effects on breeding activity and local populations of raptor species, as identified in the referral report, but did not agree that the project may contribute to cumulative effects to habitat features because all turbines and infrastructure have been sited outside of the minimum setbacks for raptor species' habitat features. Stantec indicated that project-specific effects were evaluated exclusive of other developments in the region, but that a cumulative effects assessment should be conducted.[69] Enel stated that should the project contribute to cumulative effects on a provincial or federal species at risk, it will work with AEP to provide compensation funding to an applicable conservation or rehabilitation effort.[70]

71. The project's risk to bat mortality was assessed by Stantec,[71] and by AEP as high based on the results of bat acoustic activity surveys. Alberta's *Bat Mitigation Framework for Wind Power Development* provides that activity rates of greater than 2 bat passes per detector night equates to a high risk of bat mortality, and the project's survey results showed an average of 7.9 bat passes per detector night. Stantec noted that post-construction monitoring at the adjacent Castle Rock Ridge Wind Power Project found actual mortality rates were much lower than predicted from pre-construction surveys, although mortalities were still considered high by applicable AEP standards.[72]

72. Enel confirmed that it remains committed to its Post-Construction Monitoring Plan prepared in 2013, for the project and subsequently updated,[73] and that it will consider operational bat mitigation for bat mortalities and potential cumulative mortalities as outlined in the *Bat Mitigation Framework for Wind Power Development* and in consultation with AEP.[74] Enel also confirmed that the turbine models selected will be equipped with a bat mitigation control system which allows it to temporarily shut down individual turbines during seasonal nighttime weather conditions that are more conducive to bat mortalities.[75] AEP stated that the proposed mitigation is expected to reduce bat mortality to acceptable levels and that the mitigation plan is consistent with AEP policy.

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68 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 31.
69 Exhibit 2402-X0114.01, Attachment IR3-014 2017 Avian and Bat Assessment, PDF pages 3 and 32.
70 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 34.
71 Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 24.
72 Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 24.
73 Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 25.
74 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF pages 37 and 39.
75 Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF pages 36-37; Exhibit 2401-X0155, Enel 2402 RV Intervener IR1 18MAR2019, PDF page 14.

4 Findings

73. The Commission has reviewed the facilities applications filed by Enel and AltaLink, and has determined that the technical, siting, emissions, environmental and noise aspects of the project and transmission facilities meet the Commission's requirements. The Commission has also determined that the AESO's NID application contains all of the information required by Rule 007 and the *Transmission Regulation*.

74. The Commission notes that Enel has not yet filed the results of further reactive power studies that confirm the need and sizing of equipment (i.e., the 10 MVAR capacitor bank), and that Enel did not apply for any such equipment as part of its Riverview Project Collector Substation application. Based on the evidence provided to date, the Commission understands that some form of reactive power equipment is necessary for the connection of the project to the Alberta Interconnected Electric System. However, the additional equipment would be included within the proposed fenced area of the substation. On that basis the Commission is satisfied that the addition of this equipment is not expected to result in any additional adverse effects. However, the Commission imposes on Enel, the following condition of approval:

- Enel shall file a substation amendment application for any additional equipment, including the capacitor bank, at its Riverview Project Collector Substation prior to construction of any such equipment. If no additional equipment is required, Enel shall file a letter prior to energization of the substation confirming that no reactive power equipment is required and include any supporting documentation necessary to justify this claim.

75. The Commission requires applicants for both NID and facility applications to conduct participant involvement programs in respect of their projects in accordance with the requirements set out in Rule 007. 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. Participant involvement programs were conducted in respect of each of the three applications and there are no outstanding public or industry concerns. Based on the evidence submitted by the applicants, the Commission is satisfied that Enel, the AESO and AltaLink have conducted participant involvement programs which meet Rule 007 requirements and achieve the intended purpose of the program as described.

76. With respect to the AESO's NID application, no party has demonstrated that the AESO's assessment of the need to respond to Enel's system access service request is technically deficient or that approval of the NID application is not in the public interest. Therefore, the Commission considers the AESO's assessment of the need to be correct, in accordance with Subsection 38(e) of the *Transmission Regulation,* and approves the AESO's NID application.

