



BHEC-RES Alberta G.P. Inc.

Forty Mile Wind Power Project

August 30, 2018

Alberta Utilities Commission

Decision 22966-D01-2018

BHEC-RES Alberta G.P. Inc.

Forty Mile Wind Power Project

Proceeding 22966

Application 22966-A001

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1 Decision summary

1. In this decision, the Alberta Utilities Commission must decide whether to approve an application from BHEC-RES Alberta G.P. Inc. to construct and operate a wind power project and a collector substation in the Bow Island area. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission finds that approval of the project is in the public interest having regard to its social, economic, and other effects, including its effect on the environment.

2 Introduction and background

2.1 Project description

2. BHEC-RES Alberta G.P. Inc. (RES) filed an application with the AUC under sections 11 and 14 of the *Hydro and Electric Energy Act*, seeking approval to construct and operate a 398.475-megawatt (MW) wind power project (the Forty Mile Wind Power Project) and a collector substation (the Forty Mile 516S Substation) in the Bow Island area (the project).

3. The application, filed on September 22, 2017 and registered as Application 22966-A001, was based on an overall generation capacity of 400 MW and the installation of 111 Vestas V136 wind turbines with a nameplate capacity of 3.6 MW. In its application, RES indicated that although the project would require the installation of 111 turbines, 128 turbine locations were being proposed on the understanding that, in accordance with Section 3.4.3 of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*, the overall generation capacity would remain no greater than 400 MW and the final number of proposed turbines would be reduced to 111 before the Commission made its final decision on the application.

4. On December 4, 2018, RES amended its application (the amended application), substituting the Vestas wind turbine model with the Siemens Gamesa G132 3.465 MW wind turbine.¹ The change in turbine technology reduced the number of project turbines from 128 to 115 and reduced the project's nameplate capacity to 398.475 MW. The amended application no longer included alternate turbine locations. RES submitted that the redesigned project layout removed a number of turbines near the Bow Island Airport. As a result, the separation distance between the closest turbine and the airport was increased from 3.1 kilometres to 4.1 kilometres and the closest turbine in line with the flight path of the airfield is over five kilometres away. RES also removed the closest turbines to the hamlet of Winnifred, resulting in no turbines being located within two kilometres of the hamlet. RES stated it applied a two kilometre setback to towns, villages and hamlets as it is a best practice from other Canadian provinces that

¹ Exhibit 22966-X0060, Rule 007 Turbine Amendment Application and Attachment A (Draft Power Plant Approval).

acknowledges longer-term expansion of higher density population centres.² RES stated that the removal and relocation of the turbines as reflected in the amended application also addressed mitigation for impacts to newly-identified ferruginous hawk nests.³

5. In accordance with the amended application, the project consists of the following components:

- 115 Seimens Gamesa G132 3.465 MW wind turbine generators, for a total capacity of 398.475 MW. The turbines would have a hub height of 101.5 metres and a rotor diameter of 132 metres
- a 34.5-kilovolt (kV) underground collector system
- a new substation, to be designated as the Forty Mile 615S Substation, for connection of the project to the Alberta Interconnected Electric System. The substation would be located in the northeast quarter of Section 7, Township 10, Range 9, west of the Fourth Meridian, near Sedalia. The substation would contain the following major equipment:
 - three 230-kV step-up power transformers rated at 150 megavolt amperes (MVA)
 - four 240-kV circuit breakers with associated disconnect switches
 - one control building containing protection, control, and telecommunication equipment

6. The project area is located within the County of Forty Mile No. 8 (County) in southeastern Alberta, approximately five kilometres east of Bow Island and more specifically, in the following locations:

Table 1. Location of Forty Mile Wind Power Project⁴

Sections	Township	Range	Meridian
1 (NW), 4 (NE, SE, SW), 9 (NE, NW, SE), 11 (SE, SW), 12 (NW, SW), 14 (NE, NW, SE), 15 (NE, NW, SE), 22 (NE, NW, SE, SW), 23 (NE, NW, SE, SW), 26 (NW, SE, SW), 27 (NE, NW, SE, SW), 28 (NE, SE), 32 (NE, NW, SE), 33 (NE, NW, SE, SW), 34 (NE, NW, SE, SW), 35 (NE, NW)	9	10	W4M
5 (NE, NW), 7 (NE, NW, SW), 8 (NE, NW, SE), 15 (NW), 16 (NW, SW), 17 (NE, NW, SE), 18 (NW,	10	9	W4M

² Exhibit 22966-X0130, BHEC-RES -FortyMile A. Jenkins Information Request Responses, PDF page 26.

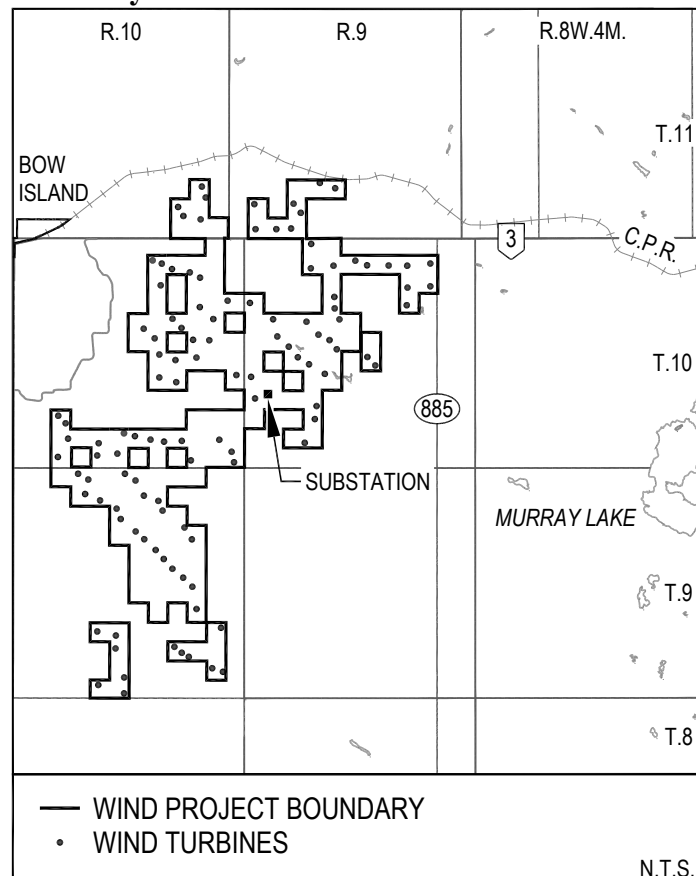
³ Exhibit 22966-X0060, Rule 007 Turbine Amendment Application and Attachment A (Draft Power Plant Approval), PDF page 25.

⁴ Exhibit 22966-X0060, Rule 007 Turbine Amendment Application and Attachment A (Draft Power Plant Approval), PDF pages 13 to 17.

SE, SW), 19 (NE, NW, SE, SW), 20 (NE, NW, SE, SW), 21 (NE, NW, SE, SW), 22 (SW), 26 (NE, NW, SE), 28 (NW, SE), 30 (SE), 32 (NE, SE), 33 (SE, SW), 34 (SE, SW), 35 (SE, SW)			
1 (NE, NW, SE, SW), 2 (NE, NW, SE), 3 (NE, NW, SE), 4 (NE, NW, SE, SW), 5 (NE, NW, SW), 8 (SW), 11 (SE), 12 (SE, SW), 13 (NE, NW, SE), 14 (NE, NW, SW), 15 (NE, SE), 22 (NE, NW, SE, SW), 23 (NE, NW, SE), 24 (NW, SE, SW), 25 (NW, SE, SW), 26 (NE, SE), 27 (NE, SE), 34 (SE), 35 (SE, SW), 36 (NW, SW)	10	10	W4M
5 (NE, SE, SW), 6 (NE, SE), 8 (SE), 9 (SE, SW)	11	9	W4M
1 (NW, SE, SW), 2 (NE), 12 (SW)	11	10	W4M

7. The location of the project is shown on the following map:

Figure 1: Project area and layout



8. The Forty Mile 615S Substation will be connected to the Alberta Interconnected Electric System by an overhead transmission line to the existing Whitla 251S Substation located in the northwest quarter section of Section 33, Township 7, Range 9, west of the Fourth Meridian. This transmission line and any proposed changes to the existing Whitla 251S Substation are the subject of a separate application.

9. RES stated that each wind turbine contains a transformer within the nacelle which increases the voltage generated by the turbine to 34.5 kV, and that an underground electrical collector system connects each turbine to the Forty Mile 615S Substation. The collector system consists of 16 circuits buried to a minimum depth of approximately one metre. Each circuit consists of three conductor wires, a fibre optic cable and plastic warning tape. RES stated that approximately 210 kilometres of cable will be installed for the project by direct ploughing or trench excavation. It will also use directional bore drilling for collector lines to pass below all watercourse or coulee crossings and any places of adjoining native prairie terrain, other than native prairie, occurring along county road right-of-ways, to fully avoid surface disturbance of these sensitive features.

10. RES stated that new permanent public and turbine access roads will be required to access and maintain the wind turbines over the life of the project. These roads will consist of a combination of all-weather gravelled access roads and seasonal lighter duty cleared and compacted access roads. RES anticipates that 27 kilometres of public roads will be constructed, which will be approximately 20 metres wide during construction and 10 metres wide during operation. It also anticipates that 58 kilometres of turbine access roads will be constructed, which will be approximately 15 metres wide during construction and 6 metres wide during operation. The turbine access roads are typically designed as dead-end roads to minimize public use. RES will maintain reduced speed limits of 30 kilometres per hour for all its staff and construction crew.

2.2 Procedural background

11. The Commission issued a notice of application for the project on October 20, 2017, and held a public information session in Bow Island on November 8, 2017. A notice of application amendment was issued on December 15, 2017. The Commission issued a notice of hearing on April 13, 2018, and issued a notice of information session on May 22, 2018.

12. The Commission received statements of intent to participate from 14 persons or entities, including five letters of support or non-objection. The concerns raised by the interveners include proximity to the Bow Island Airport, cumulative noise and environmental impacts, agricultural impacts, visual impacts, and impacts on property value and health. Two individuals subsequently withdrew their objections and requested to be removed from the proceeding. On April 13, 2018, Jaap Remijn, Roline Van Der Haar, Suncor Energy Inc. (Suncor), Anita Jenkins, Harold Angle, and James Hadnagy were granted standing.⁵ A copy of the Commission's ruling on standing is attached in Appendix F.

13. A public hearing was held from June 26 to June 29, 2018, in Calgary, Alberta, before Panel Chair Anne Michaud and Commission members Carolyn Hutniak and Neil Jamieson.

⁵ Exhibit 22966-X0112, AUC ruling on standing.

14. RES, Ms. Jenkins, and Suncor registered appearances at the hearing. Suncor did not participate further in the hearing. Ms. Jenkins identified concerns with the project's proximity to her property, including visual impacts, noise, shadow flicker, agricultural operations including aerial spraying, and property value. Ms. Jenkins also identified concerns with the consultation process.

3 Legislative scheme

15. The Commission regulates the construction and operation of power plants in Alberta. The wind generation project proposed by the applicant is a "power plant" as that term is defined in Subsection 1(k) of the *Hydro and Electric Energy Act*. Section 11 of the *Hydro and Electric Energy Act* states that no person may construct or operate a power plant without prior approval from the Commission. In addition, Section 14 of the *Hydro and Electric Energy Act* directs that approval from the Commission is necessary prior to constructing or operating a substation.⁶

16. The applicant has applied to construct and operate the project pursuant to sections 11 and 14 of the *Hydro and Electric Energy Act*.

17. When considering an application for a power plant and associated infrastructure, the Commission is guided by sections 2 and 3 of the *Hydro and Electric Energy Act*, and Section 17 of the *Alberta Utilities Commission Act*.

18. Section 2 lists the purposes of the *Hydro and Electric Energy Act*. Among others, those purposes are:

- To provide for the economic, orderly and efficient development and operation, in the public interest, of the generation of electric energy in Alberta.
- To secure the observance of safe and efficient practices in the public interest, in the generation of electric energy in Alberta.
- To assist the government in controlling pollution and ensuring environment conservation in the generation of electric energy in Alberta.

19. Section 3 of the *Hydro and Electric Energy Act* requires the Commission to have regard for the purposes of the *Electric Utilities Act* when assessing whether a proposed power plant and associated infrastructure is in the public interest under Section 17 of the *Alberta Utilities Commission Act*.

20. The purposes of the *Electric Utilities Act* include the development of an efficient electric industry structure and the development of an electric generation sector guided by competitive market forces.⁷

21. In Alberta, the legislature expressed its clear intention that electric generation is to be developed through the mechanism of a competitive, deregulated electric generation market. Section 3 of the *Hydro and Electric Energy Act* directs that the Commission shall not have

⁶ Defined in Section 1(1)(o)(iii) of the *Hydro and Electric Energy Act*, RSA 2000, c H-16, "transmission line" includes substations.

⁷ *Electric Utilities Act*, SA 2003, c E-5.1, Section 5.

regard to whether the proposed power plant "...is an economic source of electric energy in Alberta or to whether there is a need for the electric energy to be produced by such a facility in meeting the requirements for electric energy in Alberta or outside of Alberta". Accordingly, in considering an application before it, the Commission does not take into account the potential need and cost of a project.

22. The Commission's public interest mandate is located within Section 17 of the *Alberta Utilities Commission Act*, which states:

Public interest

17(1) Where the Commission conducts a hearing or other proceeding on an application to construct or operate a hydro development, power plant or transmission line under the *Hydro and Electric Energy Act* or a gas utility pipeline under the *Gas Utilities Act*, it shall, in addition to any other matters it may or must consider in conducting the hearing or other proceeding, give consideration to whether construction or operation of the proposed hydro development, power plant, transmission line or gas utility pipeline is in the public interest, having regard to the social and economic effects of the development, plant, line or pipeline and the effects of the development, plant, line or pipeline on the environment.

23. The Commission has outlined its approach to fulfilling its mandate to assess the public interest in various decisions in the context of different types of applications. In EUB Decision 2001-111,⁸ the Commission outlined its approach to assessing whether the approval of a power plant is in the public interest as follows:

The determination of whether a project is in the public interest requires the Board [the Commission's predecessor] to assess and balance the negative and beneficial impacts of the specific project before it. Benefits to the public as well as negative impacts on the public must be acknowledged in this analysis. The existence of regulatory standards and guidelines and a proponent's adherence to these standards are important elements in deciding whether potential adverse impacts are acceptable. Where such thresholds do not exist, the Board must be satisfied that reasonable mitigative measures are in place to address the impacts. In many cases, the Board may also approve an application subject to specific conditions that are designed to enhance the effectiveness of mitigative plans. The conditions become an essential part of the approval, and breach of them may result in suspension or rescission of the approval.

In the Board's view, the public interest will be largely met if applications are shown to be in compliance with existing provincial health, environmental, and other regulatory standards in addition to the public benefits outweighing negative impacts.

24. The Commission remains of the view that the above approach to assessing whether a project is in the public interest is consistent with the purpose and intent of the statutory scheme. Further, the Commission considers that this approach provides an effective framework for the assessment of wind energy projects.

25. Pursuant to its authority under Section 76 (1) of the *Alberta Utilities Commission Act*, the Commission has established Rule 007 and Rule 012: *Noise Control*. Rule 007 applies to applications for the construction and operation of power plants, substations and transmission

⁸ 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.

lines governed by the *Hydro and Electric Energy Act*. The application must meet the informational and other requirements set out in Rule 007. Specifically, an applicant must provide technical and functional specifications, information on public consultation, environmental and land-use information including a noise impact assessment (NIA). The application must also meet the requirements set out in Rule 012.

26. In addition to the foregoing, an applicant must obtain all approvals required by other applicable provincial or federal legislation.

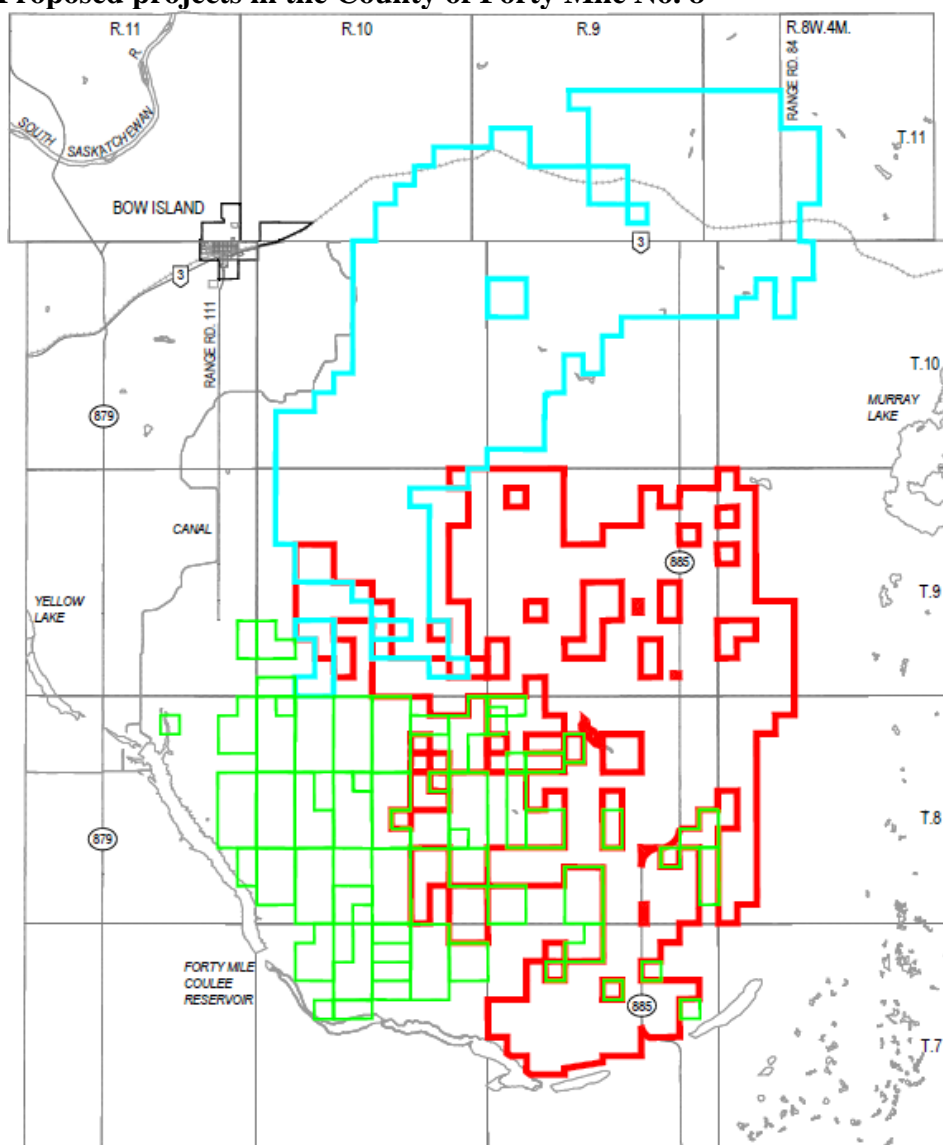
4 Joint process for the Forty Mile project applications

4.1 Background

27. Contemporaneous with the amended application, the Commission received applications for two other wind energy projects in the County of Forty Mile No. 8, from Forty Mile Granlea Wind GP Inc. (which is registered as Suncor Energy Inc. and is also referred to in this decision as Suncor) and Capital Power Generation Services Inc. (Capital Power), that have proposed project areas overlapping with that of the RES project. The Commission initiated a joint process, described below, to determine how best to consider the three projects. Due to similar application processing timelines of this project and the Capital Power project and their proximity to each other, the Commission has released this decision concurrently with its decision on Capital Power's application, Decision 23049-D01-2018, *Capital Power Generation Services Inc. Whitla Wind Project*.

28. On November 29, 2018 the Commission issued a notice of technical meeting⁹ in response to the applications from RES, Suncor and Capital Power for wind energy projects in the County. As shown on the map below, the three projects are adjacent to each other and, in some cases, overlap.

⁹ Exhibit 22966-X0059, Notice of Technical Meeting.

Figure 2: Proposed projects in the County of Forty Mile No. 8

AUC

- Proceeding 22966 - Forty Mile Wind Project, Berkshire Hathway Energy Company and Renewable Energy Systems Alberta Limited Partnership
- Proceeding 23030 - Forty Mile Wind Project, Suncor Energy Inc.
- Proceeding 23049 - Whitla Wind Project, Capital Power Corporation

29. The purpose of the technical meeting was to determine the best process for considering the applications from RES, Suncor and Capital Power given the scale of the three identified projects, their overlapping nature, and the proximate filing dates. The Commission advised that the technical meeting would consider the following topics:

- How the Commission should consider the cumulative impacts from the three wind projects.
- The need for representative noise impact assessments that take into account all three proposed projects.

- Whether the noise impact assessments should employ common modelling parameters, common dwelling labels and common reporting formatting.
- Noise mitigation plans if cumulative sound levels at any noise receptors are predicted to exceed permissible sound levels.
- The need for environmental impact reporting that takes into account the impact of all three projects.
- Whether the environmental studies can use consistent and similar techniques, equipment and personnel for surveys of the three projects, particularly for the pre-construction acoustic bat activity surveys and for the post-construction bird and bat mortality surveys.
- Determination on final turbine locations and turbine models, including adequate spacing for migratory birds and bats between the turbines of different projects.
- Transmission proliferation and the potential for sharing transmission interconnections.
- Potential to combine the three proceedings.
- Timing for finalized applications.