77. With respect to AltaLink's facility application, the Commission has considered the evidence before it to determine whether approval of the transmission facilities is in the public interest, having regard to their social, economic and other effects, including their effects on the environment. In particular, the Commission notes that the applied-for transmission facilities are relatively minor with a limited footprint. In the absence of evidence to the contrary, the

Commission accepts AltaLink's assessment that the environmental effects of the requested substation alterations are minimal. The Commission is satisfied that there will be negligible impacts arising from the addition of the transmission facilities (a circuit breaker and switching equipment to the existing Castle Rock Ridge 205S Substation). The Commission also finds that AltaLink's facility application is consistent with the need identified in the NID application. Having regard to the nature of the applied-for facilities and their potential effects, the Commission finds that approval of AltaLink's facility application is in the public interest, and approves the application.

78. With respect to Enel's facility applications, the Commission has assessed the project's social, economic, environmental and other effects (most notably the project's effects on the environment, and the noise generated by the project, discussed in detail below.) The Commission has also taken into account Enel's compliance with other applicable legislative and regulatory requirements, including, for example, its confirmation that it adheres to applicable Transport Canada requirements with respect to potential aviation impacts, and the requirements it must adhere to in its *Historical Resources Act* approval with respect to potential impacts to historical sites.

4.1 Noise

79. 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.

80. The Commission recently considered amendments to Phase II of the Castle Rock Ridge Wind Power Plant in Proceeding 23753 (the Castle Rock Ridge proceeding). Castle Rock Ridge Wind Power Plant is also owned by Enel and is directly adjacent to the proposed Riverview Wind Power Plant. As a result, the NIA for each of these projects considered the noise contributions from the other, contained similar assumptions and methodologies and also assessed sound levels at many of the same receptors. In particular, the three receptors where sound levels were initially predicted to exceed the permissible sound level (i.e. receptors 8, 13, and 14) were also assessed in the Castle Rock Ridge proceeding. In that proceeding, Enel also: (i) made the same arguments as were made in this proceeding to justify sound levels by assuming baseline compliance; (ii) attempted to justify the baseline compliance assumption by conducting a baseline survey to measure comprehensive sound levels at receptors 8 and 14, among others, and (iii) ultimately proposed a curtailment scenario identical to the one proposed in this proceeding.

81. On June 27, 2019, the Commission approved the Castle Rock Ridge Wind Power Plant in Decision 23753-D01-2019[76] based, in part, on its finding that the evidence reasonably demonstrated that with the proposed curtailment scenario in place, Castle Rock Ridge II would likely comply with Rule 012. Much of the evidence relied on in support of that finding was also presented and relied on in the current proceeding. On the basis of that evidence and for the same reasons as expressed in Decision 23753-D01-2019, the Commission has made the following noise findings in this proceeding:

[76] Decision 23753-D01-2019: Enel Alberta Wind Inc. – Castle Rock Ridge Phase II Wind Power Project, Proceeding 23753, Application 23753-A001, June 27, 2019.

- It is unreasonable to assume baseline compliance at receptors 8 and 14 based on the results of the original CSL survey completed in 2013, as argued by Enel;

- It is reasonable to assume, based on the evidence from TransAlta and for the purpose of this proceeding, that the Sinnott turbines comply with Rule 012; and

- Enel's proposed curtailment scenario is reasonable.

82. Before detailing the basis for these specific findings, the Commission reiterates comments and findings made in Decision 23753-D01-2019 concerning Enel's approach to the project NIA as they are equally applicable in this proceeding.

83. The Commission recognizes that the 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 properly 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 correctly established at all affected receptors.

84. The Commission acknowledges the effort made by Enel to undertake a baseline survey to measure CSLs at receptors 8 and 14 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.

85. 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.

4.1.1 Compliance with Rule 012

86. 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 receptor 8

(iv) the predicted results presented in the baseline report further support that compliance at receptor 14 will likely be achieved based on the reasonable assumption that the Sinnott turbines are exactly compliant with the nighttime PSL and by implementing the updated curtailment scenario

(v) subject to the enumerated conditions, the project NIA submitted by Enel, meets the requirements of Rule 012

The original CSL survey

87. 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 provides no information about baseline sound levels at receptor 14. 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.

4.1.2 Updated turbine curtailment is reasonable

88. 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.

89. 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 2402-X0064)	IR Enel-AUC-2019DEC13-001 (Exhibit 2402-X0146)	Baseline report (Exhibit 2402-X0169)
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 8 and 14 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 receptor 14.

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.

90. The updated curtailment scenario assumed that the Sinnott turbines are exactly compliant with the nighttime PSL. The reasonableness of that assumption is discussed below in the context of assessing compliance at receptor 14.

4.1.3 Noise compliance

91. 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)[77]

Receptor	8	12	13	14[1]	16	17	18	19	20	21	22	26	27	31	41	42
Assumed nighttime ambient sound level (dBA)	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Predicted contribution from baseline facilities (dBA)	38.8	30.7	34.2	38.6	35.2	31.0	29.5	26.4	25.4	25.3	25.3	29.2	25.7	23.0	24.8	25.0
Baseline sound level[2] (dBA)	40.3	36.4	37.6	40.2	38.1	36.4	36.1	35.6	35.5	35.4	35.4	36.0	35.5	35.3	35.4	35.4
Predicted contribution from the project (dBA)	22.0	31.0	27.3	27.7	26.2	26.5	26.7	32.6	31.7	30.7	31.0	31.6	32.3	29.4	31.3	29.4
Predicted cumulative sound level[3] (dBA)	40.4	37.5	38.0	40.4	38.4	36.9	36.6	37.3	37.0	36.7	36.8	37.4	37.2	36.3	36.8	36.4
Nighttime PSL (dBA)	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Compliance margin[4] (dB)	-0.4	2.5	2.0	-0.4	1.6	3.1	3.4	2.7	3.0	3.3	3.2	2.6	2.8	3.7	3.2	3.6

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).

92. 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 8 and 14. The question of nighttime compliance at receptors 8 and 14 is addressed in the following paragraphs.

[77] Exhibit 2402-X0174, IR6 Response Tables, PDF page 3, tables 3 and 4.

93. With the updated curtailment scenario in place, the cumulative sound levels at receptor 8 are predicted to exceed the nighttime PSL by 0.4 dBA. Consequently, the Commission finds that Enel has successfully demonstrated compliance at receptor 8 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.[78] The Commission notes that compliance at receptor 8 does not rely on the assumption that the Sinnott turbines are exactly compliant with the nighttime PSL.

94. Cumulative sound levels at receptor 14 are also predicted to exceed the nighttime PSL by 0.4 dBA. However, these sound level predictions are premised not only on the 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 reasonableness of this assumption before assessing project compliance at receptor 14.

95. 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:
  - The Sinnott wind turbines are regularly inspected, maintained and are in good working order;
  - TransAlta has not found any performance issues with its Sinnott turbines; and
  - 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.

96. 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 typical operating and environmental conditions. This level of conservatism further satisfies 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.

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

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

4.1.4 Conditions of approval

98. 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);
- S01 mode: two Riverview turbines (#1 and #2);
- S02 mode: five Riverview turbines (#3, #4, #5, #6 and #9).
- S02 mode: all seven Castle Rock Ridge Phase II turbines.

99. The Commission observes that two of the above curtailments were identified in Decision 23753-D01-2019 as conditions of approval for Phase II of the Castle Rock Ridge Wind Power Project:

- 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.

100. The Commission's determination that the Riverview project will comply with Rule 012 is based, in part, on the conditions imposed on the Castle Rock Ridge Wind Power Project; any alterations or non-compliance with those conditions may constitute grounds for the Commission to review its approval of this project on its own motion.

101. 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

102. 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 completing a post-construction CSL survey at receptors 8 and 14.

103. 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.

104. Given that the predicted cumulative sound levels at receptors 8 and 14 exceed 40 dBA, the Commission considers it reasonable to require Enel to conduct a post-construction CSL survey at each 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 8 and 14. 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.

4.1.5 Low frequency noise

105. 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

106. The Commission has considered the project's environmental effects, having reviewed Enel's application documents, updated environmental evidence, responses to Commission IRs, and the referral report.

107. The Commission notes AEP's assessment that the project poses a low risk to wildlife habitat. The Commission is similarly satisfied that many of the project's impacts on wildlife habitat have been reasonably mitigated as a result of project siting. The project is sited primarily on cultivated and previously disturbed land, and reasonable efforts have been made to avoid native grassland. Where native grassland will be disturbed, Enel has confirmed that it will employ adequate mitigation strategies to reduce the effects on native grassland in the area.

108. Concerning wetlands, all turbines and associated infrastructure are sited outside of applicable wildlife setbacks. Although construction activities will result in seven wetland setback encroachments by project infrastructure, Enel committed to a number of alternative mitigations. The Commission finds that with diligent implementation of Enel's alternative mitigations, as well as AEP's additional recommended mitigations, the project's effects on wetlands can be adequately mitigated.