30. In light of scheduling conflicts, the technical meeting was subsequently replaced by a written process. Capital Power, RES and Suncor each filed written submissions, responded to a round of information requests issued by the Commission, and filed reply submissions on the topics above.¹⁰

4.2 Views of RES

31. In its written submissions,¹¹ RES stated that the current regulatory framework and rules is sufficient to address any potential cumulative impacts related to noise on their own, but that in this instance Rule 012 requires some clarification on how the projects should proceed through the Commission's application process. RES submitted that each project should be assessed on its own merits, and that a combined process should not be used. It stated that multiple procedural fairness factors weigh against a combined proceeding, including the potential impact on commercial competitiveness or any one project if individual risks are applied to all projects; the introduction of delay because projects are in different phases of development; increased costs due to an increased number of issues and participants; and potential for confusion of evidence and inconsistency of process.¹²

32. RES stated that the principal issue in these circumstances is how to evaluate cumulative noise impacts under current Rule 012, which requires the inclusion of noise impacts of applied-

¹⁰ Exhibit 22966-X0073, BHE RES AUC Technical meeting submissions (January 5, 2018); Exhibit 23030-X0069, Suncor letter to AUC regarding pre-filing materials in advance of technical meeting (January 5, 2018); Exhibit 23049-X0063, Written submissions of Capital Power (Whitla) LP re technical meeting (January 5, 2018); Exhibit 22966-X0091, BHEC-RES reply submission (February 2, 2018); Exhibit 23030-X0078, Suncor – 40 Mile - AUC IR response reply (February 2, 2018); Exhibit 23049-X0075, Reply argument of Capital Power – AUC technical session (February 2, 2018).

¹¹ Exhibit 22966-X0073, BHE RES AUC Technical Meeting Submission 5 Jan 2018.

¹² Exhibit 22966-X0073, BHE RES AUC Technical Meeting Submission 5 Jan 2018, PDF pages 11-12.

for projects for which applications have been “deemed complete”. Rule 012 does not provide a clear definition of the term, “deemed complete”. RES proposed the following criteria for determining when a facility is deemed complete: (i) a final layout is filed with final turbine locations identified (i.e. no alternate locations); (ii) Alberta Environment and Parks Wildlife Management (AEP WM) sign-off is provided on the filed final layout; and (iii) an NIA that provides sufficient specificity of parameters, the turbine manufacturer, model and modelling data for other applicants to be able to model cumulative noise, is filed with the Commission.¹³ RES stated that once a project meets these requirements, it should be placed in a filing queue and should only be required to assess noise impacts from projects ahead of it; the Commission should issue a formal notice establishing the point in time when a project is deemed complete and that other projects must consider it in their modelling. RES indicated that an alternative approach of collectively assessing multiple projects would cause delays because more advanced applications would have to wait for information from less advanced projects.

33. With respect to cumulative environmental impacts, RES submitted that the existing requirements in Rule 007 and AEP WM’s Wildlife Directive establish a thorough regulatory review process to assess potential environmental impacts, and that where appropriate, monitoring and mitigation can be developed to address any identified environmental effects. RES stated that the mitigation commitments included within the environmental evaluation prepared for each project and are required to meet AEP WM requirements under the Wildlife Directive include implementation of environmental protection plans during construction and operation and post-construction monitoring programs. In RES’ submission, these requirements are the true test of whether the impacts are acceptable. RES stated that there are no legislative requirements for a mandatory cumulative environmental effects assessment for wind projects, and it does not believe that such a requirement is necessary.¹⁴

4.3 Commission ruling on the technical process

34. On March 6, 2018, the Commission issued a ruling setting out the process that it would follow to review the Capital Power, Suncor and RES projects in the unique circumstances before it.¹⁵ In its ruling, the Commission determined that while a combined proceeding could streamline participation by interveners affected by multiple projects and have potential benefits in assessing the projects’ cumulative effects, any such benefits are outweighed by the potential prejudice resulting from a combined process. The ruling is attached as Appendix E to this decision.

35. In its ruling, the Commission made the following key findings:

- The applications filed in proceedings 23049, 22966 and 23030 would be “deemed complete” when: (i) a final turbine layout has been submitted; and (ii) the Commission is satisfied that the applicant has provided all of the information required by Rule 007 for a wind power plant.
- The Commission requested AEP WM to provide comments and recommendations on the potential cumulative effects of the projects and mitigation measures that may be considered to address those effects.

¹³ Exhibit 22966-X0073, BHE RES AUC Technical Meeting Submission 5 Jan 2018, PDF page 3.

¹⁴ Exhibit 22966-X0073, BHE RES AUC Technical Meeting Submission 5 Jan 2018, PDF page 9.

¹⁵ Exhibit 22966-X0098, AUC Ruling on further process.

36. The Commission deemed the RES application for the project to be complete as of February 3, 2018, the date RES filed its updated NIA for the project's final layout.¹⁶ RES' application was deemed complete approximately one month prior to the deemed complete date for Capital Power's application, which was deemed complete on March 6, 2018.

5 Consultation

5.1 Views of RES

37. RES retained Communica Public Affairs Inc. to assist with its participant involvement program. The program was conducted from January 2016 until September 2017 when RES filed its application with the Commission. However, RES stated that engagement with local stakeholders would continue through construction and into operation. RES stated that its participant involvement program was designed to ensure all potentially directly and adversely affected persons and all relevant and interested stakeholders understood the project, had an opportunity to voice concerns, and an opportunity to have those concerns addressed where feasible.¹⁷ The initial stakeholder list was developed using land title searches, ownership maps from the County, and included federal and provincial governmental entities and interest holders.

38. RES held the first of three open houses on February 11, 2016, in Bow Island, where it provided a general map of the area, information about the proponent, and information on government policies to procure more wind power in Alberta. The open house was attended by 37 members of the public. RES launched a project website in September 2016 and mailed out a project-specific information package, which included a map of the revised project environmental study area and project newsletter. RES conducted follow-up consultations between September and December 2016. The mail-out package was distributed within a 2.05 kilometre radius from the study area¹⁸ and consultation in-person, by phone or by email, was conducted within a 850 metre radius.

39. On December 14, 2016, RES held a second stakeholder open house in Bow Island where subject-matter experts provided updates on the project and conversed with stakeholders. Approximately 60 members of the public attended that open house. A second mail-out package was distributed in May 2017, when the project was reduced to 128 potential turbine locations. This mail-out included project updates, frequently asked questions, and opportunity for stakeholder feedback. The third open house was held on July 27, 2017, also in Bow Island. It was attended by approximately 47 members of the public. Further project updates were presented, including the updated project area, detailed siting information in relation to the location of infrastructure, visual simulations of the project and a preliminary noise model.

40. Throughout the consultation process, RES continued to update its stakeholder lists through regular land title searches and consultation. RES stated that any stakeholders that requested inclusion in the participant involvement program were added to the notification list. RES stated it pulled land titles from January to February 2016, in August 2016, and from June to

¹⁶ Exhibit 22966-X0100, AUC Ruling on application completeness.

¹⁷ Exhibit 22966-X0003, Attachment B_ Participant Involvement Program Summary Report, PDF page 8.

¹⁸ The project study area represents the general area of interest that is suitable for wind power development, which was identified at Project initiation for evaluation based on the preliminary siting and constraint analysis, and the general area within which environmental surveys and mapping initiated and took place. The project study area includes the project footprint and adjacent lands.

July 2017. As the project was refined and the final project area identified, stakeholders no longer within the notification or consultation radius were notified and given the option to stay on the project notification list. RES stated that where returned mail-outs were received, it made best efforts to contact the stakeholders. RES added that it recorded engagement summaries for each consultation and tracked follow-up actions.

41. RES amended the project on December 4, 2017, changing the turbine model and finalizing the turbine layout. RES stated that stakeholder input factored into the final layout, including relocation of several wind turbines to minimize impacts on irrigated farming or to increase setback distances for wildlife, roads and airfields.¹⁹ Once the final layout was known, RES updated its notification and consultation lists for stakeholder mailings. Project updates were distributed to stakeholders on the new consultation lists as well as those on the original lists so that all parties would be notified of the changes. RES stated that the first information package was mailed out on November 3, 2017, and personal consultations were conducted by phone or email with landowners located within 850 metres of any changed components in the layout design. A second mail-out was distributed in the middle of November 2017 to notify stakeholders of the realignment of four turbine locations, roads and the collector system at the southern end of the project. This mail-out was distributed to stakeholders within 2.05 kilometres of the changed portions of the project, and direct consultation was conducted with stakeholders within 850 metres of the changed project components. RES stated that prior to construction, a notice of commencement of construction and a public open house will be held to inform the public and all stakeholders of the next phase of the project and to develop the final emergency response plan with the County and the Town of Bow Island.

42. RES initiated consultation and engagement with the County and the Town of Bow Island in late 2015. It stated that neither had any outstanding concerns with the project. On May 14, 2018, the County submitted a letter to the Commission indicating it has no objections to the project.²⁰

43. RES contacted a number of federal and provincial Ministries, local jurisdictions, agencies and other special interest groups as part of its participant involvement program. It submitted a land use application to NAV Canada in 2017 and received a letter of non-objection in response.²¹ RES subsequently submitted an update to NAV Canada for the final turbine layout and turbine specifications; NAV Canada maintained its non-objection and requested notification at least 10 business days prior to the start of construction.²² RES submitted an aeronautical assessment form for obstruction marking and lighting to Transport Canada on September 19, 2017; the updated turbine layout was submitted on November 3, 2017. RES stated it would follow-up with Transport Canada once a construction schedule is set.²³ RES also contacted Environment and Climate Change Canada, which indicated that it had no concern with the project²⁴ or the final layout.²⁵ Alberta Transportation provided roadside development permits for the applicable turbines on July 12, 2017. RES stated that the permits remained valid after the project was

¹⁹ Exhibit 22966-X0061, Turbine Amendment Attachment B - Participant Involvement Program Update and Appendices, PDF page 28-29.

²⁰ Exhibit 22966-X0149, County of Forty Mile No. 8 Statement of Intent to Participate.

²¹ Exhibit 22966-X0049, Response to Information Request Round 2, PDF pages 58 to 69.

²² Exhibit 22966-X0083, updated NAVCan non-objection letter; Exhibit 22966-X0095, Corrected NAVCan non-objection letter.

²³ Transcript, Volume 1, page 211, lines 5-11.

²⁴ Exhibit 22966-X0008, Attachment E_Environment Canada Correspondence re: Weather Radar.

²⁵ Exhibit 22966-X0077, updated ECCC non-objection to current layout.

amended because the relevant turbine locations did not change.²⁶ RES also submitted a statement of justification to Alberta Culture and Tourism in 2017 and received a Requirements Letter in response, which approved the project as it relates to archaeological historical resources but required a Palaeontological Historic Resources Impact Assessment.²⁷ Alberta Culture and Tourism subsequently issued a revised *Historical Resources Act* approval rescinding the requirement to conduct a Historic Resources Impact Assessment.²⁸

44. RES stated there are no First Nation lands located within the notification or consultation area, because the project is sited on private land. RES contacted the Aboriginal Consultation Office, which indicated its consultation process would not apply unless Public Lands were affected by the project, or there was a requirement for a *Water Act* or an *Environmental Protection and Enhancement Act* application. Nevertheless, RES stated it conducted proactive consultation activities with the Blood Tribe (also known as the Kainai First Nation), Piikani Nation and Siksika Nation in the project development process. RES arranged for site visits for a number of First Nations representatives and gave project updates. RES stated that there were no outstanding concerns from First Nations groups.

45. RES stated it first engaged Ms. Jenkins in October 2016 and continued to consult with her after that date.²⁹ RES stated it has had over 27 phone and in-person contacts with Ms. Jenkins related to the project and additional commercial discussions.³⁰

46. In response to concerns raised by Ms. Jenkins, RES confirmed that her mailing address was not accurately updated during RES' participant involvement program due to an administrative error, which resulted in mailed information not reaching Ms. Jenkins. RES apologized for this error³¹ and stated that it corrected the error once it became aware that the mailing address was incorrect.³² However, in RES' submission, consultation with Ms. Jenkins continued through other forums and she received all relevant information regarding project development, planning, process and timelines.³³ RES acknowledged that the project layout was not provided to Ms. Jenkins until seven weeks after it was made public; however, RES stated several personal consultation sessions with Ms. Jenkins were conducted and it was confident that Ms. Jenkins had access to all relevant project information, and that her feedback was heard and incorporated where possible.³⁴

47. RES stated it understood Ms. Jenkins' concerns to be that she did not want turbines near her house, and that she had requested a two mile setback from her residence. RES testified that it believed the removal of four turbines around her residence addressed these issues.³⁵ RES stated that the fact that it was not willing to move the eight remaining turbines beyond two miles of Ms. Jenkins' residence does not mean that it failed to consult in good faith.³⁶ RES added that the

²⁶ Exhibit 22966-X0060, Rule 007 Turbine Amendment Application and Attachment A (Draft Power Plant Approval), PDF page 12.

²⁷ Exhibit 22966-X0012, Attachment I - August 4 Requirements Letter from ACT.

²⁸ Exhibit 22966-X0114, Updated ACT HRA Approval with Conditions.

²⁹ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 9.

³⁰ Transcript, Volume 3, page 606, line 23 to page 607, line 2.

³¹ Transcript, Volume 3, page 607, lines 3-9.

³² Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF page 10.

³³ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 9.

³⁴ Transcript, Volume 3, page 607, lines 14-18.

³⁵ Transcript, Volume 1, page 196, lines 14-20.

³⁶ Transcript, Volume 3, page 671, lines 3-6.

fact that the removal of four turbines was a benefit to the residents of Winnifred does not mean it was not also a benefit to Ms. Jenkins.³⁷

48. In response to an information request, RES provided a summary of all records and materials it prepared in relation to discussions, meetings, notifications or consultations it had with Ms. Jenkins.³⁸ RES confirmed that it did not enter three records of contact with Ms. Jenkins.³⁹

49. RES acknowledged that in a September 29, 2017 meeting, Ms. Jenkins and a RES representative discussed the possibility of moving turbine T111. During that meeting, the RES representative indicated that T111 was an alternate site and would probably not be used as it was not a top performer. The RES representative stated it would inquire about the removal of this turbine.⁴⁰ At the hearing, Mr. Reindler testified on behalf of RES that contrary to the comments made by the RES representative to Ms. Jenkins at the September 29, 2017 meeting, the alternate designation for T111 did not mean that it was a lower performing turbine and might therefore be removed. RES stated that its representative misunderstood the term “alternate” and stated that its consultation staff would not be responsible for knowledge of energy yields.⁴¹ RES confirmed that because its consultation representative communicated Ms. Jenkins’ concerns to other RES representatives and raised the question of whether one of the turbines could be shifted away from her residence, it followed up with Ms. Jenkins’ concerns after the September 29, 2017 meeting.⁴²

50. In response to a concern raised by Ms. Jenkins that one of her neighbours was not included in RES’ consultation process, RES stated that this person was initially missed because his property was purchased after the last date on which RES conducted its title searches. However, this person has since been added to RES’ stakeholder database for future correspondence and has also been personally consulted.⁴³ Through that consultation, the individual stated that he did not have concerns with the project layout or design, but that he might wish to move.⁴⁴ RES confirmed that the previous owner of that property had been consulted.⁴⁵

51. RES summarized that over 50 landowners are participating in the project and that key stakeholders in the community, such as the County and the Town of Bow Island, are in support of the project.⁴⁶

5.2 Views of Anita Jenkins

52. Ms. Jenkins raised concerns with the level and quality of the consultation conducted for the project. She stated that the applicant did not comply with the consultation requirements of Rule 007 because she was not provided project-specific information although her residence is

³⁷ Transcript, Volume 4, page 671, lines 16-18.

³⁸ Exhibit 22966-X0130, BHEC-RES -FortyMile A. Jenkins Information Request Responses, PDF page 35.

³⁹ Transcript, Volume 1, page 16, line 23 to page 17, line 20.

⁴⁰ Transcript, Volume 2, page 433, lines 3-10.

⁴¹ Transcript, Volume 2, page 248, lines 8-25.

⁴² Exhibit 22966-X0191, RES Response to Undertaking Five - Copy of email to Lucas Reindler re Anita Jenkins concern.

⁴³ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 10.

⁴⁴ Transcript, Volume 1, page 226, line 3 to page 227, line 2.

⁴⁵ Transcript, Volume 1, page 225, lines 18-21.

⁴⁶ Transcript, Volume 3, page 609, lines 3-10.

located within the 2,000 metre notification radius.⁴⁷ She submitted that the applicant is required to give stakeholders a minimum of 14 days to respond to the participant involvement project before filing an application with the Commission, which did not occur.⁴⁸

53. Ms. Jenkins further noted that she did not receive notice of the July 2017 open house or the Commission's information session. She stated that if she had attended the open house, she could have voiced her request to have the turbines near her moved, as RES did for the hamlet of Winnifred.⁴⁹ She stated that when the November 2, 2017 information package was returned to RES, it should have known that the mailing address was wrong, especially if the mailing address belonged to a stakeholder that had been voicing concerns.⁵⁰ On January 15, 2018, the Commission requested a complete set of mailing labels, which still omitted Ms. Jenkins' mailing address, after the information package had been returned to RES.⁵¹

54. Ms. Jenkins pointed out a number of discrepancies between the participant involvement program record provided by RES and her own records. She stated that RES recorded a number of interactions indicating that an event had occurred, but did not provide any details of the interaction.⁵² She also observed that RES had not recorded its interactions with her on January 23, 2017, September 29, 2017, December 14, 2017, and April 4, 2018.⁵³

55. Ms. Jenkins stated that on January 23, 2017, she called RES to advise that she was not interested in signing onto the project and did not want turbines surrounding her residence. On September 29, 2017, Ms. Jenkins discussed the removal of turbine T111 with RES, and on December 14, 2017, RES informed Ms. Jenkins that the project did not win the renewable energy program contract and that it had time to discuss the positioning of project components. On April 4, 2018, Ms. Jenkins reiterated her request to have a two mile buffer between her residence and any project turbines.⁵⁴

56. Ms. Jenkins noted that the consultation summary provided by RES did not record that she provided her mailing address to RES,⁵⁵ had discussions with RES about the removal of turbine T111,⁵⁶ and had requested a two mile buffer from the wind turbines.

57. Ms. Jenkins submitted that RES did not address her concerns or make any effort to do so.⁵⁷ Ms. Jenkins stated she wished RES would act as a good neighbour to her, as it did for Winnifred when it moved a number of turbines from the vicinity of the hamlet.⁵⁸ She asked what RES could do for her to address her concerns, and requested that RES implement a two mile buffer between her residence and the turbines. Ms. Jenkins acknowledged that a number of

⁴⁷ Transcript, Volume 2, page 429, lines 13-22.

⁴⁸ Transcript, Volume 2, page 438, line 23 to page 439, line 4.

⁴⁹ Transcript, Volume 3, page 640, lines 19-23.

⁵⁰ Transcript, Volume 2, page 447, lines 12 to 19.

⁵¹ Transcript, Volume 2, page 440, line 18 to page 441, line 4.

⁵² Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF pages 9-11.

⁵³ Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF page 9.

⁵⁴ Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF page 10.

⁵⁵ Transcript, Volume 2, page 430, lines 17-22.

⁵⁶ Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF pages 10-11.

⁵⁷ Transcript, Volume 3, page 637, lines 19-25.

⁵⁸ Transcript, Volume 2, page 436, lines 19-25.

turbines near her were removed. However, she stated this was not done to address her concerns, but rather those of Winnifred.⁵⁹

58. Ms. Jenkins also pointed out that her neighbour was not consulted by RES despite the fact that his residence received the highest shadow flicker impact from the project.⁶⁰

5.3 Commission findings

59. Rule 007 states that a participant involvement program must be conducted before a facility application is filed with the Commission. It is therefore a fundamental component of any facility application. It is the applicant's responsibility to meet the notification and consultation requirements under Rule 007.

60. In Decision 2011-436, the Commission made the following comments with respect to effective consultation under Rule 007:

... In the Commission's view, effective consultation achieves three purposes. First, it allows parties to understand the nature of a proposed project. Second, it allows the applicant and the intervener to identify areas of concern. Third, it provides a reasonable opportunity for the parties to engage in meaningful dialogue and discussion with the goal of eliminating or mitigating to an acceptable degree the affected parties concerns about the project. If done well, a consultation program will improve the application and help to resolve disputes between the applicant and affected parties outside of the context of the hearing room.⁶¹

61. The Commission acknowledges that an effective consultation program may not resolve all landowner concerns. There may be situations where individual stakeholders may feel that the consultation effort, particularly as it pertained to their interests, was insufficient or superficial. The above-noted views of the parties demonstrate that the perceptions of the applicant and Ms. Jenkins about the quality and effectiveness of the public consultation are quite different. This is not the fault of the applicant or Ms. Jenkins; it merely reflects the fact that the parties do not agree.

62. The Commission considers that the consultation program undertaken by RES had deficiencies, as evidenced by Ms. Jenkins' records and submissions:

- RES failed to ensure its records reflected the correct mailing address for Ms. Jenkins, despite having been alerted to the deficiency. Even after RES corrected Ms. Jenkins' mailing address, her correct mailing address did not appear in the most recent request for mailing labels by the Commission.
- RES proceeded with an open house without first confirming receipt of the project-specific information packages advertising the open house. In addition, its receipt of a mail-out package returned to sender, for which the addressee was a stakeholder who had already articulated concerns to RES, warranted follow-up and correction, which was not undertaken.

⁵⁹ Transcript, Volume 3, page 638, lines 16-20.

⁶⁰ Transcript, Volume 2, page 442, lines 7-20.

⁶¹ Decision 2011-436: AltaLink Management Ltd. and EPCOR Distribution & Transmission Inc. – Heartland Transmission Project, Proceeding 457, Application 1606609, November 1, 2011, page 57, paragraph 283.

- RES provided Ms. Jenkins with information on the “alternate” status of turbine T111 that may have been misleading, due to a misunderstanding on the part of its representative.
- There are discrepancies between the records kept by RES and Ms. Jenkins, including a failure by RES to enter three records of contact with Ms. Jenkins, as acknowledged during the oral hearing.