109. With respect to the project's effects on wildlife, the project is sited adjacent to the Oldman Reservoir which AEP has confirmed is an important feature for wildlife including breeding birds, migrating birds, nesting raptors, resident bats and migrating bats. AEP stated that;

> …
>
> [b]ased on the known wildlife use and mortality trends at other operating wind projects in the area, [AEP] expects multiple bird and bat fatalities to occur at the Riverview Wind Project, which may include ferruginous hawk, prairie falcon and other species of management concern. [AEP] has determined that the bird mortality risk is moderate for the Riverview Wind Project.[79]

110. Stantec's expert evidence corroborated the increased mortality risk for raptor species, among others, based on the results of post-construction carcass surveys at the adjacent Castle Rock Ridge Wind Power Project.

111. Of specific concern to the Commission is that the pre-construction surveys revealed the presence of raptor species at risk in the area, and in particular, two prairie falcon nests located near turbines 10, 11 and 12. The Commission's concerns in this regard align with those expressed by AEP, which led to AEP's recommendation "that turbines 10, 11 and 12 not be constructed as proposed, due to the specific risks associated with these turbines. There is an increased risk of mortality associated with these two nests and the three turbines that are sited between the two nest setbacks."

112. The Commission recognizes that turbines 10, 11 and 12 are sited outside of AEP's nest setback of 1,000 metres. However, given the unique circumstances of these turbines, and in particular, their close proximity to the nests in question, and to the Oldman River Reservoir and other operating wind projects, the Commission is not satisfied that compliance with the setback will adequately protect those raptors identified to be using the immediate area as habitat. Considering the totality of the evidence, the Commission finds that the risk posed to wildlife (most particularly, raptors) by turbines 10, 11 and 12 is unacceptably high. The Commission acknowledges Enel's evaluation of project specific effects but considers that the evaluation underestimates the risk to raptors as it was exclusive of other developments in the region and did not take into account the cumulative effects of proximal projects.

113. The Commission also acknowledges that Enel committed to monitoring all five raptor nests in the project area for 3 years and to implementing mitigation measures as required in consultation with AEP. Enel also proposed to work with AEP to provide compensation funding to an applicable conservation or rehabilitation effort if the project contributed to cumulative effects on a provincial or federal species at risk.[80]

114. In general, the Commission considers Enel's proposed mitigation and monitoring plans to be reasonable and consistent with effective practices being used elsewhere in the province. However, the Commission finds that adoption of those plans cannot adequately mitigate the specific risks associated with the approval of turbines 10, 11 and 12. With respect to those turbine locations in particular, the Commission agrees with AEP that "[t]here are limited

[79] Exhibit 2402-X0059, Attachment 7 - AEP Correspondence, PDF page 19.
[80] Exhibit 2402-X0115, Enel RV IR3 14NOV2018, PDF page 34.

post-construction mitigation measures available to reduce bird mortality and therefore proper project siting is paramount to limit mortality risk of birds."[81]

115. For the reasons above, the Commission does not approve the construction and operation of turbines 10, 11 and 12 as currently proposed. In reaching this determination, the Commission emphasizes that it places significant weight on AEP's recommendation not to construct turbines 10, 11 and 12 as proposed, particularly in light of their location between two prairie falcon nests and within 1,000 metres of the Oldman Reservoir.[82]

116. The referral report also indicates that the project's siting near the Oldman Reservoir may result in increased bat mortalities, and the Commission acknowledges that Enel's pre-construction surveys identified a high number of migratory bat passes per detector night which equates to a high risk of bat mortality according to AEP's *Bat Mitigation Framework for Wind Power Development.* However, Enel has committed to a number of post-construction monitoring and mitigation measures for reducing bat mortalities. As confirmed in the referral report and in Enel's IR responses, project infrastructure will be capable of implementing a number of mitigation measures, including temporary shut down of individual turbines when environmental conditions conducive to bat mortalities are present. The Commission finds that the above factors reduce the risk of bat mortalities from the project to an acceptable degree in these circumstances. The Commission notes the nighttime curtailment of Castle Rock Ridge Phase I turbines (under the updated curtailment scenario) will also likely mitigate the cumulative effects to bats.

117. Based on the evidence before it, the Commission is satisfied that, with the exception of turbines 10, 11 and 12, the project's potential effects on the environment can be adequately mitigated with diligent implementation of Enel's various commitments as well as adherence to 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 referral report and by any 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 and post-construction monitoring plan

[81] Exhibit 2402-X0059, Attachment 7 - AEP Correspondence, PDF page 20.
[82] Exhibit 2402-X0063.01, Attachment 10 - Environmental Reporting, PDF page 7.

developed for the project. Enel shall implement all mitigation measures identified in these documents.

- Enel will 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 must abide by the project-specific recommendations pertaining to post-construction mitigation and monitoring, as outlined in the referral report.