63. Notwithstanding the above noted deficiencies, the Commission considers that RES designed its participant involvement program to ensure all potentially directly and adversely affected persons and all relevant and interested stakeholders understood the project, had an opportunity to voice concerns and to have those concerns addressed where feasible. This is consistent with the purpose of consultation and Rule 007 requirements.

64. The Commission finds that Ms. Jenkins was aware of the project as of October 20, 2016,⁶² and had an adequate opportunity to learn about the project. While Ms. Jenkins did not receive the initial mail-out package, RES eventually rectified this error and provided her with the information once it was aware of the error. The Commission finds that this error did not prevent Ms. Jenkins from obtaining information on the project, voicing her concerns or participating in the Commission’s process. Moreover, telephone, email and in-person correspondence between Ms. Jenkins and RES continued to occur while the mailing address was incorrect. While full and accurate information was not provided with respect to the status of turbine T111, the overall project information provided to Ms. Jenkins appears to have accurately represented the nature of the project. Ms. Jenkins’ participation in the Commission’s process and her evidence and testimony demonstrates her understanding of the project.

65. The Commission is similarly satisfied that Ms. Jenkins had an adequate opportunity to identify areas of concern and voice her concerns to RES. This is reflected in the consultation records kept by RES and by Ms. Jenkins, as well as her participation in the hearing process. While the Commission acknowledges that the records kept by RES were not as detailed or complete as those kept by Ms. Jenkins, it considers that the records as a whole are generally consistent and present a reasonably accurate representation of the consultation conducted.

66. Through the consultation process, Ms. Jenkins had a reasonable opportunity to have her concerns addressed where feasible and some of those concerns were partially addressed through the removal of a number of turbines near her residence (T108, T109, T110 and T114). Based on the evidence on the record, the Commission does not consider that Ms. Jenkins’ concerns were the primary driver for the removal of these turbines. However, that does not change the fact that the removal of these turbines partially addressed her concerns.

67. The Commission notes that RES expanded its consultation and notification areas beyond the Commission’s minimum requirements and that a number of interveners were able to reach agreements with RES and have their concerns addressed. In addition, RES committed to ongoing consultation, such as consulting with a landowner who was engaged late in the process.

68. Despite some deficiencies in the consultation undertaken with Ms. Jenkins, the Commission is satisfied that RES’ consultation program met the purpose of consultation and the objectives of Rule 007. Ms. Jenkins and other parties whose rights may have been directly and

⁶² Exhibit 22966-X0130, BHEC-RES -FortyMile A. Jenkins Information Request Responses, PDF page 73.

adversely affected by the project were informed and had an opportunity to provide feedback from an early stage of the process.

69. As noted above, the Commission considers that effective consultation allows parties to understand the nature of a proposed project and identify areas of concern, and that it provides a reasonable opportunity to engage in meaningful dialogue and discussion with the goal of eliminating or mitigating to an acceptable degree the affected parties' concerns about the project. Having regard to these principles, and for all the above reasons, the Commission finds that RES' participant involvement program meets the regulatory requirements of Rule 007.

6 Environmental impacts

6.1 Project-specific environmental effects and mitigation

6.1.1 Views of RES

General environmental conditions, mitigation and surveys

70. RES retained Golder Associates Ltd. (Golder) to prepare an environmental evaluation report for the project (EE Report).⁶³ The EE report was based on desktop information, supplemented by vegetation, wetlands and wildlife field work conducted in 2016 and 2017. The EE report predicted that, with the implementation of the proposed mitigation measures, the proposed project would not cause significant environmental effects on the assessed environmental components.

71. On November 27, 2017, Golder provided an *Evaluation of Changes Technical Memorandum* which updated the project's residual effects assessment to account for the project's final turbine model and an updated project layout. The *Evaluation of Changes Technical Memorandum* was based on the 2017 Wildlife Directive for Alberta Wind Energy Projects (2017 Wildlife Directive) and the *Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grassland and Parkland Natural Regions of Alberta*. The *Evaluation of Changes Technical Memorandum* was also provided to AEP WM for review.⁶⁴

72. RES stated that it would develop an environmental protection plan (EPP) prior to construction that would include all commitments made as part of regulatory approval applications.⁶⁵

73. Golder stated that the project footprint does not intersect or encroach upon any provincially or federally-designated parks or protected areas.⁶⁶ Approximately four per cent of the project area consists of native upland,⁶⁷ which is more likely to be used by wildlife than cultivated or pasture lands. However, less than one per cent of the construction footprint overlaps

⁶³ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan.

⁶⁴ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 28.

⁶⁵ Exhibit 22966-X0049, Response to Information Request Round 2, PDF pages 38-39.

⁶⁶ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 49.

⁶⁷ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, Table 4-1 on PDF page 38.

with native upland coulee and no surface disturbance of native upland areas is anticipated because collector lines in such areas will use directional bore drilling.⁶⁸

74. The EE report describes the potential effects of the project on wildlife, which include direct habitat loss and alteration, habitat avoidance due to sensory disturbance, and increased wildlife mortalities.⁶⁹ The EE report itemized a large number of mitigation measures to minimize the project's effects to wildlife, including developing a Post-Construction Monitoring and Mitigation Plan (PCMM Plan).⁷⁰ The PCMM Plan in turn describes the post-construction monitoring and mitigation that RES proposes to implement during construction and operation to understand the project's direct effects on birds and bats, assess the effectiveness of mitigation, and determine whether additional or modified mitigation is necessary.⁷¹ RES stated that it will submit an updated version of the PCMM Plan to the Commission and AEP WM prior to construction that will confirm the turbines selected for post-construction carcass surveys, include consideration of other operational wind projects, and address any additional changes to the PCMM Plan required by AEP WM.⁷²

75. Golder prepared a *Wildlife Baseline Report* for the project which describes the methods and results of the pre-construction wildlife surveys conducted in 2016.⁷³ The pre-construction wildlife surveys included sharp-tailed grouse, burrowing owl, breeding bird, spring and fall bird migration, raptor nest, and spring and fall bat migration surveys.⁷⁴ Thirty-five species at risk and several species at risk habitat features were observed in the project area during the 2016 surveys.⁷⁵

Alberta Environment and Parks Wildlife Management's review of project

76. RES provided a *Renewable Energy Referral Report*, which was issued on August 10, 2017, by AEP WM for the project as part of its application.⁷⁶ This report concluded that while the project poses an overall "low" risk to wildlife and wildlife habitat, the project still poses a "high" unmitigated mortality risk to bats that could be significantly reduced to "moderate" with the implementation of post-construction mitigation. On November 30, 2017, in response to project amendments, AEP WM issued an update letter to its

⁶⁸ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF pages 44 and 46; Exhibit 22966-X0010, At Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 93.

⁶⁹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix H, Wildlife Baseline Report, PDF pages 98-100.

⁷⁰ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 101-103.

⁷¹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 286-287.

⁷² Exhibit 22966-X0094, AUC Information Request – Round 3, PDF page 14; Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF pages 10-11.

⁷³ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix H - Wildlife Baseline Report, PDF pages 183-282.

⁷⁴ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix H - Wildlife Baseline Report, PDF page 93.

⁷⁵ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 94 and 96-97.

⁷⁶ Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter.

Renewable Energy Referral Report which stated that the assessed risk to wildlife would be less than, or equal to the project's original low risk rating.⁷⁷

Rare vegetation and weeds, and wetlands and surface water

77. While four sensitive plant species have been observed in the project area,⁷⁸ due to the majority of the lands being altered or disturbed by agricultural activity, Golder assessed the project area to have low suitability for listed plants⁷⁹ and no ecological communities or plant species listed provincially or federally were found during the project's vegetation field surveys.⁸⁰ Twenty-two weed species were identified in the project area during the project's vegetation field surveys, including five provincially regulated noxious weeds.⁸¹ To mitigate the introduction or spread of weed species, Golder indicated that all construction equipment would enter the project area in a clean condition, the project footprint would be regularly monitored for weed infestations during operation, and that the project would abide by the *Alberta Weed Control Act* and *Weed Control Regulation*.⁸²

78. Desktop mapping and field surveys were initially used to identify wetlands. Golder stated that during construction, 24 wetlands or 0.7 hectares (ha) could be temporarily affected as a result of construction-related activities and that eight of these are higher value Class III to V wetlands.⁸³ The final layout would permanently affect four Class I-II wetlands, two Class III wetlands, and one Class IV wetland.⁸⁴ Project infrastructure is expected to result in the permanent loss of 0.3 ha of wetland area.⁸⁵

79. Golder stated that avoidance would be the primary wetland mitigation employed during construction and operation and that this approach to mitigation has been highly successful.⁸⁶ For any wetlands that cannot be avoided, applicable *Water Act* and *Public Lands Act* approvals will be obtained. The EE Report contained a number of general mitigation measures to minimize indirect effects on wetlands during construction.⁸⁷ While none of the proposed turbines are located within AEP WM's recommended 100 metre plus rotor length minimum setback, portions of other project components are located within the 100 metre setback. Golder testified that the majority of these infringements were done in consultation with AEP WM.⁸⁸

⁷⁷ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment F – Alberta Environment and Parks Referral Letter Update, PDF page 67.

⁷⁸ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 66.

⁷⁹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 66.

⁸⁰ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 66.

⁸¹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 67.

⁸² Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 47, 68-70.

⁸³ Transcript, Volume 1, page 54, lines 5-8.

⁸⁴ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 46.

⁸⁵ Transcript, Volume 1, page 38, lines 17-22, and page 45, lines 9-11.

⁸⁶ Transcript, Volume 1, page 45, lines 18-19.

⁸⁷ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Section 3.5.4.1 on PDF pages 76-77.

⁸⁸ Transcript, Volume 3, page 595, lines 3-9.

80. As a result of two new ferruginous hawk nests discovered near the project area in 2017, RES adjusted the locations of four turbines and infrastructure located within the 1,000 metre setback of these nests, in consultation with AEP WM, to maximize distance from the nests while considering other environmental constraints. As a result, the collector line and access roads associated with turbine T117 will directly impact a Class IV wetland which may trigger the need for a wetland permanence assessment and Crown ownership determination under the *Public Lands Act*.⁸⁹

Amphibians

81. RES has not completed any amphibian surveys for the project to date⁹⁰ but committed to conducting non-intrusive amphibian surveys prior to construction in instances where project infrastructure infringes upon AEP WM's recommended 100 metre minimum setback from Class III to VI wetlands.⁹¹ Golder agreed with Mr. Cliff Wallis, a professional biologist retained by Ms. Jenkins, that wetlands, drainages, and springs in the vicinity of turbines T75 to T79, T25 to T29, and T42 offer high-potential breeding habitat relative to other parts of the project area.⁹² RES expressed its preference to conduct spring acoustic amphibian surveys in spring 2019 to facilitate its construction schedule, but also committed to conducting summer visual shoreline surveys to determine whether northern leopard frogs and western tiger salamanders are present.⁹³ Golder stated that for this project area, non-acoustic surveys in the fall will be more effective at detecting the presence of amphibian species at risk than spring acoustic surveys.⁹⁴ If amphibians are discovered during the planned amphibian surveys, RES committed to notifying AEP WM and developing a mitigation plan in consultation with AEP WM prior to construction.⁹⁵ It also committed to curtailing vehicle traffic along project access roads following major spring, summer, and fall rainfall events to reduce potential mortalities of northern leopard frogs and western tiger salamanders, which tend to emerge during and following major rainfalls.⁹⁶

Birds

82. The project area is located within sharp-tailed grouse, burrowing owl and sensitive raptor ranges.⁹⁷ No active leks for those species were found within the project area. Golder stated that pre-construction burrowing owl, sharp-tailed grouse, and raptor nest surveys will be kept current.⁹⁸ If additional sharp-tailed grouse leks or nest features are identified during future surveys, RES has committed to notifying and consulting with AEP WM to identify mitigation

⁸⁹ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 52.

⁹⁰ Transcript, Volume 1, page 32, lines 7-9, and page 62, lines 7-16.

⁹¹ Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter, PDF page 11; Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 59; Transcript, Volume 1, page 63, lines 12-19, and page 64, lines 4-15; Transcript, Volume 3, page 593, lines 23-25; Exhibit 22966-X0172, Appendix C - De La Mare, PDF page 7.

⁹² Transcript, Volume 2, page 275, lines 14-25.

⁹³ Transcript, Volume 2, page 276, line 14 to page 277, line 7.

⁹⁴ Transcript, Volume 2, page 274, lines 7-25.

⁹⁵ Transcript, Volume 2, page 275, lines 9-13; Transcript, Volume 3, page 594, lines 2-6.

⁹⁶ Transcript, Volume 2, page 276, line 17 to page 277, line 7.

⁹⁷ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 92.

⁹⁸ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 107.

measures that would be applied to any nearby project infrastructure to reduce impacts to the new features.⁹⁹

83. Wetlands in the project area offer habitat for waterbirds. RES committed to micro-site turbine T72, which is located near a wetland that offers productive marsh and open water habitat,¹⁰⁰ to increase its setback from this wetland to the extent possible without reducing turbine T72's setback from a nearby ferruginous hawk nest.¹⁰¹

84. Waterfowl and passerines were the most common bird species groups detected during the 2016 spring and fall avian use surveys. Followed by waterfowl, passerines have the greatest turbine collision risk in the project area.¹⁰² Mitigation for passerines and waterbirds was based on regional siting of the project and micro-siting project infrastructure away from areas where waterbirds would be concentrated.¹⁰³ RES has not developed any specific bird mortality operational mitigation;¹⁰⁴ instead, mitigation will be implemented if necessary based on post-construction monitoring results and consultation with AEP WM.¹⁰⁵ If the carcass of a bird species at risk is discovered during the post-construction carcass surveys or during operation, RES committed to notifying AEP WM and evaluating specific operational mitigation, such as turbine curtailment or shutdown, in consultation with AEP WM.¹⁰⁶

85. Twenty-three active raptor nests, including six ferruginous hawk nests and 11 Swainson's hawk nests, and a number of raptor species, including ferruginous hawk, golden eagle, and Swainson's hawk, were identified in the project area during the project's 2016 surveys.¹⁰⁷ Golder stated that all turbines have been located outside of AEP WM's setbacks from the nests of great-horned owl, Swainson's hawk, red-tailed hawk, and ferruginous hawk, and that for four of the six original ferruginous hawk nests, no project components will be constructed within AEP WM's 1,000 metre setback.¹⁰⁸ While segments of collector line and new access roads will be sited within 1,000 metres of two of the six original ferruginous hawk nests, construction of these segments will occur outside of the raptor nesting period.¹⁰⁹

86. Two new ferruginous hawk nests were identified in 2017 in close proximity to the project area through AEP WM review of another project in the area.¹¹⁰ As a result, RES moved four

⁹⁹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 107.

¹⁰⁰ Transcript, Volume 2, page 277, lines 8-15.

¹⁰¹ Transcript, Volume 2, page 277, line 16 to page 278, line 11.

¹⁰² Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 96; Transcript, Volume 1, page 71, lines 13-25.

¹⁰³ Transcript, Volume 1, page 75, lines 8-11, and page 77, lines 17-21; Transcript, Volume 2, page 282, lines 4-10.

¹⁰⁴ Transcript, Volume 1, page 77, lines 4-11.

¹⁰⁵ Transcript, Volume 1, page 75, line 11 to page 77, line 3.

¹⁰⁶ Transcript, Volume 2, pages 284, lines 10-24; Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 34.

¹⁰⁷ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 94; Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix H - Wildlife Baseline Report, PDF pages 200, 267-268.

¹⁰⁸ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 101.

¹⁰⁹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 106; Exhibit 22966-X0011, Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter, PDF page 11.

¹¹⁰ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 41.

turbines (T117, T118, T3, and T21) and their associated project infrastructure in consultation with AEP WM.¹¹¹ Because two turbines (T21 and T117) and associated infrastructure remain within the 1,000 metre setback of one of the new ferruginous hawk nests,¹¹² the operation of the project will increase the mortality risk to ferruginous hawks using this nest.¹¹³ To mitigate the project's adverse effects on this nest, RES proposed multiple mitigation measures, including scheduling construction activities outside of the raptor nesting period, no post-construction monitoring at turbines T21 and T117 to reduce nearby vehicle traffic, and monitoring nest status and productivity.¹¹⁴

87. RES committed to three years of post-construction monitoring of nest status and productivity for the four ferruginous hawk nests for which project infrastructure will encroach on the 1,000 metre setback. Monitoring will be done from a distance using a spotting scope, and if one or more of the nesting adults are noticed to be missing during the nesting period, AEP WM will be immediately informed and appropriate mitigation will be implemented in consultation with AEP WM.¹¹⁵

88. RES stated that following completion of the post-construction wildlife monitoring program, it would notify AEP WM if any raptor species at risk carcasses are discovered at any time during operation.¹¹⁶

Bats

89. Migratory bat species such as hoary, silver-haired and red bats experience the greatest fatalities from wind power projects in Alberta.¹¹⁷ Seven bat species were identified during acoustic surveys, including the provincially "sensitive" status silver-haired bat and red bat, the federally "endangered" status little brown myotis, and the hoary bat.¹¹⁸ During the fall 2016 and spring 2017 bat surveys, respectively, an average of 5.19 and 0.90 bat passes per detector night were recorded, with many of these detections consisting of silver-haired and hoary bats.¹¹⁹ Bat activity was highest between late July and early September, with peaks occurring in early August and early September.¹²⁰ The project area is therefore categorized by AEP WM as a potentially

¹¹¹ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 52; Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment F – Alberta Environment and Parks Referral Letter Update, PDF page 68.

¹¹² Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 52; Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment F – Alberta Environment and Parks Referral Letter Update, PDF page 68.

¹¹³ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment E – Evaluation of Change, PDF page 53.

¹¹⁴ Exhibit 22966-X0062, Turbine Amendment Attachments C to G, Attachment F – Alberta Environment and Parks Referral Letter Update, PDF pages 69, 53, 58, and 60.

¹¹⁵ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 19.

¹¹⁶ Exhibit 22966-X0094, AUC Information Request – Round 3, PDF page 10.

¹¹⁷ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 95.

¹¹⁸ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 94 and 97.

¹¹⁹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 94 and 95.

¹²⁰ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix H - Wildlife Baseline Report, PDF page 203.

“high risk” site for bat fatalities, because migratory bat activity exceeds an average of 2.0 migratory bat passes per detector night.¹²¹

90. To assess and mitigate the project’s effects on bats during operation, RES proposed to conduct a minimum of three years of bat fatality surveys and provide an annual estimated corrected fatality rate for bats; repeat pre-construction bat acoustic surveys; submit to AEP WM an annual report; and notify and consult with AEP WM about additional mitigation to implement if the corrected bat fatality rate exceeds an average of four bat mortalities per turbine per year.¹²² If additional mitigation is required by AEP WM to address high bat fatality levels present during the initial three-year monitoring period, RES committed to conducting at least two additional years of post-construction bat carcass surveys to assess effectiveness.¹²³ Bat mitigation options for the project as a whole or for specific turbines will be considered in consultation with AEP WM and based on the results of post-construction monitoring.¹²⁴ If bat mitigation is necessary, RES will consider implementing measures such as increased cut-in speeds, altering the pitch angle of blades, seasonal shutdowns, and nightly shutdowns.¹²⁵ Golder testified that curtailment of turbines is an effective mitigation for reducing bat fatalities.¹²⁶ The project’s selected wind turbine technology and proposed meteorological towers are capable of measuring criteria such as wind speed, wind direction, air temperature, barometric pressure, and light levels that are useful for curtailment types of operational bat mitigation.¹²⁷ Ongoing consultation with AEP WM will occur to ensure the bat mitigation measures selected are effective.¹²⁸ AEP WM reviewed the PCMM Plan and submitted that the mitigation measures outlined would be sufficient to reduce the project’s risk to bats from high to moderate.¹²⁹

Decommissioning and reclamation

91. In its EE Report, RES described its post-construction clean-up and reclamation activities¹³⁰ as well as its planned decommissioning and reclamation activities at the project’s end-of-life following any repowering activities.¹³¹ It confirmed that landowners will be consulted on these decommissioning activities, and that it will abide by the reclamation requirements of the *Conservation and Reclamation Regulation*¹³² under the *Environmental Protection and Enhancement Act*,¹³³ which requires it to obtain a reclamation certificate from Alberta

¹²¹ Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter, PDF page 14.

¹²² Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix I – Post Construction Monitoring and Mitigation Plan, PDF pages 283-301.

¹²³ Transcript, Volume 2, page 303, lines 1-11; Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter, PDF page 15.

¹²⁴ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix I – Post Construction Monitoring and Mitigation Plan, PDF page 298; Exhibit 22966-X0094, AUC Information Request – Round 3, PDF page 14; Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 11.

¹²⁵ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, Appendix I – Post Construction Monitoring and Mitigation Plan, PDF page 298.

¹²⁶ Transcript, Volume 2, page 308, lines 2-13.

¹²⁷ Transcript, Volume 2, page 306, lines 4-12.

¹²⁸ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 11.

¹²⁹ Exhibit 22966-X0011, Attachment H_Alberta Environment and Parks Referral Letter.

¹³⁰ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 23.

¹³¹ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF page 24.

¹³² Alta Reg 115/1993.

¹³³ RSA 2000, c E-12.

Environment and Parks at decommissioning.¹³⁴ RES also confirmed that it has a commitment to remove project infrastructure and return the land to original use in its lease agreements with landowners.¹³⁵

92. RES stated that it has not reserved funds or included any provisions in its lease agreements to secure funds for the purposes of decommissioning and reclamation at the end of the project's life.¹³⁶ It submitted that the project's lenders are required under contract to step in and cure a default in the case of project abandonment during operation,¹³⁷ and that the salvage value of the project "goes a long way towards the decommissioning cost of the facility."¹³⁸ Two external studies and internal calculations were provided in support of that assertion.¹³⁹ RES also asserted that the long-term owner of the project, Berkshire Hathaway Energy Canada, is a responsible business operator in the province of Alberta and an owner of AltaLink Management Ltd., and consequently has an ongoing business interest in maintaining and respecting its engagements to landowners and applicable regulations.

6.1.2 Views of Anita Jenkins

93. Ms. Jenkins raised concerns about the project's impacts on wildlife, particularly ferruginous hawk, waterfowl, owls, Trumpeter swan, and bat species at risk.¹⁴⁰

94. Ms. Jenkins submitted that the "precautionary principle" should be considered and applied by the Commission in making its decision.¹⁴¹ The precautionary principle "recognizes that since there are inherent limits in being able to determine and predict environmental impacts with scientific certainty, environmental policies must anticipate and prevent environmental degradation."¹⁴²

95. Ms. Jenkins retained Mr. Cliff Wallis, a professional biologist with Cottonwood Consultants Ltd., to file evidence and testify on her behalf on wildlife matters. Ms. Jenkins submitted that the Commission should consider the mitigation measures proposed by Mr. Wallis, particularly the use of radar technology during operation to reduce bird and bat fatalities, and conducting pre-construction amphibian surveys.¹⁴³ She submitted that the fact that AEP WM issued a *Renewable Energy Referral Report* for the project is not sufficient grounds for the Commission to approve the project without requiring additional wildlife mitigation and monitoring conditions, such as those recommended by Mr. Wallis.¹⁴⁴

96. Mr. Wallis presented information on ESAs. He stated that portions of the project area are adjacent to quarter sections identified as provincially significant ESAs under Fiera 2014.¹⁴⁵

¹³⁴ Exhibit 22966-X0130, BHEC-RES -FortyMile A. Jenkins Information Request Responses, PDF page 24; Transcript Volume 3, pages 603-604.

¹³⁵ Transcript, Volume 2, page 319, lines 1-8.

¹³⁶ Transcript, Volume 2, pages 319-322.

¹³⁷ Transcript, Volume 2, page 325, lines 5-8; Transcript, Volume 3, page 605, lines 11-16.

¹³⁸ Transcript, Volume 2, page 321, lines 7-10.

¹³⁹ Exhibit 22966-X0203, RES Letter to AUC re Response to Undertaking 8 - June 29, 2018.

¹⁴⁰ Exhibit 22966-X0136, 2018 05 22 Jenkins Master Submissions, page 5 (paragraph #22); Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF pages 7 to 8.

¹⁴¹ Transcript, Volume 3, page 652, lines 7-11.

¹⁴² Transcript, Volume 3, page 652, lines 17-23.

¹⁴³ Transcript, Volume 3, page 653, lines 3-7.

¹⁴⁴ Transcript, Volume 3, page 653, lines 19-23, and page 654, lines 10-14.

¹⁴⁵ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, May 2018, PDF page 8.

The project area is also surrounded by some other Fiera 2009 and Fiera 2011 provincially and nationally significant ESAs, although none of these ESAs are in the immediate vicinity of the project.¹⁴⁶

97. Mr. Wallis discussed the risk of passerine fatalities from the operation of the turbines, and stated that in his view, the magnitude of the project's adverse residual effects on passerines should have been classed by Golder as medium rather than low.¹⁴⁷ Mr. Wallis submitted that radar and acoustic technology, which can detect a group of birds approaching and trigger curtailment, may be necessary when a project poses a moderate to high collision risk to nocturnally active species such as migrating passerines.¹⁴⁸

98. Mr. Wallis raised concerns with the project's potential effects on waterbirds (e.g., shorebirds, waterfowl, and marsh birds) and wetlands. He noted that waterbirds are susceptible to turbine collisions,¹⁴⁹ and that a number of marsh bird species at risk may also be present.¹⁵⁰ Mr. Wallis also mentioned that there are very productive wetlands in the project area,¹⁵¹ that the project has proposed no explicit mitigation for waterbirds and¹⁵² that the field data collected was inadequate to evaluate risk to waterbirds.¹⁵³ He considered that Golder's determination of minimal to low residual effects on wetland-dependant bird species cannot be supported by the evidence,¹⁵⁴ and should have been classed as medium or high, and "significant"¹⁵⁵ because bird mortalities from wind projects can also be cumulatively significant.¹⁵⁶

99. Mr. Wallis expressed concern with the project's lack of adherence to the 2017 Wildlife Directive's 100 metre wetland setback from roads and collector lines.¹⁵⁷ The setback is infringed upon at 170 of the project area's 3,500 Class III, IV, and V wetlands,¹⁵⁸ and turbine T72 is sited within AEP WM's recommended 166 metre setback from a Class III wetland.¹⁵⁹ There are also 31 instances where a project access road or collector line directly affects a wetland.¹⁶⁰

¹⁴⁶ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, May 2018, PDF page 7.

¹⁴⁷ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF pages 13-14 (Response to IR AK-AUC-2018JUN01-003(h)).

¹⁴⁸ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 20; Transcript, Volume 2, page 475, lines 11-17; Transcript, Volume 2, page 377, lines 5-21; Transcript, Volume 2, pages 457, lines 6-19 and page 458, lines 7-12.

¹⁴⁹ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 20.

¹⁵⁰ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF pages 11 to 12 (Response to IR AK-AUC-2018JUN01-003(b)).

¹⁵¹ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 22.

¹⁵² Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 25.

¹⁵³ Transcript, Volume 2, page 358, lines 2-5) page 361, lines 7-12 and page 365, lines 9-13.

¹⁵⁴ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, May 2018, PDF page 15.

¹⁵⁵ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF pages 13 to 14 (Response to IR AK-AUC-2018JUN01-003(h)).

¹⁵⁶ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 3.

¹⁵⁷ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF pages 12 to 13; Transcript, Volume 2, page 358, lines 10-11.

¹⁵⁸ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 13.

¹⁵⁹ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 14; Transcript, Volume 2, page 360, lines 16-18.

¹⁶⁰ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 13.

100. Mr. Wallis is also concerned with the project's potential project-only and cumulative effects on raptors, including raptors' susceptibility to turbine collisions,¹⁶¹ and that the ferruginous hawk is particularly vulnerable to collisions with turbines.¹⁶²

101. Mr. Wallis recommended that additional wildlife field data be collected for waterbirds (shorebirds, waterfowl, and marsh birds) and migratory passerines.¹⁶³ He recommended that should significant interactions between birds and the project (i.e. species at risk mortalities or mortalities exceeding thresholds for bird species) be found during operation, alterations to the operation of the project be required as a condition of approval.¹⁶⁴ Mr. Wallis submitted that radar technology that can automatically trigger turbine curtailment when a certain number of birds are arriving in the project area should be considered during operation, which could be implemented throughout the year or only during periods of high bird use.¹⁶⁵⁻¹⁶⁶ Mr. Wallis submitted that the Commission should consider establishing an overall bird mortality threshold for the project that would trigger turbine operational mitigation, and as an example, suggesting adapting the Ontario Ministry of Natural Resources guidance for Alberta (which requires operational mitigation if any of a wind project's individual turbines or groups of turbines exceed an estimated corrected bird mortality rate of 14 birds per turbine per year).¹⁶⁷ Finally, Mr. Wallis recommended that any bird species at risk mortality from turbine operation (threshold greater than 0) should trigger immediate notification to AEP WM and possibly operational mitigation.¹⁶⁸

102. Mr. Wallis recommended the development of a raptor nest management plan and that any ferruginous hawk mortality from operation of the project trigger immediate notification to AEP WM and operational mitigation.¹⁶⁹

103. Mr. Wallis addressed the project's potential effects on amphibians and amphibian species at risk, including the federally endangered northern leopard frog. That species was detected during field surveys conducted for Suncor's adjacent wind project,¹⁷⁰ and in Mr. Wallis' view, may be present in the project area.¹⁷¹ He considered that amphibian surveys should have been conducted as part of the project's infrastructure planning and siting stage¹⁷² and considered the lack of data collected at specific wetlands as a significant data gap for evaluating project risk to amphibians and informing facility siting.¹⁷³ According to Mr. Wallis, although less than 10 per cent of wetlands in the project area are expected to provide breeding habitat for amphibian

¹⁶¹ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF pages 20 and 22.

¹⁶² Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 22.

¹⁶³ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 29.

¹⁶⁴ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 29.

¹⁶⁵ Transcript, Volume 2, page 465, line 23 to page 466, line 24; Transcript, Volume 2, page 376, lines 1-8 and page 377, lines 5-21; Transcript, Volume 2, page 475, lines 8-17.

¹⁶⁶ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 12 (Response to IR AK-AUC-2018JUN01-003(d)).

¹⁶⁷ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 13 (Response to IR AK-AUC-2018JUN01-003(e); Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 26.

¹⁶⁸ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 13 (Response to IR AK-AUC-2018JUN01-003(g)).

¹⁶⁹ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 17 (Response to IR AK-AUC-2018JUN01-004(c)).

¹⁷⁰ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 15.

¹⁷¹ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 6 (Response to IR AK-AUC-2018JUN01-002(a)).

¹⁷² Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 15; Transcript, Volume 2, page 365, lines 24-25.

¹⁷³ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 15; Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 7 (Response to IR AK-AUC-2018JUN01-002(d); Transcript, Volume 2, page 358, lines 2-5.

species at risk, it is important to search higher potential habitat; this includes wetlands, drainages, and springs in the southern half of the project area.¹⁷⁴ In Mr. Wallis's view, Golder's determination of low residual impacts on amphibians is not supported by the evidence and the magnitude of the project's adverse residual effects on amphibians should have been classed as medium.¹⁷⁵

104. Concerning amphibians, Mr. Wallis recommended that pre-construction surveys be conducted at any wetlands within 100 metres of project infrastructure.¹⁷⁶ Surveys for northern leopard frog (particularly along drainages)¹⁷⁷ and western tiger salamanders should be required, including spring auditory surveys, summer visual search shoreline surveys, and netting surveys following major rainfall events.¹⁷⁸ These surveys should be conducted during certain times of the year when it is more likely to find these species;¹⁷⁹ for example, shoreline surveys in August and following major summer rainfall events for northern leopard frogs,¹⁸⁰ and netting surveys following major summer rainfall events for western tiger salamanders.¹⁸¹ Mr. Wallis also recommended consideration of operational mitigation for amphibians, such as reduced vehicle access to project access roads during and immediately following major rainfall events.¹⁸²

105. Mr. Wallis also addressed his concerns with the project's potential effects on bats. In his submission, the most effective mitigation to reduce bat fatalities from wind turbines is operational curtailment during high risk periods, such as nocturnal periods of low wind speeds during migration periods,¹⁸³ and increasing the turbine wind cut-in-speed.¹⁸⁴

106. Mr. Wallis recommended that turbines selected for post-construction bat carcass surveys include both randomly located turbines in the project area¹⁸⁵ and also higher-risk turbines located closest to productive wetlands that may attract bats. He further recommended that mitigation be required if mortality rates are over the four mortalities per turbine per year threshold identified by AEP WM.¹⁸⁶ Curtailment of turbine operation, such as increased cut-in speeds at individual turbines with high mortalities and turbine shut-down at night during migrating periods, should be the primary bat mitigation and a condition of approval, according to Mr. Wallis.¹⁸⁷

¹⁷⁴ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 6 (Response to IR AK-AUC-2018JUN01-002(b)).

¹⁷⁵ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 7 (Response to IR AK-AUC-2018JUN01-002(d)); Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 15.

¹⁷⁶ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 15.

¹⁷⁷ Transcript, Volume 2, page 361, lines 15-17.

¹⁷⁸ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 7 (Response to IR AK-AUC-2018JUN01-002(c)); Transcript, Volume 2, page 366, lines 1-12.

¹⁷⁹ Transcript, Volume 2, page 365, lines 14-25, page 366, lines 13-14, and page 367, lines 1-6; Transcript, Volume 3, page 650, lines 2-8.

¹⁸⁰ Transcript, Volume 2, pages 366, lines 13-15; Transcript, Volume 2, page 465, lines 2-22.

¹⁸¹ Transcript, Volume 2, page 465, lines 6-8 and lines 17-22.

¹⁸² Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 26.

¹⁸³ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 26.

¹⁸⁴ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 21 (Response to IR AK-AUC-2018JUN01-005(c)).

¹⁸⁵ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 13.

¹⁸⁶ Transcript, Volume 2, page 386, line 22 to page 387, line 1; Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 27.

¹⁸⁷ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 29.

6.2 Cumulative impacts

6.2.1 Views of RES

107. Due to the proximity and overlapping nature of the RES, Suncor and Capital Power projects, the Commission sent a letter to AEP WM requesting additional information on the projects' potential contribution to cumulative impacts on wildlife, and recommendations for mitigation.¹⁸⁸ On April 5, 2018, AEP WM responded to the Commission's request, explaining that the current review process for assessing the risk to wildlife of renewable energy projects does not account for the cumulative risk of multiple projects and therefore was not considered in the individual referral reports previously issued.¹⁸⁹ AEP WM identified potential cumulative impacts from the three projects on raptor mortality, ferruginous hawk breeding/nests, migratory bat mortality, and resident bat species at risk mortality.

108. AEP WM made the following recommendations to address its concerns about cumulative impacts on ferruginous hawks:

- Reducing the overall number of turbines in close proximity to ferruginous hawk nests.
- Moving turbines to allow for biologically reasonable unobstructed flyways between raptor nests and foraging grounds.
- Monitoring all ferruginous hawk nests during construction and post-construction monitoring, including the number of fledged young annually, nest occupancy, and mortalities.
- Compiling the ferruginous hawk monitoring results for all three projects into one single report, and using these combined results to inform an appropriate raptor mitigation plan for all three projects.¹⁹⁰

109. AEP WM also made recommendations on addressing cumulative impacts on bats:

- Repeating annual bat acoustic activity surveys during the three years of the post-construction monitoring program.
- Conducting post-construction bat mortality monitoring at all turbines located within 1,000 metres of an identified bat roost or lake/reservoir. These turbines would be in addition to the requirement to conduct mortality monitoring at a minimum of one third of the turbines.
- Compiling the bat mortality monitoring results for all three projects into one single report, and using these combined results to inform appropriate bat mitigation for all three projects.

¹⁸⁸ Exhibit 22966-X0099, AUC letter to AEP.

¹⁸⁹ Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF page 1.

¹⁹⁰ Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF pages 3-5.

- The estimated corrected migratory bat fatality rate for all three projects combined cannot exceed 500 migratory bats per year.¹⁹¹

110. AEP WM submitted that if only one project is in operation, the project's impacts would be assessed in isolation and mitigation would be required in accordance with current AEP WM policy. AEP WM would evaluate cumulative effects if two or more projects are in operation and would recommend mitigation for all projects if mortality is found to be high. If project commissioning is separated by five years or more, monitoring must be continued or repeated in order to assess cumulative wildlife impacts and potentially implement additional mitigation and monitoring.¹⁹²

111. RES argued that each of the three Forty Mile projects followed a precautionary approach in assessing the magnitude of the project's residual mortality impacts on birds, therefore the predicted cumulative magnitude to raptor species at risk and other bird species at risk during operation is not expected to increase above "medium" when assessing all three projects cumulatively.¹⁹³ RES believed that the post-construction wildlife monitoring and the AEP WM biologist were well-suited to assess and address cumulative mortality impacts of the projects at the time of impact.¹⁹⁴

112. In response to AEP WM's recommendations for addressing cumulative impacts on ferruginous hawks, RES stated that if the project results in high raptor mortalities, it will consult with AEP WM to identify and implement mitigation to achieve a mortality level acceptable to AEP WM.¹⁹⁵ RES also stated that turbines near the ferruginous hawk nests will be included in the project's post-construction carcass surveys.¹⁹⁶

113. In response to AEP WM's recommendation to provide an "unobstructed biologically reasonable flight path" for ferruginous hawks between their nests and foraging grounds, RES and Golder submitted that turbines have been relocated to maximize turbine spacing to allow wider flyways between ferruginous hawk nests and their preferred feeding habitat to reduce potential mortalities¹⁹⁷ and that the updated project layout achieves AEP WM's recommendation.¹⁹⁸

114. RES submitted that it would be onerous and excessive to monitor all eight ferruginous hawk nests within the project area¹⁹⁹ and that a more focused monitoring plan would be more effective in assessing project impact.²⁰⁰ Instead, RES committed to conducting three years of

¹⁹¹ Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF pages 6-8.

¹⁹² Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF pages 5 and 8.

¹⁹³ Exhibit 22966-X0089, BHEC RES AUC IR Response, PDF page 13.

¹⁹⁴ Exhibit 22966-X0089, BHEC RES AUC IR Response, PDF page 13.

¹⁹⁵ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 13.

¹⁹⁶ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 13.

¹⁹⁷ Exhibit 22966-X0010, Attachment G_Environmental Evaluation and Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF pages 102 and 107; Transcript, Volume 2, page 290, line 18 to page 291, line 7.

¹⁹⁸ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 13.

¹⁹⁹ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 14; Transcript, Volume 2, pages 293-295.

²⁰⁰ Transcript, Volume 2, page 294, lines 3-25.

post-construction monitoring of nest status and productivity for the four ferruginous hawk nests for which project infrastructure will encroach on setback distances.²⁰¹

115. RES stated that the cumulative impacts of the three Forty Mile wind projects on local bat populations can only be reliably assessed once post-construction bat fatality field data becomes available, because pre-construction bat activity surveys do not correlate well with actual bat mortalities during operation.

116. RES acknowledged there is potential for the project's migratory bat mortalities during operation to interact cumulatively with migratory bat mortalities from other nearby wind projects,²⁰² but did not agree with AEP WM's recommendation for a 500 bat mortalities per year combined threshold for the three projects that would trigger operational bat mitigation.²⁰³ RES recommended that bat mortality limits should be considered only on a per turbine basis and that four bat mortalities per turbine per year is a reasonable threshold.²⁰⁴ In RES' view, if cumulative bat mortalities are found to be an issue, adaptive mitigation strategies should be developed in consultation with AEP WM to determine whether a specific project or specific turbines are contributing to disproportionally higher rates of mortality.²⁰⁵

117. RES requested that the Commission consider only project-specific conditions and commitments to address cumulative impacts to wildlife and ensure wildlife is protected. This could include requiring wind operators to collaborate with AEP WM about wildlife mitigation once projects become operational.²⁰⁶

118. Golder acknowledged in testimony that based on existing bat survey data at the project site and the effectiveness of existing operational bat mitigations such as curtailment, reducing the project's estimated corrected bat mortality rate below an average of 4.0 and even below 2.0 fatalities per turbine per year is a reasonably achievable goal.²⁰⁷

119. RES stated that while it believed the recommendations made in AEP WM's Cumulative Wildlife Effects letter go beyond current regulatory requirements, RES is committed to working with AEP WM to ensure broader cumulative effects concerns are understood and addressed in an updated version of the project's PCMM Plan.²⁰⁸ RES acknowledged that if it cannot reach an alternative agreement with AEP WM about what specific mitigation the project should implement to address the project's contribution to cumulative impacts, AEP WM would have the final determination and RES would abide by its decision.²⁰⁹

120. RES stated that it supports participating in a collaborative working group with other wind developers in the area and AEP WM if other wind projects become operational, to ensure that

²⁰¹ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 14.

²⁰² Transcript, Volume 3, page 591, lines 1-14.

²⁰³ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 15.

²⁰⁴ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF pages 10 and 12.

²⁰⁵ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 16.

²⁰⁶ Exhibit 22966-X0147.01, BHEC-RES_Forty Mile_AUC Round 5 IR Responses, PDF page 5.

²⁰⁷ Transcript, Volume 2, page 308, line 14 to page 309, line 10.

²⁰⁸ Exhibit 22966-X0129, BHEC-RES- FortyMile A.Jenkins Information Request 1 Responses, PDF page 12.

²⁰⁹ Transcript, Volume 2, page 300, line 12 to page 301, line 2, and page 302, lines 6-10.

wildlife data is shared and mitigation measures implemented for the project contribute to an overall reduction in residual risk to wildlife.²¹⁰

6.2.2 Views of Anita Jenkins

121. As noted above, Mr. Wallis raised concerns with the project's potential cumulative effects on raptors, and in particular, the potential impacts on ferruginous hawks and bats in the area.

122. Mr. Wallis made a number of project-specific recommendations with respect to raptors and also submitted that he did not consider that monitoring all active ferruginous hawk nests in the project area as part of the post-construction wildlife monitoring program would be onerous, as submitted by RES.²¹¹

123. In his evidence, Mr. Wallis addressed the project's contribution to cumulative impacts on bats, indicating that peer-reviewed literature suggests that cumulative bat fatalities from wind power projects may already be having population level effects on some migratory bat species,²¹² including in some cases, increased risk of near or total extinction.²¹³ Mr. Wallis submitted that there are known cumulative disturbance and mortality impacts on bats from wind developments and that the project will contribute to these cumulative impacts.²¹⁴ Mr. Wallis submitted that at a minimum, the proposed Suncor, Capital Power and Wild Rose 1 and 2 projects should inform the project's permissible bat mortality thresholds that trigger operational mitigation.²¹⁵ Mr. Wallis considered that Golder's prediction that the adverse residual effects would be a "medium" in magnitude cannot be supported by the project evidence²¹⁶ and that the project's adverse residual effects on bats should have been classed by Golder as medium, or high and "significant."²¹⁷ Mr. Wallis added that even with the implementation of effective operational mitigation such as increased wind cut-in-speeds during peak bat migration periods, bat mortalities from wind projects can be cumulatively significant.²¹⁸

124. Mr. Wallis submitted that RES' commitment to only implement bat mitigation if mortalities exceed a corrected mortality rate of four bats per turbine per year may be too generous and does not reflect the precautionary principle,²¹⁹ which is noted in the *Bat Mitigation Framework for Wind Energy Projects*.²²⁰

125. Mr. Wallis recommended that cumulative effects to bats be addressed. He stated that bat mortalities during operation and the need for operational mitigation should be considered collectively with mortalities from other wind power projects in the local area (e.g., the Suncor

²¹⁰ Transcript, Volume 2, page 311, lines 2-14; Transcript, Volume 3, page 598, lines 1-3.