- After the project is operational, Enel must 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 as reviewed and accepted 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. Enel shall submit to the Commission and AEP an annual report summarizing the results of these surveys and all related correspondence from AEP. All post-construction monitoring must be conducted by an experienced wildlife biologist, as defined in the *Wildlife Directive for Alberta Wind Energy Projects*.

- In conducting its post-construction wildlife monitoring program, Enel shall use an AEP-approved fatality estimator to calculate the corrected mortality rates for birds and bats. Enel must notify AEP of any carcasses of species of management concern upon discovery and must abide by any AEP requirements to implement new mitigation measures to prevent or reduce further mortalities.

118. Finally, the Commission has reviewed Enel's commitments to adequately reclaim the project at its end of life, and notes that Enel is subject to the reclamation obligations in the *Environmental Protection and Enhancement Act* and its regulations. The Commission accordingly imposes the following condition:

- 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 Other considerations

119. As earlier noted, the project is located in close proximity to existing wind projects including the Castle Rock Ridge Phase I Power Plant and Oldman 2 Wind Power Plant. The Commission considers that this may serve to mitigate some of its potential impacts. For instance, the location of the project allows for efficient use of infrastructure such as substations and transmission lines. However, the Commission acknowledges that the project's proximity to operating wind projects in the area will also result in an increase in cumulative effects, particularly noise, wildlife and visual impacts. The Commission addressed the noise and environmental impacts above; its findings concerning visual impacts are as follows.

120. With regard to shadow flicker, the Commission is satisfied that shadow flicker from the project will not be a significant issue.

121. 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

122. Based on the foregoing, the Commission considers the project (with the exception of turbines 10, 11 and 12 and the infrastructure specifically associated with those turbines), the transmission facilities and the connection of the transmission facilities to the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*.

123. The Commission finds the AESO's assessment of the need to be correct and approves the AESO's NID application.

124. The Commission's denial of turbines 10, 11 and 12 is without prejudice to any future application in which Enel proposes to relocate or construct those turbines in a manner where the environmental impacts of those turbines are reduced or mitigated in consultation with AEP.

5 Decision

125. Pursuant to Sections 11 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the application, in part, and grants Enel the approval set out in Appendix 1 – Riverview Wind Power Plant – Approval 2402-D02-2019 – July 15, 2019
(Appendix 1 will be distributed separately).

126. Pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the application and grants Enel the approval set out in Appendix 2 – Riverview Project Collector Substation – Substation Permit and Licence 2402-D03-2019 – July 15, 2019
(Appendix 2 will be distributed separately).

127. Pursuant to Section 34 of the *Electric Utilities Act*, the Commission approves the NID for the project and grants the AESO the approval set out in Appendix 3 – Interconnection of Riverview Wind Power Plant – Approval 2402-D04-2019 – July 15, 2019
(Appendix 3 will be distributed separately).

128. Pursuant to sections 14, 15, and 19 of the *Hydro and Electric Energy Act*, the Commission approves the application to alter and operate the substation and grants AltaLink the approval set out in Appendix 4 – Alter Castle Rock Ridge 205S Substation – Permit and Licence 2402-D05-2019 – July 15, 2019 (Appendix 4 will be distributed separately).

129. Pursuant to Section 18 of the *Hydro and Electric Energy Act*, the Commission approves the connection and grants AltaLink the approval set out in Appendix 5 – Connect Castle Rock Ridge 205S to Enel's Riverview Project Collector Substation – Connection Order 2402-D06-2019 – July 15, 2019 (Appendix 5 will be distributed separately).

Dated on July 15, 2019.

Alberta Utilities Commission

(original signed by)

Neil Jamieson
Panel Chair

(original signed by)

j'Amey Bevan
Acting Commission Member

(original signed by)

Carolyn Hutniak
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 either Approval 2402-D02-2019 or Permit and Licence 2402-D03-2019 using the AUC's eFiling system.

- Enel shall file a substation amendment application for any additional equipment, including the capacitor bank, at its Riverview Project Collector Substation prior to construction of any such equipment. If no additional equipment is required, Enel shall file a letter prior to energization of the substation confirming that no reactive power equipment is required and include any supporting documentation necessary to justify this claim.

- 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);

  - S01 mode: two Riverview turbines (#1 and #2);

  - S02 mode: five Riverview turbines (#3, #4, #5, #6 and #9).

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

- 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.

- In accordance with Rule 012, Enel shall conduct a post-construction CSL survey at receptors 8 and 14. 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.

- 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. Enel shall submit to the Commission and AEP an annual report summarizing the results of these surveys and all related correspondence from AEP.

- 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.