²¹¹ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 11.

²¹² Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 22.

²¹³ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF pages 24 to 25.

²¹⁴ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, PDF page 4.

²¹⁵ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 22 (Response to IR AK-AUC-2018JUN01-005(f)).

²¹⁶ Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 19.

²¹⁷ Exhibit 22966-X0165, Jenkins IR Response to AUC, PDF page 22 (Response to IR AK-AUC-2018JUN01-005(g)); Exhibit 22966-X0141, E - Evidence of Cliff Wallis, PDF page 19.

²¹⁸ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 4.

²¹⁹ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 14; Transcript, Volume 2, page 471, lines 6-13.

²²⁰ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, pages 3 and 6.

and Capital Power projects), and not a project-only basis.²²¹ Mr. Wallis stated that given the project's contribution to cumulative mortality impacts on bats in the local area and the uncertainty regarding population-level impacts, the proponent must commit to longer-term operational bat mortality monitoring.²²² Mr. Wallis also recommended implementing continuous acoustic and radar monitoring for bats during operation, and pairing post-construction radar bat studies with bat mortality surveys as a condition of approval.²²³

6.3 Commission findings

6.3.1 Project-specific environmental effects and mitigation

126. The Commission has considered the siting of project infrastructure in light of the location of environmentally significant areas (ESAs) in the area as well as the wildlife data collected by RES through its survey process. The Commission finds that the location of ESAs in relation to project infrastructure is not as important a factor as other criteria used to assess the project's potential environmental effects, such as the presence of native vegetation and quality of wildlife habitat. Because RES has conducted wildlife surveys in the area and identified the locations of specific habitat features, in the Commission's view, the weight to be placed on the presence of ESAs is reduced. While ESAs do suggest proximity to lands with ecological values, the ESAs identified in provincial databases are not intended to be used for micro-siting of infrastructure and do not restrict the development of wind turbines on private lands.

127. The Commission finds that the project's potential adverse effects on native vegetation and wetlands are significantly mitigated by the siting of the project infrastructure, which is not proposed on native grasslands, nature pasture or, with only very limited exception, directly in wetlands. The Commission expects RES to control weeds and plant diseases as described in the application materials and in accordance with the *Alberta Weed Control Act* and *Weed Control Regulation* and the *Agricultural Pests Act*.

128. Similarly, the Commission finds that the siting of project infrastructure on cultivated lands, and not on native grasslands, will reduce the potential for adverse effects on wildlife and wildlife habitat.

129. Based on the project's *Renewable Energy Referral Report*, the Commission is satisfied that while the pre-construction wildlife surveys conducted for the project may not have covered every part of the project area or every productive wetland, they were reviewed and accepted by AEP WM and were reasonable in the circumstances.

130. While there will be adverse effects on wetlands, in the Commission's view, the project's *Renewable Energy Referral Report* suggests that those effects are acceptable from AEP WM's perspective. AEP WM was aware of the justifications for the relaxations of the wetland setbacks from roads when issuing the *Renewable Energy Referral Report*. The Commission therefore concludes that RES' approach to siting roads and collector lines was reasonable in the circumstances. Accordingly, should the Commission approve the project, the following would be a condition of approval:

²²¹ Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 13.

²²² Exhibit 22966-X0164, Evidence of Cliff Wallis re cumulative effects, page 15.

²²³ Transcript, Volume 2, page 381, lines 19-23; Transcript, Volume 2, page 465, line 23 to page 466, line 5; Transcript, Volume 2, page 386, lines 13-16.

- RES will abide by all of AEP WM's requirements, recommendations, and directions outlined in AEP WM's *Renewable Energy Referral Report* and any additional commitments made in its responses to information requests from AEP WM.

131. The Commission recognizes that pursuant to Rule 007, applicants for wind power plants may shift the location of project turbines up to 50 metres from the coordinates stated in the application without having to reapply to the Commission for approval of that change. This is sometimes referred to as "micro-siting". The Commission considers that the flexibility to micro-site turbines within a 50 metre radius of the applied-for coordinates is not intended to permit applicants to contravene environmental setbacks. Accordingly, should the Commission approve the project, the following would be conditions of approval:

- The siting, construction and operation of the project's infrastructure will meet all of AEP WM's recommended minimum setbacks from wetlands and watercourses for the project, unless AEP WM has agreed to one or more of the following: a reduced setback; alternative mitigation in the project's *Renewable Energy Referral Report*; or approval under the *Water Act* for the project.
- The siting, construction and operation of the project's infrastructure will meet all of AEP WM's recommended minimum setbacks for high disturbance level activities from wildlife species at risk habitat features, unless AEP WM has agreed to one or more of the following: a reduced setback; or alternative mitigation in AEP WM's *Renewable Energy Referral Report* for the project.
- If any changes are made to any infrastructure associated with the project, the construction schedule, or the proposed wildlife mitigation measures, RES will submit these changes to AEP WM for its further review to ensure wildlife and wildlife habitat are protected.

132. The Commission acknowledges RES' commitment to a project-specific EPP. The Commission finds that, with the preparation of a project-specific EPP and diligent implementation of the mitigations proposed in that plan, the project's effects on the environment can be mitigated to an acceptable degree. The Commission also acknowledges the commitments made by RES in its PCMM Plan prepared for the project.

133. The Commission considers that, if the project is approved, the following would also be conditions of approval:

- RES shall abide by any requirements and commitments outlined in its final version of the EPP developed for the project. RES shall implement all mitigation measures identified in the EPP and monitor the effectiveness of its mitigation measures. If mitigation measures are unsuccessful, RES, in consultation with AEP WM, must develop and implement additional mitigation to minimize adverse effects on the environment.
- RES will abide by any requirements and commitments outlined in its final version of the PCMM Plan developed for the project. In accordance with the PCMM Plan and AEP WM's requirements, RES will complete a minimum of three years of post-construction wildlife monitoring and submit a report on the results annually to AEP WM. If further mitigation is required/recommended by AEP WM following its

review of the post-construction wildlife monitoring surveys and reports, RES will complete additional post-construction wildlife monitoring surveys and reports to assess the efficacy of the additional mitigation, as directed by AEP WM.

- RES will submit to the Commission annually a copy of the project's post-construction wildlife monitoring report along with any correspondence from AEP WM summarizing its views on the report.
- Following completion of the post-construction wildlife monitoring program, RES will communicate to AEP WM the discovery of any carcasses of species at risk which might be observed near project infrastructure during operation or maintenance.

134. The Commission acknowledges the concerns raised by Mr. Wallis about the project's potential effects on amphibian species at risk, noting that northern leopard frog breeding ponds have been discovered during field surveys for the adjacent Suncor wind project.²²⁴ The Commission notes that portions of the project's collector lines and access roads will be located within AEP WM's recommended 100 metre setback from Class III to V wetlands, which may adversely affect amphibian species at risk and their habitat. The Commission considers that prior to project construction, it is reasonable to conduct amphibian surveys that follow AEP WM survey protocols, at those locations within the project area where amphibian breeding pond habitat may be disturbed as a result of commencing construction activities. Accordingly, the Commission considers that the following conditions would be required if the project is approved:

- RES will complete amphibian surveys following AEP WM survey methodology prior to construction in situations where ground disturbance may occur within 100 metres of potential amphibian breeding pond habitat, including the northern leopard frog and western tiger salamander. This will include spring acoustic surveys, summer visual search shoreline surveys, and, where practicable, will include shoreline and netting surveys following major summer rainfall events for intermittent breeders such as the northern leopard frog and western tiger salamanders. RES will communicate the results of these amphibian surveys to AEP WM and implement any mitigation measures recommended by AEP WM.

135. The Commission further acknowledges RES' commitment to curtailing vehicle traffic along project access roads following major spring, summer, and fall rainfall events to reduce potential mortalities of northern leopard frogs and western tiger salamanders, and expects RES to uphold this commitment.

136. Wetlands in the project area offer habitat for waterbirds. Golder acknowledges in particular that a Class III wetland near turbine T72 likely offers productive marsh and open water habitat for waterbirds,²²⁵ and RES committed to microsite turbine T72 to increase its setback from this wetland to the extent possible without reducing T72's setback from a nearby ferruginous hawk nest.²²⁶ The Commission expects RES to uphold this commitment.

137. Finally, RES confirmed that the project is required to obtain a reclamation certificate from Alberta Environment and Parks at its end of life, in accordance with current applicable legislation. However, RES has not included any provision for reclamation in its leases with

²²⁴ Transcript, Volume 1, page 61, line 20 to page 62, line 3.

²²⁵ Transcript, Volume 2, page 277, lines 8-15.

²²⁶ Transcript, Volume 2, page 277, line 16 to page 278, line 11.

landowners for the project, nor has it otherwise set aside funds to be used for the purpose of decommissioning and reclamation activities at the project's end of life.

138. The Commission's predecessor, the Alberta Energy and Utilities Board, commented on the expectations of power plant proponents, as follows:

"...the public and the province are entitled to the assurance that significant liabilities such as decommissioning costs, reclamation costs and potential public liability for injury or damage to persons or property are properly addressed in power plant applications."²²⁷

139. In that decision, the Alberta Energy and Utilities Board required the proponent of a natural gas-fired generation facility to provide a report estimating decommissioning costs and the means of securing the required funds, as well as insurance, for a natural gas-fired power plant.

140. In this instance, RES has provided an estimate of the costs of decommissioning and has indicated, based on some available secondary literature, that the proceeds from salvaging project infrastructure will cover a significant portion of the expected costs of decommissioning and reclamation. On the basis of that information and RES' assurance of a contractual obligation on the part of RES and the project's financiers to properly decommission and reclaim the project, as well as the evidence of the ultimate ownership of the project, the Commission is satisfied that RES has provided adequate assurance that the costs of decommissioning and reclaiming the project will be sufficiently funded.

141. The Commission expects that the applicant will comply with all applicable requirements for conservation and reclamation of the project site under the *Environmental Protection and Enhancement Act* at the end of the project's life, including the requirement to obtain a reclamation certificate. However, if for any reason, at the time of decommissioning, there are no statutory reclamation requirements in place for wind electric power generating facilities, RES will be required to submit a reclamation plan to the Commission for its review and approval. Accordingly, the Commission finds that should the project be approved, it will be subject to the following condition:

- RES will comply with current applicable reclamation standards at the time of decommissioning. If no legislative requirements pertaining to reclamation are in place at the time of decommissioning, RES will submit a reclamation plan to the Commission for approval.

6.3.2 Effects on birds and bats, including cumulative impacts

142. The Commission notes that several bird and bat species at risk were observed in the area during the various wildlife surveys conducted for the project. Certain mitigation measures proposed by RES on a project-specific basis are likely sufficient to address impacts to some bird and bat populations in the area, as described further below.

143. However, in addition to project-specific concerns that were raised in respect of the project's potential effects on the environment, there was significant discussion in this proceeding

²²⁷ Decision 2001-101, AES Calgary ULC 525-MW Natural Gas-Fired Power Plant Application No. 2001113, December 11, 2001, section 9.1.3, pages 48-49.

on the cumulative effects that may result from the operation of multiple projects in the area, including this project, Suncor's proposed project, and Capital Power's wind project approved in Decision 23049-D01-2018. As described above, AEP WM provided a letter addressing cumulative impacts from the RES, Capital Power, and Suncor projects. In it, AEP WM identified impacts to bird and bat populations in the area that "may be increased with the addition of each new project and may result in an unsustainable impact to these populations" and recommended addressing raptor mortality, ferruginous hawk nest disturbance, migratory bat mortality, and resident bat mortality related to hibernacula/roosts.²²⁸ In these findings, the Commission considers the potential project-specific effects to bird and bat species and mitigation that may be applied on a project level, as well as mitigations that may be necessary should multiple projects be constructed in the area and cumulative effects result.

144. Eight active ferruginous hawk nests were observed in the project area or within 1,000 metres of project infrastructure, and AEP WM's required minimum year-round setback between wind power infrastructure and ferruginous hawk nests is 1,000 metres. Ferruginous hawk is a federally "endangered" and provincially "threatened" status species and is susceptible to colliding with wind turbines and having its breeding activities disturbed by industrial development.

145. In AEP WM's recommendations relating to cumulative impacts on ferruginous hawks from the three proposed projects in the area, AEP WM stated that "[a]ll ferruginous hawk nests must be monitored during construction and as part of the 3 years post-construction monitoring for each project."²²⁹ The Commission agrees with Mr. Wallis that AEP WM's recommendation to monitor all eight active ferruginous hawk nests in the project area during construction and the first three years of operation is not excessively onerous when the effort of doing so is weighed against the benefits of such monitoring. Moreover, RES has agreed to monitor four raptor nests in the project area and will therefore require a raptor biologist on site for the purposes of that monitoring. Accordingly, should the project be approved, the following would be a condition of approval:

- RES will monitor (for potential breeding impacts, such as nest abandonment or disturbance, nesting success, reduction in nest productivity, and raptor mortality) all eight ferruginous hawk nests within the project area during construction and for at least the first three years of operation.

146. The Commission observes that there is currently some disagreement between RES and AEP WM on the specific mitigation should be implemented during construction and operation to address cumulative impacts on raptors and bats. However, RES acknowledged during the hearing that if it cannot reach an alternative agreement with AEP WM about what specific mitigation is appropriate, AEP WM would have the final determination and RES would abide by AEP WM's decision.

147. The Commission notes that the term "local area" is referenced, but currently not defined in AEP WM's *Bat Mitigation Framework for Wind Energy Projects*. The Commission considers that, for purposes of assessing the potential cumulative impacts of this project, should such

²²⁸ Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF page 2.

²²⁹ Exhibit 22966-X0111, AEP-WM's evaluation of cumulative wildlife effects for three Forty Mile projects, PDF page 5.

impacts occur when additional projects are built in proximity to the RES project, the definition of “local area” should be left to AEP WM to determine.

148. The *Bat Mitigation Framework for Wind Energy Projects* document identifies the RES project area as a potentially high risk site for bat fatalities based on the results of the pre-construction bat surveys exceeding an average of 2.0 bat passes per detector night.²³⁰ The Alberta Government’s *Bat Mitigation Framework* indicates that cumulative impacts from the operation of wind projects in an area should also be considered when assessing a project’s risk to migratory bats and an acceptable level of migratory bat fatalities.²³¹

149. In the hearing, Golder agreed that based on existing bat survey data at the project site and the effectiveness of existing operational bat mitigations such as curtailment, reducing the project’s estimated corrected bat mortality rate below an average of 4.0 and even below 2.0 fatalities per turbine per year is a reasonably achievable goal.

150. The Commission finds that while implementing operational mitigation sufficient to bring the project’s estimated corrected mortality rate below an average of 4.0 bats per turbine per year is likely sufficient to address project-only impacts on bats, it may not be sufficient to address cumulative mortality impacts on migratory bats associated with the operation of existing and potential future wind power projects in the area.

151. Recent peer-reviewed literature cited by Mr. Wallis in his evidence and testimony indicates that cumulative bat fatalities from wind power projects may already be having population level effects on several bat species at risk in Canada, including the little brown bat, northern myotis, and long-distance migrants such as hoary bat, silver-haired bat, and eastern red bat, including unsustainable levels of mortality and increased risk of near or total extinction without effective operational bat mitigation.²³² In addition, the little brown myotis, which has a Federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) endangered species status, was also detected during the pre-construction bat surveys.²³³

152. With respect to the project’s potential mortality impacts on bats and the long-term risk to migratory bat populations posed by wind power, the Commission considers that, in the circumstances, it is useful and preferable to apply a “precautionary approach” where possible. The Commission is of the view that this principle can be applied in this instance by requiring RES to implement a robust bat mitigation strategy and monitoring effort during operation.

153. Accordingly, the Commission considers that should the project be approved, the following would be conditions of approval:

- RES shall implement mitigation measures, in consultation with AEP WM, if (i) the results of the post-construction bat carcass monitoring program indicate that the estimated corrected rate of bat fatalities for the RES project exceeds an average of four fatalities per turbine per year; or if (ii) upon the direction of AEP WM, the estimated

²³⁰ Bat Mitigation Framework for Wind Power Development, Alberta Government, June 19, 2013 version, page 3.

²³¹ Bat Mitigation Framework for Wind Power Development, Alberta Government, June 19, 2013 version, page 3.

²³² Exhibit 22966-X0205, RES Response to Undertaking Ten - Zimmerling and Francis 2016 Paper – June 28, 2018.

²³³ Exhibit 22966-X0010: Attachment G_Environmental Evaluation and Post-Construction Monitoring and Mitigation Plan, PDF Page 94.

corrected rate of bat mortalities cumulatively in the local area, as defined by AEP WM, exceeds a threshold determined by AEP WM.

- In addition to any representative turbines in the project area chosen for its post-construction bat carcass surveys in consultation with AEP WM in accordance with the stratified random sample method, RES shall include any turbines that are located near potential roost sites, reservoirs and areas of foraging habitat which would have a higher risk of bat mortality. Turbines monitored under this requirement would not be counted towards the one third selected using the stratified random sample method.

154. Finally, RES testified that it supported participating in a collaborative working group with other wind developers in the area and AEP WM if other wind projects become operational, to ensure that wildlife data is shared and mitigation measures implemented for the project contribute to an overall reduction in residual risk to wildlife.²³⁴ As noted in Decision 23049-D01-2018, Capital Power submitted that it is willing to participate in a working group with the proponents of the other two projects in the area, along with AEP WM, for the purposes of sharing wildlife information and collaborating where necessary to address cumulative effects in conjunction with a broader wind industry consultation process.²³⁵

155. The Commission acknowledges that cumulative impacts on bird and bat populations in the area, as identified by AEP WM, may occur as other projects in the area are constructed. However, the Commission considers the nature and extent of the potential cumulative impacts identified by AEP WM will only be known if and when other projects are constructed in the area. Because of the uncertain nature of the potential cumulative impacts that may arise, including uncertainty surrounding whether other projects are applied-for, approved or constructed in the area, the Commission considers that a working group, comprised of the project proponents in the area and AEP WM, could be an effective means to consider and address potential cumulative effects that may arise.

156. The Commission expects that RES will form a working group with Capital Power and AEP WM for the purpose of sharing wildlife information amongst the proponents and with AEP, and for the purpose of implementing mitigation measures as necessary to address any such cumulative effects. The Commission considers that it would be useful for all the proponents of other projects proposed in the area to participate in such a working group, including Suncor.

157. Accordingly, should the project be approved, the following would be a condition of approval:

- RES will abide by any requirements, recommendations and directions provided by AEP WM, whether in the context of a working group or otherwise, including any additional monitoring and mitigation that AEP WM considers necessary to address cumulative effects occurring from two or more projects within the local area, as defined by AEP WM.

²³⁴ Transcript, Volume 2, page 311, lines 2-14; Transcript, Volume 3, page 598, lines 1-3.

²³⁵ Decision 23049-D01-2018: Capital Power Generation Services Inc. – Whitla Wind Project, paragraph 125.

7 Noise

158. In this section, the Commission considers the noise impacts that the proposed turbines and associated infrastructure will likely generate at nearby residences.

159. RES retained Golder to prepare a NIA for the project. On September 14, 2017, the original NIA was filed as an attachment to RES' application for the project.²³⁶ A number of updates to the NIA were subsequently filed due to changes in the project layout, the incorporation of common modelling parameters after the technical meeting process,²³⁷ and a newly identified receptor. The final NIA was filed on March 23, 2018.²³⁸ In its NIA and updates, RES stated that the project complies with the permissible sound levels and is in compliance with Rule 012.

160. Ms. Jenkins questioned the adequacy of the noise modelling and assessments conducted for the project, and raised concerns about potential health effects from project noise, in particular, those associated with low frequency noise and infrasound. Ms. Jenkins retained Dr. Mariana Alves-Pereira, who reviewed the revised NIA filed on March 23, 2018, submitted written evidence and testified at the hearing on low frequency noise and infrasound matters.

161. Golder submitted a number of supplementary documents in support of its NIA. Mr. Andrew Faszer, a senior acoustical engineer, testified on behalf of Golder at the hearing. RES also retained Dr. Loren Knopper, an environmental health scientist, from Stantec Consulting Ltd. to prepare a report on wind turbines and human health, provide information in response to information requests, provide rebuttal evidence and testify at the hearing.

162. This section is organized into three parts. First, the Commission provides a brief overview of some basic concepts underlying sound measurement, including concepts related to low frequency noise and infrasound as they were discussed in this proceeding. Second, the Commission considers the parties' views and makes findings on whether RES' noise impact assessment complies with Rule 012. Third, the Commission considers the parties' views and makes findings on the low frequency noise and infrasound that may be produced by the project and any potential health impacts.

7.1 Overview of noise concepts

163. Rule 012 applies to noise from the construction and operation of energy-related facilities (e.g., electric and natural gas utility facilities), under the Commission's jurisdiction. Rule 007 requires an applicant to provide an NIA as part of a power plant application, and Section 3 of Rule 012 includes the requirements for what must be included in an NIA.

164. Operating wind turbines create noise at various frequencies, including noise at low frequencies. Rule 012 is designed to ensure that the noise from a facility, measured cumulatively with noise from other nearby energy-related facilities, will not exceed the permissible sound levels calculated in accordance with the rule.

²³⁶ Exhibit 22966-X0013, Attachment J_ Noise Impact Assessment.

²³⁷ Exhibit 22966-X0098, AUC Ruling on further process, PDF pages 6 to 7.

²³⁸ Exhibit 22966-X0108, Noise Impact Assessment Update.

165. The permissible sound level is the maximum allowed daytime and nighttime sound level, measured at a point 15 metres from a dwelling(s), in the direction of the facility. The daytime period is defined as the hours from 7 a.m. to 10 p.m. and the nighttime period is defined as the hours from 10 p.m. to 7 a.m. In this proceeding, the permissible sound level applies to a height of 1.5 metres for a single storey dwelling and at a height of 4.5 metres for a two storey dwelling when measured. Seventy-three dwellings (or receptors) were evaluated in the NIA. The permissible sound level values for the project receptors were calculated in accordance with Rule 012.

166. The cumulative sound level, which is compared to the permissible sound level for compliance determination, includes the assumed or measured ambient sound level, the noise contribution from existing and approved but not yet constructed energy-related facilities, and the predicted sound level contribution from the proposed project.

167. In this proceeding, in addition to the dB, dBA and dBC weighted scales defined in Rule 012, there was some discussion of the G-weighted decibel scale (dBG). The G-weighted scale is used for comparing low frequency and infrasound noise measurements to human audibility. The suitability of the G-weighted scale for measuring low frequency noise and infrasound was the subject of debate in this proceeding, as described further in the sections below.

168. Where a project's dBC sound pressure value is available, Section 3.2(11) of Rule 012 requires the applicant to calculate the dBC sound pressure value minus the dBA sound pressure value to identify the potential for a low frequency noise condition. Rule 012 states that a low frequency noise condition may exist when: (i) the time-weighted average dBC – dBA value for the measured daytime or nighttime period is equal to or greater than 20 dB; and (ii) a clear tonal component exists at a frequency between 20 to 250 hertz (Hz). Rule 012 does not refer specifically to the term "infrasound".

169. The adequacy of the Rule 012 test for assessing low frequency noise and infrasound was also the subject of debate, as discussed further below.

7.2 Rule 012 compliance

7.2.1 Views of RES

Sound source identification

170. The primary noise sources in the project NIA were the 115 Siemens Gamesa G132 3.465-MW wind turbine generators and one electrical substation with three 150 MVA transformers. The turbines are capable of operating in one of five different operating modes, which include the standard full power (STD) mode, and four noise reduced modes: NL1, NL2, NL3 and NL4. Mr. Faszter testified that manufacturer's data were used as inputs in the NIA, and stated that the inherent uncertainty of the predicted noise emissions were accounted for through conservative assumptions in the modelling.²³⁹

171. The NIA stated the maximum octave band sound power levels were modelled for the transformers at the proposed substation and would occur when all transformers are operating in

²³⁹ Transcript, Volume 1, page 88, line 7 to page 89, line 4.

the Oil Natural Air Forced 2nd-Stage Cooling mode with all transformer cooling fans operating. RES stated that the operating mode for wind turbines would be adjusted based on the time of day and not based on wind speed. During the daytime period, all turbines would operate in the STD mode, and the following turbines would operate in noise reduced modes during the nighttime period.²⁴⁰

Table 2. Noise reduced operation during nighttime periods

Reduced noise mode	Number of turbines	Turbine
NL1	4	B8, B21, B55, B106
NL2	2	B111, B118
NL3	2	B54, B107
NL4	1	B117

Third party energy-related facilities

172. The NIA identified and considered the sound level contributions of existing and approved third-party energy-related facilities with the potential to affect the cumulative noise levels at the 73 receptor locations. Golder identified 300 potential third-party noise sources, classified as oil and gas wells or facilities, and targeted a representative subset of those sources to measure during the field program. Golder found that no above-ground noise-emitting equipment was present at any of the wells targeted and this was also the case for all but two of the facilities.

173. The two remaining oil and gas facilities were ultimately included in the baseline case for the NIA: (i) noise levels based on measurements conducted in the field by Golder for the Bellatrix Exploration Ltd. compressor station; and (ii) noise levels for the Chinook Energy Ltd. gas gathering system taken from the NIA conducted for the Capital Power wind project approved in Decision 23049-D01-2018,²⁴¹ (Capital Power's consultant had permission to visit the site,²⁴² however Golder did not).²⁴³

Modelling

174. The noise modelling for the NIA was performed using the 2017 version of the CadnaA software package,²⁴⁴ which uses the noise propagation algorithm described in the International Organization for Standardization (ISO) 9613-2 technical standard (ISO 1996).²⁴⁵ The NIA included the common noise model parameters which were agreed upon by RES, Capital Power and Suncor set out in the Commission's March 6, 2018 ruling on the joint process described above. The environmental noise inputs for the computer noise model included

²⁴⁰ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF pages 6 to 11.

²⁴¹ Exhibit 22966-X0108, Noise Impact Assessment Updated PDF page 22 Table 5: Baseline Case Noise Emissions.

²⁴² In the Capital Power NIA, the facility was identified as the Craft Oil Ltd. compressor station.

²⁴³ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 56.

²⁴⁴ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 19.

²⁴⁵ ISO (International Organization for Standardization). ISO 9613-2 Acoustics- Attenuation of sound during propagation outdoors – Part 2: General method for calculation. Dated December 15, 1996.

geometric divergence, atmospheric absorption and ground absorption, and screening by barriers.²⁴⁶

175. In the NIA, Golder indicated that the accuracy of the ISO 9613 standard algorithm used in the model is \pm three dB for distances between source and receptor up to one kilometre and that the accuracy of the noise emission inputs, while not stated in the standard, is often \pm two dBA for measured sources. The overall accuracy of the noise level predictions presented in the NIA was expected to be \pm 3.6 dBA.²⁴⁷ Mr. Faszter testified that the following conservative assumptions were used in the NIA to account for uncertainties and to ensure the project meets the permissible sound levels at the receptors:²⁴⁸

- Each receptor was assumed to be downwind from each source 100 per cent of the time.
- A ground attenuation factor of 0.5, which is representative of mixed ground, was used instead of a factor of 1.0, which would have been more representative of the project area lands that are expected to be fully absorptive.²⁴⁹
- The wind turbines were modelled with the noise emissions under planned maximum operating conditions, although project noise sources will often operate with less than maximum noise emissions.
- Acoustical screening from anthropogenic features (e.g., buildings) and acoustical screening from vegetation were not considered in the computer model.²⁵⁰

176. Golder stated the above modelling approach is conservative and likely overestimates the noise impact of the project. In response to a question relating to a number of receptors where the predicted levels were equal to the nighttime permissible sound level of 40 dBA L_{eq} , RES indicated that it believes its modelling was conservative and that it did not consider that additional mitigation was required to ensure regulations are met.²⁵¹

Noise impact assessment results and conclusion

177. Overall, RES stated that the NIA demonstrated project compliance with the daytime and nighttime predicted sound levels at all receptor locations. RES stated that the predicted sound levels of 45.5 dBA L_{eq} daytime and 38.0 dBA L_{eq} nighttime at Ms. Jenkins' residence comply with the permissible sound levels calculated in accordance with Rule 012, and added that Ms. Jenkins' expert did not dispute the project's compliance with Rule 012 permissible sound levels.²⁵²

178. Mr. Faszter testified that, from a technical perspective, he did not recommend post-construction noise-monitoring at Ms. Jenkins' residence because the margin of compliance between the permissible sound level and the modelled cumulative noise level is high.²⁵³

²⁴⁶ Exhibit 22966-X0098, AUC Ruling on further process, PDF pages 6-7.

²⁴⁷ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 21.

²⁴⁸ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 21.

²⁴⁹ Transcript Volume 1, page 89, lines 9-16.

²⁵⁰ Transcript Volume 1, page 120, lines 22-25; Exhibit 22966-X0108, Noise Impact Assessment Update, PDF pages 21.

²⁵¹ Transcript, Volume 2, page 261, line 23 to page 262, line 3.

²⁵² Transcript, Volume 3, page 581, lines 8-12.

²⁵³ Transcript, Volume 2, page 262, line 11 to page 263, line 3.

However, if post-construction monitoring were to be required, Mr. Faszer testified that receptors 53 and 73 were suitable measurement locations having regard to the margin of compliance with the permissible sound levels, the proximity of the turbines to receptors, and the prominent wind direction that would increase the likelihood of getting valid noise data.²⁵⁴ Mr. Faszer added that stakeholder concerns can also factor into recommendations for monitoring.²⁵⁵ While RES did not initially plan to conduct post-construction noise-monitoring at Ms. Jenkins' residence, it committed to conducting post-construction noise-monitoring at Ms. Jenkins' residence, which was identified as receptor 32 in the NIA.²⁵⁶

7.2.2 Views of Anita Jenkins

179. Ms. Jenkins raised a number of concerns relating to project noise, including disturbance and interference with her quiet country living and natural environment, and adverse health effects associated with low frequency noise and infrasound.²⁵⁷

180. Ms. Jenkins testified that her understanding was that the predicted noise levels at her residence, after the project began operating, would be 38 dB[A] nighttime and 45.5 dB[A] daytime.²⁵⁸ She acknowledged the predicted cumulative nighttime noise levels met the World Health Organization (WHO) nighttime noise guideline of 40 dB[A] outdoors and that the predicted cumulative daytime noise levels did not exceed the maximum annual average wind turbine noise level of 46 dB[A] evaluated in the Health Canada study discussed below.²⁵⁹ However, Ms. Jenkins is concerned that the actual daytime noise level may exceed the Health Canada maximum annual average noise level, because the predicted daytime level at her residence is 45.5 dBA, only 0.5 decibels lower than Health Canada's daytime maximum level referenced above.²⁶⁰

181. Ms. Jenkins retained Dr. Alves-Pereira to provide expert evidence that focused on low frequency noise, infrasound and their associated health effects, which is described in greater detail below. Dr. Alves-Pereira submitted no evidence on the project's compliance with Rule 012 requirements, and did not dispute that the predicted noise levels from the project meet the permissible sound levels.²⁶¹

7.2.3 Commission findings

182. The purpose of an NIA is to provide reasonable predictions of the sound levels that may be experienced at nearby residences once the proposed project is operational. In this section, the Commission assesses the project's compliance with Rule 012 requirements, and in particular with the daytime and nighttime permissible sound levels calculated in accordance with that rule. The Commission will consider matters related to infrasound and low frequency noise separately below.

183. The Commission considers that the project NIA identified and considered the sound level contributions of existing and approved third-party energy-related facilities with the potential to

²⁵⁴ Transcript, Volume 2, page 262, lines 11-21.

²⁵⁵ Transcript, Volume 2, page 263, lines 20-23.

²⁵⁶ Transcript, Volume 2, page 289, lines 19-24.

²⁵⁷ Transcript, Volume 2, page 399, line 20 to page 400, line 4.

²⁵⁸ Transcript, Volume 2, Page 400, lines 9-14.

²⁵⁹ Transcript, Volume 2, page 400, lines 11-20.

²⁶⁰ Transcript, Volume 2, page 400, line 24 to page 401, line 2.

²⁶¹ Transcript, Volume 3, page 581, lines 8-12.

affect the cumulative noise levels at the 73 receptors assessed in the NIA, as required by Rule 012. The Commission finds that in assessing the sound level contributions of third-party energy facilities, it was reasonable for RES to use sound level data for the Craft Oil compressor station taken from the NIA conducted for the Capital Power wind project approved in Decision 23049-D01-2018,²⁶² because Capital Power's acoustical practitioner used measured data whereas RES did not have access to that site.

184. The Commission finds that the equipment used to conduct the field noise measurements of the third party energy-related facilities meets the requirements of Rule 012.

185. The Commission is satisfied that Golder's use of the acoustical model (the 2017 version of the CadnaA software package) and its choice of model input data used to predict the cumulative sound levels at the receptors in the NIA comply with the Commission's ruling on modelling parameters for the three projects and meets the requirements of Rule 012.

186. In making its findings on noise, the Commission has relied upon RES' commitment to operate the proposed project's wind turbines in accordance with the operating scheme described in the NIA and summarized above. Specifically, RES has committed to operate its project turbines during the nighttime period in the modes listed in Table 2 of this decision.

187. RES is required to meet the permissible sound levels calculated for the project in accordance with Rule 012. The Commission considers that mitigation, including operation of the turbines in the modes described above, must be implemented where required to meet the permissible sound levels for the project.

188. The project's compliance with permissible sound levels in accordance with Rule 012 is of paramount importance to the Commission. Even if the modelling in the NIA proves to be inaccurate, the project must still comply with the daytime and nighttime permissible sound levels, which can be confirmed through use of a post-construction comprehensive sound level survey.

189. The nighttime predicted cumulative sound level at five of the project receptor locations, receptors 35, 53, 59, 62 and 73, are exactly at the nighttime permissible sound level for the project of 40 dBA L_{eq} nighttime. In light of this, the Commission considers that if the project is approved, it is reasonable to require RES to conduct post-construction cumulative sound level surveys for the project to verify compliance with Rule 012.

190. With respect to the post-construction monitoring, the Commission accepts that the locations recommended by Mr. Faszter in the hearing, receptors 53 and 73, are appropriate to verify compliance with the daytime and nighttime permissible sound levels. Although noise from the Capital Power project, if constructed, may also contribute to noise at receptor 73, the Commission found in Decision 23049-D01-2018 that noise from that project would not be a major contributor at that receptor, compared to the noise contribution from the RES project. In

²⁶² Stantec (Stantec Consulting Inc.). 2017. Whitla Wind Project Noise Impact Assessment. Prepared for Capital Power (Whitla) L.P. Dated October 19, 2017. This report is available for download from the Alberta Utilities Commission e-filing system at the following link:
https://www2.auc.ab.ca/Proceeding23049/ProceedingDocuments/23049_X0008_Attachment_7_Noise_Impact_Assessment_0008.pdf.

the Commission's view, this provides further rationale for post-construction noise monitoring at this location.

191. The Commission also acknowledges RES' commitment to use Ms. Jenkins' residence (receptor 32) as one of the receptors for post-construction monitoring activities. Given the concerns expressed by Ms. Jenkins, the Commission considers it reasonable to conduct post-construction noise monitoring at this location as well.

192. Accordingly, should it approve the project, the Commission would place the following condition on the project's approval:

- RES shall conduct post-construction comprehensive noise studies and an evaluation of low frequency noise at receptors 53, 73, and 32 under representative operating conditions, and in accordance with Rule 012. RES shall file all studies and reports relating to the post-construction noise survey and low frequency noise evaluation with the Commission within one year of connecting the project to the Alberta Interconnected Electric System. RES shall simultaneously provide Ms. Jenkins with the results of its post-construction noise survey and low frequency noise evaluation for her residence and provide written confirmation to the Commission when it has done so.

193. Having regard to the foregoing, the Commission accepts that the cumulative noise levels from the project operating in its planned operating scheme with third-party energy-related facilities, comply with applicable Rule 012 requirements and that the project is predicted to meet the daytime and nighttime PSLs at all receptor locations in the project study area.

194. In Decision 23049-D01-2018, addressing the cumulative effects of the RES, Suncor and Capital Power projects, the Commission stated the following with respect to cumulative noise effects:

Once an application is deemed complete, the Commission will issue a notice. In these circumstances, the notice will specify the date when the application was deemed complete. Any applications deemed complete after that point must take into account the preceding projects (those for which notice of application has been issued) for the purpose of calculating the cumulative sound level in Rule 012, and incorporate "proposed facilities" into NIAs and any applicable noise mitigation plans.²⁶³

195. In accordance with the Commission's March 6, 2018 ruling on the joint process described above and consistent with Decision 23049-D01-2018, the Commission considers that projects must implement noise mitigation measures in accordance with the order in which they were deemed complete. As noted in Decision 23049-D01-2018, the Capital Power project was deemed complete on March 6, 2018. The RES project was deemed complete on February 3, 2018, prior to the Capital Power project. This means that should RES' project come into operation and result in cumulative noise levels exceeding Rule 012 permissible sound levels, it is incumbent upon Capital Power to implement mitigation measures to address those effects.

²⁶³ Exhibit 23049-X0077, AUC Ruling on further process, paragraph 17.

7.3 **Infrasound and low frequency noise, and likelihood of health effects**

7.3.1 **Views of RES**

196. Golder's NIA for the project and Mr. Faszer's testimony addressed low frequency noise. RES also retained Dr. Knopper from Stantec Consulting Ltd. to prepare a report on wind turbines and human health.

197. Golder reproduced the Rule 012 test for low frequency noise in its NIA, describing the two conditions that must be present for a low frequency noise condition to exist. These conditions are:

- the value of the cumulative noise level, expressed in dBC, minus the value of the cumulative noise level, expressed in dBA, is greater than or equal to 20; and
- a clear tone is present in a one-third octave-band at or below 250 Hz.

198. With respect to the first condition in the Rule 012 test, Golder analysed the potential for a low frequency noise condition for the application case in the NIA for hub height wind speeds ranging from 8.5 metres per second up to 13.0 metres per second. Golder explained that the dBC minus dBA values are predicted to be greater or equal to 20 at some of the receptor locations for both the daytime and nighttime periods; therefore, low frequency noise could exist based on the first part of the test.²⁶⁴ With respect to the second condition in the Rule 012 test, Golder evaluated the vendor-supplied one-third octave band noise emissions of the turbine model selected, and found that it did not include a clear tone at or below 250 Hz. The absence of a clear tone did not satisfy the second part of the Rule 012 test.

199. Golder emphasized that the Rule 012 test requires both conditions to be present for a low frequency noise condition to exist. In the NIA, Golder concluded that the absence of a clear tone in the project noise emissions precludes the presence of a project-related low frequency noise issue for any of the receptors considered in the project NIA.²⁶⁵

200. Mr. Faszer testified that wind turbines emit low frequency and infrasound, as well as higher frequency noise. In Mr. Faszer's opinion, low frequency sound and infrasound are sound and noise, simply at lower frequencies, and there is nothing inherently unique or different between the lower frequencies and other frequencies of noise.²⁶⁶ Mr. Faszer stated that low-frequency noise and infrasound from wind turbines can only be measured with the use of specialized equipment.²⁶⁷ He disputed the assertion that infrasound and low frequency noise levels at Ms. Jenkins' residence will be excessive or otherwise not in compliance with Rule 012.²⁶⁸ Mr. Faszer indicated his view that additional baseline studies are not required to sufficiently characterize baseline conditions in the area, and that the setbacks currently present between project infrastructure and Ms. Jenkins' residence are sufficient to achieve compliance with the low frequency noise provisions of Rule 012.²⁶⁹

²⁶⁴ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 48.

²⁶⁵ Exhibit 22966-X0108, Noise Impact Assessment Update, PDF page 48.

²⁶⁶ Transcript, Volume 1, page 90, lines 15-22.

²⁶⁷ Transcript, Volume 1, page 96, line 24.

²⁶⁸ Exhibit 22966-X0170, Appendix A - Faszer, PDF page 3; Transcript, Volume 1, page 91, lines 19 to page 92, line 5.

²⁶⁹ Exhibit 22966-X0170, Appendix A - Faszer, PDF page 3.

201. RES asserted that the Rule 012 test for low frequency noise provides an adequate framework, and referenced two previous Commission decisions where interveners challenged the adequacy of Rule 012 in assessing infrasound and low frequency noise from wind turbines. RES submitted that in the decisions for both the Bull Creek Wind Project and Grizzly Bear Creek Wind Power Project, the Commission concluded:

In the Commission's view, the dBC minus dBA test is a reasonable and proven method for identifying the potential for a low frequency noise condition.²⁷⁰

202. RES submitted that the evidence provided by Dr. Alves-Pereira is largely consistent with the evidence previously considered by the AUC, and in Mr. Faszer's view, there is no need to apply low frequency noise criteria beyond those set out in Rule 012.²⁷¹ RES' position is that the requirements of Rule 012 are protective of human health.

203. Mr. Faszer agreed that low frequency noise exposure can be harmful to health, but that the thresholds prescribed in Rule 012 are protective of health.²⁷² Mr. Faszer stated that 85 dBG, which is the threshold for audibility, would be a good measure for the distance at which infrasound is considered safe.²⁷³ Below that threshold, Mr. Faszer expected there to be an absence of health effects.²⁷⁴ Dr. Knopper added that one study measured infrasound from wind farms from 360 metres and 85 metres away, and found levels of infrasound of 61 and 72 dBG, respectively, and found the measurements to be less than infrasound from ocean waves from 25 metres away which measured at 75 dBG.²⁷⁵ Another report measured low frequency noise from wind turbines (ranging from 1.3 to 3.2 MW) from 300 metres away, and found infrasound levels were below the perception threshold, and were in the range of what they measured from the wind itself.²⁷⁶

204. Mr. Faszer testified that infrasound amplitudes attenuates quickly with distance, so that "current modern wind turbines at appropriate siting distances such that they are compliant with AUC Rule 12 permissible sound levels, the infrasound noise levels will be below that threshold of audibility, which is equivalent to the threshold of perception for infrasound."²⁷⁷ Mr. Faszer submitted that the shortest distance between Ms. Jenkins' residence and a wind turbine is 1,187 metres, and the shortest distance from any project turbine to an occupied dwelling is 768 metres. Mr. Faszer added that while lower frequencies propagate further, noise levels decrease with increasing distance due to acoustic energy spreading out over larger and larger dissipation areas independent of frequency.²⁷⁸ He testified he was confident that the infrasound levels at all residences would fall below the threshold of audibility.²⁷⁹

²⁷⁰ Decision 2014-040 (Errata), 1646658 Alberta Ltd., Errata to Decision 2014-040, Bull Creek Wind Project (March 10, 2014) paragraph 234; Decision 3329-D01-2016, E.ON Climate & Renewables Canada Ltd., Grizzly Bear Creek Wind Power Project (May 19, 2016), paragraph 196.

²⁷¹ Exhibit 22966-X0170, Appendix A - Faszer, PDF page 8.

²⁷² Transcript, Volume 1, page 102, lines 1-8.

²⁷³ Transcript, Volume 1, page 113, lines 17-24.

²⁷⁴ Transcript, Volume 2, page 251, line 23 to page 252, line 1.

²⁷⁵ Turnbull et al., as cited in Transcript, Volume 1, page 114, lines 12-22 and Exhibit 22966-X0171, page 9.

²⁷⁶ Transcript, Volume 1, page 115, lines 1-21.

²⁷⁷ Transcript, Volume 1, page 95, lines 13-18.

²⁷⁸ Transcript, Volume 1, page 117, lines 12-17.

²⁷⁹ Exhibit 22966-X0170, Appendix A - Faszer, PDF page 5.

205. Dr. Knopper stated that it is the magnitude of low frequency noise and infrasound that are related to health effects and not the amount of exposure.²⁸⁰ Dr. Knopper added that on the dBA scale, 40 dBA is a commonly used threshold for the protection of health in terms of wind turbines.²⁸¹ Dr. Knopper added that the vast weight of evidence suggests that when sited properly with respect to predicted noise levels, wind turbines are not causally related to reported adverse health effects.²⁸² Dr. Knopper stated there are now over 100 scientific peer-reviewed articles related to wind turbines and human health, including the study conducted by Health Canada (the Health Canada study).²⁸³

206. Dr. Knopper summarized the Health Canada study, which found that people living in residences near turbines experienced no health effects from turbine noise up to 46 dBA.²⁸⁴ He added that the Health Canada study considered people living between 250 metres and 11.2 kilometres of wind turbines and noise levels from 25 dBA to 46 dBA, and did not find a relationship between wind turbines and health.²⁸⁵

207. Dr. Knopper testified to the concerns raised by Ms. Jenkins and submitted by Dr. Alves-Pereira that proximity to wind turbines causes vibroacoustic disease (VAD). Dr. Knopper stated that the disease is not internationally recognized by the WHO and appears to be promulgated almost solely by Dr. Alves-Pereira and her research group.²⁸⁶ Dr. Knopper considered that Dr. Alves-Pereira's studies were not peer reviewed, did not undergo the quality review process,²⁸⁷ and were self-cited.²⁸⁸

208. Mr. Faszter also noted that Dr. Alves-Pereira did not provide predictions of infrasound and low frequency noise levels at Ms. Jenkins' dwelling, and did not identify a specific threshold where infrasound and low frequency noise would be considered excessive.²⁸⁹

209. Dr. Knopper stated that the evidence provided by Dr. Alves-Pereira showed that VAD has been characterized as occurring at levels of infrasound greater than 90 decibels, which is far louder than infrasound from wind turbines.²⁹⁰ Dr. Knopper stated that the articles provided in Ms. Jenkins' submission were not representative of the weight of scientific evidence, were not peer-reviewed and came from articles published in popular media.²⁹¹

210. RES submitted that Ms. Jenkins and Dr. Alves-Pereira had not presented any compelling or credible evidence that refuted the conclusions reached by Health Canada or the conclusions reached by the Commission on this issue in past proceedings.²⁹²

²⁸⁰ Transcript, Volume 1, page 158, lines 7-14.

²⁸¹ Transcript, Volume 2, page 260, lines 1-6.

²⁸² Exhibit 22966-X0171, Appendix B – Knopper, PDF page 5.

²⁸³ Exhibit 22966-X0171, Appendix B – Knopper, PDF page 5, citing e.g. Feder et al., 2015; Keith et al., 2016; Michaud et al., 2016a, 2016b, 2016c, 2016d, and 2018; Voicescu et al., 2016.

²⁸⁴ Transcript, Volume 1, page 157, lines 1-8.

²⁸⁵ Exhibit 22966-X0171, Appendix B – Knopper, PDF pages 5-6.

²⁸⁶ Transcript, Volume 1, page 169, lines 6-12.

²⁸⁷ Transcript, Volume 1, page 170, lines 22-25.

²⁸⁸ Transcript, Volume 3, page 587, lines 15-19.

²⁸⁹ Exhibit 22966-X0170, Appendix A – Faszter, PDF page 9.

²⁹⁰ Exhibit 22966-X0171, Appendix B – Knopper, PDF page 11, Transcript, Volume 1, page 169, lines 19-22.

²⁹¹ Exhibit 22966-X0171, Appendix B – Knopper, PDF page 7.

²⁹² Transcript, Volume 3, page 586, lines 9-14.

7.3.2 Views of Anita Jenkins

211. Ms. Jenkins expressed concerns with potential health impacts from low frequency noise and infrasound resulting from the project, such as sleep disturbance, headaches, heart irregularities, dizziness, vertigo, and VAD.²⁹³ She retained Dr. Alves-Pereira, who submitted evidence and testified on low frequency noise and infrasound issues, and challenged the adequacy of Rule 012 in assessing low frequency noise and infrasound.

212. Dr. Alves-Pereira submitted that the criteria for low frequency noise in Rule 012 is insufficient to correctly predict infrasound and low frequency noise at Ms. Jenkins' residence.²⁹⁴ She submitted that wind turbines emit infrasound and low frequency noise, that Ms. Jenkins' residence will be exposed to excessive levels of infrasound and low frequency noise, and as a result, it is highly likely that residents of that home will develop symptoms such as sleep deprivation, cognitive impairment, headaches, dizziness, gastrointestinal dysfunction, and respiratory disturbances.²⁹⁵ Dr. Alves-Pereira related these symptoms to VAD, which she testified is a pathology clinically identified and associated with excessive exposure to infrasound and low frequency noise.²⁹⁶

213. It is Dr. Alves-Pereira's view that the applicant incorrectly stated that there is no potential for low frequency noise at Ms. Jenkins' residence, because that analysis was predicated on the basis of dBA and dBC metrics, which are not appropriate for infrasound and low frequency noise.²⁹⁷ She stated that wind turbines can produce sound within frequency ranges lower than 20 Hz, with the most significant acoustical contribution occurring at frequencies below 10 Hz.²⁹⁸ Dr. Alves-Pereira explained that, when using the dBA weighting, at 10 Hz, there is a difference of 70 decibels between what is present and what is being recorded.²⁹⁹ She agreed with RES' experts that wind turbine noise can be a source of annoyance which may lead to certain reported health effects, especially at sound pressure levels above 40 dBA, but added that when studying the effects of infrasound and low frequency noise, the use of annoyance as a measure and the dBA metric are not useful.³⁰⁰

214. Dr. Alves-Pereira stated some acoustical events that occur below 20 Hz can still affect the human body, but not necessarily through the auditory pathway. Because Rule 012 focuses on frequencies greater than 20 Hz, possible health effects caused by acoustical energy in frequencies under 20 Hz are not considered.³⁰¹ She stated that frequency and amplitude are required to determine whether or not an airborne acoustic pressure wave is heard or received through the auditory system and that it is possible to hear infrasound if the amplitude is high enough.³⁰²

215. Dr. Alves-Pereira also raised concerns with the Health Canada study. She did not find the self-reporting in the study useful because it is subjective rather than objective data.³⁰³ She also noted that the Health Canada study used cortisol as a study end point, which she considered

²⁹³ Transcript, Volume 2, page 401, lines 19-24.

²⁹⁴ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 4.

²⁹⁵ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 7.

²⁹⁶ Transcript, Volume 3, page 496, lines 7-10.

²⁹⁷ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 5.

²⁹⁸ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 6.

²⁹⁹ Transcript, Volume 3, page 493, lines 7-14.

³⁰⁰ Transcript, Volume 3, page 548, line 16 to page 549, line 5.

³⁰¹ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 7.

³⁰² Transcript, Volume 3, page 503, lines 10-21.

³⁰³ Transcript, Volume 3, page 504, lines 8-15.

irrelevant. She stated that when individuals are under a continuously stressful environmental situation, cortisol levels decrease back to normal levels and other biological mechanisms kick in. High cortisol levels indicate a response to immediate situations and not constant exposure.³⁰⁴ She said the agent of disease was not properly quantified, and the pertinent and relevant health end points were not looked at in the Health Canada study.³⁰⁵

216. Dr. Alves-Pereira stated that currently, the dose-response effect, how much low-frequency noise is required before a health effect becomes a problem, is not currently known.³⁰⁶ Dr. Alves-Pereira testified that her opinion that VAD symptoms are likely to occur for residents in Ms. Jenkins' dwelling is based on data collected from many countries around the world in many studies.³⁰⁷ She testified that she had found people have a higher probability of developing infrasound and low frequency noise induced health effects when they are within five kilometres of the industrial complexes and low frequency noise sources.³⁰⁸ She submitted that while many noise and health related studies allege that infrasound and low frequency noise in dwellings are not harmful since they are at much lower levels than those found in the workplace, residential exposure occurs over a longer period of time and includes exposure to the agent of disease during sleep periods. She submitted that the evolution of symptoms is accelerated in individuals residing in infrasound and low frequency noise-contaminated homes.³⁰⁹ Dr. Alves-Pereira testified that for example, there is a case in Germany where the people abandoned their bedroom and built a bunker in the basement to live in.³¹⁰ She stated that she took measurements and found that the basement still had problems but that the people were able to sleep there. She stated that the structure of the home resonated and vibrated due to the sound pressure wave which amplified the problem. Dr. Alves-Pereira stated she was able to detect a specific range of frequencies that had extremely elevated peaks present in the abandoned bedroom that are rarely present in the basement which showed if these frequencies are present, there is a higher probability of impacts to human health.³¹¹

217. Dr. Alves-Pereira stated that while the WHO does not recognize VAD as a clinical entity, it does prescribe infrasound and low frequency noise as agents of disease.³¹²

218. Dr. Alves-Pereira made the following recommendations in her report:

- Acoustical evaluations should be conducted inside and outside the Jenkins' residence to establish a true baseline.
- Acoustical evaluations should have a lower limiting frequency of at least 1 Hz, and the resulting data should be analyzed with 1/36 octave bands.
- Acoustical evaluations should be conducted in dB Linear not dBA, dBC or dBG.

³⁰⁴ Transcript, Volume 3, page 508, lines 3-20.

³⁰⁵ Transcript, Volume 3, page 526, lines 25 to page 527, line 2.

³⁰⁶ Transcript, Volume 3, page 542, lines 1-6.

³⁰⁷ Transcript, Volume 3, page 563, lines 12-25.

³⁰⁸ Transcript, Volume 3, page 562, line 13 to page 563, line 9.

³⁰⁹ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF pages 7-8.

³¹⁰ Transcript, Volume 3, page 564, lines 10-19.

³¹¹ Transcript, Volume 3, page 565, lines 10-16.

³¹² Transcript, Volume 3, page 496, lines 19-25.

- Medical diagnostic tests should be conducted prior to the project construction to establish if negative health effects are developed due to the operation of the project.³¹³

219. Dr. Alves-Pereira stated that measurements should be repeated once the project is in operation so that there is data to compare and to begin to quantify how much low frequency noise is too much, and how much separation distance is required.³¹⁴ She stated that the equipment capable of measuring infrasound is currently available on the market; however the issue is there is nothing to compare the data to because there are no regulations or tabulated numbers related to infrasound.³¹⁵ Dr. Alves-Pereira added that Mr. Faszer agreed that the G-weighted scale is suitable for measuring only audible sound.³¹⁶

220. In response to a question from Commission counsel, Dr. Alves-Pereira testified that if the project were constructed and a post-construction noise assessment included an assessment of low frequency noise using the specialized equipment that she recommended, “the problem is then you have nothing to compare it with”, that “[t]here are no regulations, there are no tabulated numbers.”³¹⁷

221. Ms. Jenkins questioned whether compliance with Rule 012 is sufficient to show there are no issues arising from infrasound and low frequency noise resulting from the project.³¹⁸ She argued that the Commission should apply the precautionary principle in its role as protector of the public interest.³¹⁹ Ms. Jenkins submitted that the project should not be approved as presented until it is proved that there are no adverse health effects.³²⁰

7.3.3 Commission findings

222. In this proceeding, Ms. Jenkins raised concerns with the potential health effects of low frequency noise and infrasound generated by the project turbines, and argued in particular that the requirements contained in Rule 012 with respect to low frequency noise are inadequate to protect against adverse health effects associated with exposure to low frequency noise and infrasound.

223. The Commission acknowledges that wind turbines can generate infrasound and low frequency noise. This was not disputed by the parties. However, the issues currently before the Commission are whether RES has complied with Rule 012 requirements, and even so, whether Rule 012 is adequately protective of potential adverse effects on human health resulting from exposure to low frequency noise.

224. Concerning the first issue, the Commission finds that RES has demonstrated compliance with Rule 012. As previously noted, the test for determining whether a low frequency noise condition is present requires two elements, one of which is that a clear tonal component exists at a frequency between 20 to 250 Hz. RES’ evidence, as set out in the project NIA, is that there was no clear tonal component in the wind turbine’s one-third octave band noise emissions spectra.

³¹³ Exhibit 22966-X0139, C- Evidence of Mariana Alves-Pereira, PDF page 8.

³¹⁴ Transcript, Volume 3, page 543, lines 16-25.

³¹⁵ Transcript, Volume 3, page 540, line 14 to page 541, line 5.

³¹⁶ Transcript, Volume 3, page 620, lines 12-16.

³¹⁷ Transcript, Volume 3, page 540, line 14 to page 541, line 12.

³¹⁸ Transcript, Volume 3, page 624, lines 17-21.

³¹⁹ Transcript, Volume 3, page 625, lines 10-14.

³²⁰ Transcript, Volume 3, page 634, lines 11-13.

This evidence was not disputed in Ms. Jenkins' submissions or otherwise contradicted in Dr. Alves-Pereira's evidence. The Commission finds that as a result, the test for determining whether a low frequency noise condition exists has not been met.

225. The Commission therefore accepts Golder's evidence that under the planned operating scheme for both the daytime and nighttime periods, no project-related low frequency noise conditions are expected at any receptors. Furthermore, in accordance with the condition described in the previous section, if the Commission approves the project, RES would have to conduct a post-construction comprehensive sound level survey which would require it to demonstrate compliance with Rule 012. As part of that survey, a test for low frequency noise at Ms. Jenkins' residence would also be required by the Commission.

226. With respect to the second issue, the Commission does not find that there is sufficient evidence on the record to demonstrate that the requirements of Rule 012 are inadequate to protect against adverse health effects associated with exposure to low frequency noise and infrasound. The Commission finds that there is no persuasive evidence that residents at Ms. Jenkins' dwelling are highly likely to experience symptoms that Dr. Alves-Pereira related to VAD.

227. Dr. Alves-Pereira testified that her submission that residents of Ms. Jenkins' home are "highly likely" to develop the symptoms she associates with VAD is based on her experience in collecting data from individuals living in various countries in varying conditions.³²¹ The Commission does not consider that this anecdotal evidence can support the conclusion that Ms. Jenkins is "highly likely" to experience the symptoms identified by Dr. Alves-Pereira as a result of exposure to the levels of low frequency noise and infrasound expected to result from the project's operation.

228. The evidence before the Commission, as adduced in Dr. Alves-Pereira's testimony, is that even if low frequency noise were measured at Ms. Jenkins' residence, using the methodology described by Dr. Alves-Pereira, there is no scientifically established threshold of exposure to low frequency noise at which adverse impacts to human health are likely to result. Absent such evidence, and in consideration of the evidence given by Dr. Knopper that the Health Canada study results indicated no adverse effects to human health below the threshold of 46 dBA, the Commission cannot reasonably conclude that the requirements of Rule 012 are inadequate to protect human health.

229. Moreover, the Commission finds that there is insufficient evidence to support Dr. Alves-Pereira's opinion that persons living in the Jenkins home are likely to develop the symptoms she described. When asked by the Commission about the basis for her opinion, Dr. Alves-Pereira explained that this was based on her experience and on the data she had collected in relation to industrial activities, including wind turbines, located within five kilometres of a dwelling. In the Commission's view, this evidence was anecdotal in nature, was unsupported by peer-reviewed studies and inconsistent with the weight of evidence found in peer reviewed studies, including the Health Canada study.

³²¹ Transcript, Volume 3, page 562, line 18 to page 563, line 9.

8 Visual impacts and shadow flicker

8.1 Views of RES

230. RES acknowledged that the project will alter the visual landscape in the area and that a number of landowners, including Ms. Jenkins, will have views of the wind turbines, just as with any other structure that might be built in the area.³²² RES stated it informed landowners of what they could expect to see after construction, using photo simulations.³²³ RES sought to address Ms. Jenkins' concerns about the visual impacts of the project by developing photo simulations from the specific location of the Jenkins residence.³²⁴ In addition, RES noted that it removed turbines around Winnifred and in the vicinity of Ms. Jenkins' residence; specifically, turbines 108, 109, 110, 114. This was partly to address stakeholder feedback and visual impact.

231. RES completed a shadow flicker report³²⁵ based on its final turbine layout and distributed the report to the County in late 2017. It also made the report available to the public via the project's webpage. The report presented two assessment cases: (i) Assessment Case A assumed the sun is always shining during daylight hours, all turbines are always spinning, and the turbines are oriented to produce the largest shadow on all receptor points; and (ii) Assessment Case B factors in statistical weather data to estimate the number of cloudy days and wind data, which would alter turbine orientation. RES stated that Assessment Case A represents a "worst-case scenario" but that the modelling is highly conservative for both assessment cases. RES explained that neither assessment case factors in screening from trees or buildings, and both assume that the turbines are always spinning and all receptors have windows facing all directions.³²⁶

232. RES stated that there are no federal or provincial guidelines or regulations governing shadow flicker in Alberta. However, it referenced widely cited criteria, referred to as the German guideline (Koppen et al. 2017; LUNG 2017), in its shadow flicker report. The German guideline recommends that exposure to shadow flicker be limited to a maximum of 30 hours per year and a maximum of 30 minutes per day.³²⁷

233. For Assessment Case A, the report modelled the total hours of shadow flicker per year, the number of days per year with shadow flicker, and the maximum minutes of shadow flicker on a single day. For Assessment Case B, the report modelled only the total hours of shadow flicker per year. RES explained that daily results for Assessment Case B are not available because the modelling algorithm is based on monthly sunshine statistics and annual wind direction data.

234. RES stated that 34 receptors experienced some shadow flicker, including Ms. Jenkins' residence. Under Assessment Case A, three receptors were predicted to experience more than 30 hours of shadow flicker per year, and five receptors were predicted to experience more than 30 minutes of shadow flicker per day.³²⁸ The results of the shadow flicker assessment pertaining to Ms. Jenkins are as follows:

³²² Exhibit 22966-D0169, RES Reply Evidence-June 18 2018, PDF Page 6.

³²³ Transcript, Volume 3, page 599, lines 13-17.

³²⁴ Transcript, Volume 3, page 599, lines 21-25.

³²⁵ Exhibit 22966-X0049, Response to Information Request Round 2, PDF pages 79-99.

³²⁶ Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 85.

³²⁷ Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 89.

³²⁸ Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 96.

Table 3. Shadow Flicker assessment of Ms. Jenkins' residence

Receptor identification code	Assessment Case A			Assessment Case B
	Total hours of shadow flicker per year	Number of days per year with shadow flicker	Maximum minutes of shadow flicker on a single day	Total hours of shadow flicker per year
R70	27.72	68	44	6.53

235. The above results, reflecting the worst-case scenario, Assessment Case A, predict that Ms. Jenkins will experience a total of 27.72 hours of shadow flicker per year, spread out over 68 days. The maximum number of minutes of shadow flicker Ms. Jenkins will experience on any of those 68 days is predicted to be 44 minutes.³²⁹ RES clarified that this does not mean that 44 minutes of shadow flicker will occur on all 68 days; RES predicts that on 42 of the 68 days, shadow flicker will occur for less than 30 minutes, as the trajectory of the sun changes throughout the year.³³⁰ In response to an undertaking request, RES presented daily shadow flicker predictions for Ms. Jenkins' residence for the 42 days where shadow flicker was predicted for between 0 and 30 minutes, based on Assessment Case A. The results show higher shadow flicker activity in winter months.³³¹

236. Under Assessment Case B, none of the receptors, including Ms. Jenkins' residence, are predicted to experience more than 30 hours of shadow flicker per year. More specifically, Ms. Jenkins' residence is predicted to experience 6.52 hours per year.³³² RES added that there are substantial rows of vegetation along the north, west, south and southeast sides of Ms. Jenkins' yard, and four silos on the east side of the yard that would act as shadow flicker screens and may further reduce shadow flicker levels.³³³ RES clarified that this shielding was not factored into the assessment so that even if no shield were offered by the vegetation or silos, the modelled results would not be worse.³³⁴

237. RES stated that while adherence to the German guideline is not required in Alberta, the project complies with that standard.³³⁵ As noted, the German guideline sets the astronomical maximum possible (worst case) impact at 30 minutes per day and 30 hours per year. However, under the German guideline, if a shadow flicker control system is used, the real case shadow flicker impact must be limited to eight hours per year.³³⁶ RES indicated that a shadow flicker control system turns off the turbines when a certain threshold of hours have been reached or during high risk times for shadow flicker.³³⁷ RES predicted 6.52 hours of shadow flicker per year at Ms. Jenkins' residence under Assessment Case B conditions. While the project is not using a shadow flicker control system, RES submitted that it meets the intent of the guideline. RES stated the model is inherently conservative, and that it does not expect the project to exceed the German guideline in a real-world setting. It noted that Assessment Case B, which is still

³²⁹ Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 92.

³³⁰ Exhibit 22966-X0170, Appendix A – Faszer, PDF page 7.

³³¹ Exhibit 22966-X0188, RES Response to Undertaking Two - Table of minutes re shadow flicker.

³³² Exhibit 22966-X0049, Response to Information Request Round 2, PDF page 92.

³³³ Exhibit 22966-X0170, Appendix A – Faszer, PDF page 7.

³³⁴ Transcript, Volume 1, page 128, lines 1-4.

³³⁵ Exhibit 22966-D0169, RES Reply Edvidence-June182018, PDF Page 7.

³³⁶ Exhibit 22966-X0192, International Legislation and Regulations for Wind Turbine Shadow Flicker, PDF page 6.

³³⁷ Transcript, Volume 2, page 242, lines 5-9.

conservative, is under the eight hour threshold in the German guideline, according to its interpretation of that guideline.³³⁸

238. RES also stated that it would consider mitigation measures such as micro-adjustments to turbine placements, tree planting and window coverings to minimize the impact of shadow flicker.³³⁹ RES specifically committed to make micro-siting adjustments to turbines T111 and T112 to further reduce the potential for shadow flicker at Ms. Jenkins' residence.³⁴⁰

239. With respect to its consultation efforts, RES stated that it did not specifically contact residents that had high levels of shadow flicker modelled at their residences, but that all landowners received the same consultation package which included invitations to the open house. At the open house, the draft shadow flicker report and maps were presented. Information was also available on the project website.³⁴¹

240. In response to concerns about the lighting on the turbines, RES stated that the lighting is a Transport Canada requirement³⁴² and that it has committed to meeting the minimum requirements for lighting.³⁴³ In addition, RES stated that it would ask Transport Canada to minimize the number of lit turbines in the vicinity of the Jenkins residence, while acknowledging that the likelihood of this was limited.³⁴⁴ RES explained that perimeter turbines would require some lighting and that the remaining turbines near Ms. Jenkins' residence are perimeter turbines.³⁴⁵

8.2 Views of Anita Jenkins

241. Ms. Jenkins submitted that the project would result in visual impacts due to the size and number of wind turbines. Ms. Jenkins noted the natural landscape of the area in which she resides³⁴⁶ and expressed concern that the proposed wind farm would ruin the natural setting of the area. She stated that the wind turbines are not compatible with the rural landscape.

242. Ms. Jenkins submitted that the blinking warning lights that would be present on the turbines would affect her sleep. She stated that there would be 60 tower lights visible from her residence.³⁴⁷ Ms. Jenkins confirmed that her bedroom windows face east, towards turbines T115 and T116, and west, towards T111.³⁴⁸

243. Ms. Jenkins also expressed concern that her residence would experience a maximum of 44 minutes of shadow flicker per day, which is beyond the widely used criteria of 30 minutes maximum per day.³⁴⁹ She stated she did not want to experience a daily strobe light effect and explained that she wanted a further setback between the turbines and her residence to rectify this

³³⁸ Transcript, Volume 2, page 242, lines 10-21.

³³⁹ Transcript, Volume 1, page 141, lines 16 to page 142, line 3.

³⁴⁰ Exhibit 22966-D0169, RES Reply Edvidence-June182018, PDF Page 7.

³⁴¹ Transcript, Volume 1, page 227, lines 7-23.

³⁴² Exhibit 22966-X0169, RES Reply Edvidence-June182018, PDF Page 7.

³⁴³ Transcript, Volume 3, page 600, lines 1-11.

³⁴⁴ Transcript, Volume 3, page 600, lines 8-11.

³⁴⁵ Transcript, Volume 1, page 217, lines 2-5.

³⁴⁶ Exhibit 22966-X0136, Anita Jenkins Master Submissions, PDF page 5.

³⁴⁷ Exhibit 22966-X0138, B-Submissions of Anita Jenkins, PDF page 3.

³⁴⁸ Transcript, Volume 2, page 460, lines 11-15; Transcript, Volume 3, page 659, lines 2-3.

³⁴⁹ Transcript, Volume 2, page 421, lines 17-24; Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF page 6.

issue.³⁵⁰ Ms. Jenkins played a video clip showing what shadow flicker looked like inside a home.³⁵¹ She pointed out that the home in the video appeared to be surrounded by trees taller than those around her own residence and yet they did nothing to shield the home from shadow flicker effect.³⁵²

244. Ms. Jenkins stated that residents of Winnifred raised concerns about shadow flicker which motivated RES to remove or relocate turbines, but that she was not included in the consultation and that her concerns were not considered.³⁵³

8.3 Commission findings

245. When considering the visual impacts of a proposed project, the Commission takes into account that the assessment of visual impacts is inherently subjective in nature. Nonetheless, it recognizes that the proposed wind turbines are large and that if the project is approved, the landscape of the project area would be changed.

246. Visual impacts resulting from the lights associated with the project are acknowledged. However, the requirement for lighting is at the direction of Transport Canada and therefore largely outside of RES' control. Generally, Transport Canada requires turbines located near the perimeters of wind farms to be lighted, and Ms. Jenkins' lands are located in proximity to the northern perimeter of the project. In order to minimize the visual impacts caused by lighting to the greatest extent possible, RES has committed to using the minimum number of lights required by Transport Canada on the turbines, as well as the minimum number of synchronized flashes per minute and flash duration. Regardless, the decision of which turbines are lighted and to what extent, rests with Transport Canada.

247. Concerning shadow flicker, Alberta currently has no legislation, standards or guidelines in place. Both RES and Ms. Jenkins referred to the German guideline as providing some guidance for assessing the shadow flicker impacts of the project. While not adopting that guideline, the Commission is prepared to consider the German guideline along with other information on the record in its assessment of the visual impacts of the project.

248. The German guideline sets a limit based on the astronomical maximum scenario, as well as a limit when using a shadow flicker control module. In the Commission's view and based on the evidence presented by the parties, the intent of this guideline is to provide a limit for a simulated, worst-case scenario, and a limit for a real-world scenario. When a receptor is predicted to exceed the 30 minute per day and 30 hours per year modelled limit (reflected in the Assessment Case A provided by RES), it must meet the eight hours per year real-world limit, potentially by using a shadow flicker control module. RES provided Assessment Case B as a proxy for the real-world scenario contemplated by the German guideline, with the caveat that the assessment case was nonetheless conservative because it does not factor in screening from trees or buildings, and it assumes that the turbines are always spinning and receptors have windows in all directions.

249. The Commission finds that both Assessment Case A and Assessment Case B have significant conservatism built into the models, due to the assumptions pertaining to turbine

³⁵⁰ Transcript, Volume 2, page 421, line 25 to page 422, line 4.

³⁵¹ Transcript, Volume 1, page 128, lines 16-20.

³⁵² Transcript, Volume 1, page 129, lines 2-22.

³⁵³ Transcript, Volume 2, page 438, line 19 to page 439, line 9.

operation and the nature of the receptors and surrounding area. The Commission acknowledges that multiple environmental and operational conditions must exist together in order for shadow flicker to result. The Commission finds that Assessment Case B offers a reasonable quantification of the impact of shadow flicker for the project. Assessment Case B indicated that the most impacted receptor may experience shadow flicker effects for a total of 18.30 hours over one year and that Ms. Jenkins' residence may experience shadow flicker effects for a total of 6.53 hours over a year. No contrary evidence was presented. On that basis, the Commission finds the visual impact resulting from shadow flicker produced by the project is likely to be low.

250. Nevertheless, the Commission acknowledges and has relied upon RES' expressed commitment to investigate and undertake possible mitigation to further reduce shadow flicker impacts, including its commitment to adjusting the location of turbines T111 and T112 within a 50 metre radius to reduce shadow flicker on Ms. Jenkins' residence. The Commission encourages RES to continue to work with Ms. Jenkins to explore other possible mitigations such as the use of blinds and black-out curtains, or planting trees.

9 Land use and property impacts

9.1 Views of RES

251. RES confirmed that it did not conduct studies to determine whether the project would adversely impact the value of Ms. Jenkins' land and improvements.³⁵⁴ However, it stated that Ms. Jenkins' ability to subdivide her land would not be negatively affected by the project³⁵⁵ and submitted that Ms. Jenkins did not provide any specific evidence to the contrary.

252. With respect to the project's impact on agricultural use and in particular, Ms. Jenkins' concerns about aerial spraying, RES submitted that Ms. Jenkins has no record of using an aerial spraying service. RES also stated its understanding that when dry-land farming, as practiced by Ms. Jenkins, ground-based spraying is more cost effective than aerial spraying. Based on its correspondence with an aerial spraying service, RES further understands that there would be no restrictions in spraying a quarter section adjacent to a quarter section with a wind turbine. RES stated that Ms. Jenkins' northern properties have a clear path that would enable aerial sprayers to fly unobstructed, but acknowledged that the southern quarter has turbines surrounding it and would therefore require other mitigation techniques, including ground-based spraying.³⁵⁶

253. RES testified that it was confident that the value of the community payment it offers would significantly exceed any potential economic impact from the project's limited interference with Ms. Jenkins' ability to aerial spray select quarter sections of her land.³⁵⁷ RES added that its consultants stated that ground-based spraying is more cost effective than aerial spraying. It stated that the shared community payment scheme is very quantifiable as a per-acre payment, which is magnitudes greater than the margins seen for aerial spraying versus ground-based spraying options. The shared revenue royalty would cover the crops lost from the inability to aerial spray.³⁵⁸ RES committed to consult with Ms. Jenkins to discuss any potential mitigation

³⁵⁴ Exhibit 22966-X0130, BHEC-RES -FortyMile A. Jenkins Information Request Responses, PDF page 21.

³⁵⁵ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 8.

³⁵⁶ Transcript, Volume 1, page 219, lines 19-25.

³⁵⁷ Transcript, Volume 1, page 223, lines 13-19.

³⁵⁸ Transcript. Volume 2, page 340, line 17 to page 341, line 17, and page 343, lines 3-6.

measures in the event Ms. Jenkins wishes to pursue aerial spraying of her lands.³⁵⁹ RES also expressed the view that Ms. Jenkins will be able to irrigate her land after the project is built, notwithstanding her concerns to the contrary.

254. Concerning groundwater and well water impacts, RES stated that there is an 1,181 metre distance between the closest turbine, being T111, and Ms. Jenkins' well site. RES stated that very small quantities of fluids or contaminants will be used for the project, and as a result there is very little chance of a spill or contamination affecting Ms. Jenkins' well considering its distance from the project.³⁶⁰

9.2 Views of Anita Jenkins

255. As identified more specifically below, Ms. Jenkins raised concerns with the potential property impacts that the project may cause.

256. Ms. Jenkins expressed concern about the effects of construction and operation of the project on the groundwater well that supplies her residence.³⁶¹

257. Ms. Jenkins is also concerned that the project will negatively affect the value of her property and its possible subdivision into acreages. She stated that her land is close to the highway, the hamlet of Winnifred, and the town of Bow Island. It therefore has unique opportunities for potential subdivision.³⁶² She stated that the nearest turbine is 267 metres from her property boundary and that no one wants to live close to a wind turbine.³⁶³ Ms. Jenkins also submitted that her lands possess a high potential of annexation into Winnifred and consequent subdivision.³⁶⁴

258. Ms. Jenkins indicated that the project would hinder her ability to practice irrigation farming due to the inability to aerial spray the property.³⁶⁵ Ms. Jenkins submitted that she contacted an aerial spraying company which stated that aerial sprayers require a two-mile setback from the base of a wind turbine when performing aerial spraying.³⁶⁶ Ms. Jenkins disputes RES' submission that for her properties, "[s]praying could be done by an aerial applicator in an east-west direction pass."³⁶⁷ She explained that a church, which was not included on the RES map, would limit the ability of an aerial applicator to spray her property in that direction.³⁶⁸ Ms. Jenkins confirmed that she does not currently use aerial spraying. However, she stated it is important to have that option available if needed. She also confirmed that she does not currently have irrigated lands but wanted that option to be available to her in the future. Aerial spraying is essential for irrigation farming.³⁶⁹

³⁵⁹ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 8.

³⁶⁰ Exhibit 22966-X0169, RES Reply Evidence - June 18, 2018, PDF page 6.

³⁶¹ Exhibit 22966-X0136, Anita Jenkins Master Submissions, PDF page 9.

³⁶² Exhibit 22966-X0138.01, B - Submissions of Anita Jenkins, PDF page 3.

³⁶³ Exhibit 22966-X0138, B-Submissions of Anita Jenkins, PDF page 3.

³⁶⁴ Transcript, Volume 3, page 655, lines 16-19.

³⁶⁵ Exhibit 22966-X0136, Anita Jenkins Master Submissions, PDF page 9.

³⁶⁶ Exhibit 22966-X0138, B-Submissions of Anita Jenkins, PDF page 14.

³⁶⁷ Transcript, Volume 2, page 212, lines 20-25.

³⁶⁸ Transcript, Volume 2, page 213, lines 1-8.

³⁶⁹ Transcript, Volume 2, page 462, lines 10-25.

9.3 Commission findings

259. As expressed in previous decisions, when considering impacts to future development decisions such as subdivision, the Commission factors the stage of the proposed development into its deliberations, and generally gives more weight to potential development impacts where the proposed development has received approval or is in the process of obtaining approval. The Commission considers that future development plans that are in the early conceptual or idea stage are not certain, and may change depending on the economy, changed circumstances of the landowner, amendments to applicable municipal bylaws, or the inability to secure municipal approval for the development.

260. There is no evidence on the record that the future subdivisions contemplated by Ms. Jenkins have received approval or are in the process of receiving approval. Rather, the potential subdivision appears to be at a conceptual stage. As a result, there is a great deal of uncertainty as to whether the potential subdivision would ever proceed, and if so, how the project might affect it. The Commission finds that to consider the impact of the project with regards to any limitations on subdivision potential for Ms. Jenkins' land would be speculative.

261. The Commission does not find that there are any direct agricultural impacts to Ms. Jenkins because the project is not located on any of her lands. With respect to indirect impacts, based on the evidence presented, there appears to be a potential for impacts to aerial spraying operations on, at a minimum, the south quarter of Ms. Jenkins' lands. However, the Commission finds that there was insufficient evidence demonstrating a likely impact to Ms. Jenkins in this regard given that she has not aerially sprayed on her land in the past, and did not provide any evidence of an intention to change this practice. Ms. Jenkins identified only a conceptual possibility that she may do so in the future.

262. Similarly, the Commission was not presented with sufficient evidence to establish that the project is likely to negatively affect the value of Ms. Jenkins' property or her groundwater well.

10 Decision

263. Based on the Commission's reasons described in the preceding sections, the Commission considers the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*. The Commission's decision to approve the project is subject to the following conditions:

- a. RES will abide by all of AEP WM's requirements, recommendations, and directions outlined in AEP WM's *Renewable Energy Referral Report* and any additional commitments made in its responses to information requests from AEP WM.
- b. The siting, construction and operation of the project's infrastructure will meet all of AEP WM's recommended minimum setbacks from wetlands and watercourses for the project, unless AEP WM has agreed to one or more of the following: a reduced setback; alternative mitigation in the project's *Renewable Energy Referral Report*; or approval under the *Water Act* for the project.

- c. The siting, construction and operation of the project's infrastructure will meet all of AEP WM's recommended minimum setbacks for high disturbance level activities from wildlife species at risk habitat features, unless AEP WM has agreed to one or more of the following: (i) a reduced setback; or alternative mitigation in AEP WM's *Renewable Energy Referral Report* for the project.
- d. If any changes are made to any infrastructure associated with the project, the construction schedule, or the proposed wildlife mitigation measures, RES will submit these changes to AEP WM for its further review to ensure wildlife and wildlife habitat are protected.
- e. RES shall abide by any requirements and commitments outlined in its final version of the EPP developed for the project. RES shall implement all mitigation measures identified in the EPP and monitor the effectiveness of its mitigation measures. If mitigation measures are unsuccessful, RES, in consultation with AEP WM, must develop and implement additional mitigation to minimize adverse effects on the environment.
- f. RES will abide by any requirements and commitments outlined in its final version of the PCMM Plan developed for the project. In accordance with the PCMM Plan and AEP WM's requirements, RES will complete a minimum of three years of post construction wildlife monitoring and submit a report on the results annually to AEP WM. If further mitigation is required/recommended by AEP WM following its review of the post-construction wildlife monitoring surveys and reports, RES will complete additional post-construction wildlife monitoring surveys and reports to assess the efficacy of the additional mitigation, as directed by AEP WM.
- g. RES will submit to the Commission annually a copy of the project's post-construction wildlife monitoring report along with any correspondence from AEP WM summarizing its views on the report.
- h. Following completion of the post-construction wildlife monitoring program, RES will communicate to AEP WM the discovery of any carcasses of species at risk which might be observed near project infrastructure during operation or maintenance.
- i. RES will complete amphibian surveys following AEP WM survey methodology prior to construction in situations where ground disturbance may occur within 100 metres of potential amphibian breeding pond habitat, including the northern leopard frog and western tiger salamander. This will include spring acoustic surveys, summer visual search shoreline surveys, and, where practicable, will include shoreline and netting surveys following major summer rainfall events for intermittent breeders such as the northern leopard frog and western tiger salamanders. RES will communicate the results of these amphibian surveys to AEP WM and implement any mitigation measures recommended by AEP WM.
- j. RES will comply with current applicable reclamation standards at the time of decommissioning. If no legislative requirements pertaining to reclamation are

in place at the time of decommissioning, RES will submit a reclamation plan to the Commission for approval.

- k. RES will monitor (for potential breeding impacts, such as nest abandonment or disturbance, nesting success, reduction in nest productivity, and raptor mortality) all eight ferruginous hawk nests within the project area during construction and for at least the first three years of operation.
- l. RES shall implement mitigation measures, in consultation with AEP WM, if (i) the results of the post-construction bat carcass monitoring program indicate that the estimated corrected rate of bat fatalities for the RES project exceeds an average of four fatalities per turbine per year; or if (ii) upon the direction of AEP WM, the estimated corrected rate of bat mortalities cumulatively in the local area, as defined by AEP WM, exceeds a threshold determined by AEP WM.
- m. In addition to any representative turbines in the project area chosen for its post construction bat carcass surveys in consultation with AEP WM in accordance with the stratified random sample method, RES shall include any turbines that are located near potential roost sites, reservoirs and areas of foraging habitat which would have a higher risk of bat mortality. Turbines monitored under this requirement would not be counted towards the one third selected using the stratified random sample method.
- n. RES will abide by any requirements, recommendations and directions provided by AEP WM, whether in the context of a working group or otherwise, including any additional monitoring and mitigation that AEP WM considers necessary to address cumulative effects occurring from two or more projects within the local area, as defined by AEP WM.
- o. RES shall conduct post-construction comprehensive noise studies and an evaluation of low frequency noise at receptors 53, 73, and 32 under representative operating conditions, and in accordance with Rule 012. RES shall file all studies and reports relating to the post-construction noise survey and low frequency noise evaluation with the Commission within one year of connecting the project to the Alberta Interconnected Electric System. RES shall simultaneously provide Ms. Jenkins with the results of its post-construction noise survey and low frequency noise evaluation for her residence and provide written confirmation to the Commission when it has done so.

264. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approves the application and grants RES the approval set out in Appendix 1 – 398.475-MW Forty Mile Wind Power Project – Approval 22966-D02-2018 – August 30, 2018.

265. Pursuant to Section 14 of the *Hydro and Electric Energy Act*, the Commission approves the application and grants RES the approval set out in Appendix 1 – New Forty Mile 516S Substation – Permit and Licence 22966-D03-2018 – August 30, 2018.

Dated on August 30, 2018.

Alberta Utilities Commission

(original signed by)

Anne Michaud
Vice-Chair

(original signed by)

Carolyn Hutniak
Commission Member

(original signed by)

Neil Jamieson
Commission Member

Appendix A – Proceeding participants

Name of organization (abbreviation) Company name of counsel or representative
BHEC-RES Alberta G.P. Inc. Terri-Lee Oleniuk
Anita Jenkins Ifeoma Okoye
Anna-Marie Bridge
Nathan Hofmann
Jaap Remijn
John Crooymans
Roline van der Haar
Serge Langeweg
1576834 Alberta Ltd. (Benign Energy Canada II Ltd.)
Suncor Energy Inc.
Harold Angle
James Hadnagy
George Voeller
County Of Forty Mile No. 8
Gary Yates

Alberta Utilities Commission

Commission panel

Anne Michaud, Vice-Chair
Carolyn Hutniak, Commission Member
Neil Jamieson, Commission Member

Commission staff

K. Macnab (Commission counsel)
J.P. Mousseau (Commission counsel)
V. Choy
T. Richards
S. Yang
A. Drolet
H. Richie
J. Davis

Appendix B – Oral hearing – registered appearances

Name of organization (abbreviation) Name of counsel or representative	Witnesses
BHEC-RES Alberta G.P. Inc. Terri-Lee Oleniuk	P. Clibbon C. De La Mare A. Faszer R. Galbraith L. Knopper L. Reindler
Anita Jenkins Ifeoma Okoye	M. Alves-Pereira A. Jenkins C. Wallis

Appendix C – Summary of Commission directions with required deliverables

This section is intended to provide a summary of those conditions which require follow-up with the Commission; it is not intended to summarize all of the conditions imposed on the applicant. This section is provided for the convenience of readers. In the event of any difference between the directions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

1. RES will submit to the Commission annually a copy of the project's post-construction wildlife monitoring report along with any correspondence from AEP WM summarizing its views on the report..... Paragraph 133
2. RES shall conduct post-construction comprehensive noise studies and an evaluation of low frequency noise at receptors 53, 73, and 32 under representative operating conditions, and in accordance with Rule 012. RES shall file all studies and reports relating to the post-construction noise survey and low frequency noise evaluation with the Commission within one year of connecting the project to the Alberta Interconnected Electric System. RES shall simultaneously provide Ms. Jenkins with the results of its post-construction noise survey and low frequency noise evaluation for her residence and provide written confirmation to the Commission when it has done so..... Paragraph 192

Appendix D – Abbreviations

Abbreviation	Name in full
2017 Wildlife Directive	2017 Wildlife Directive for Alberta Wind Energy Projects
AEP	Alberta Environment and Parks
AEP WM	Alberta Environment and Parks Wildlife Management
Capital Power	Capital Power Generation Services Inc.
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
County	County of Forty Mile No. 8
dBG	G-weighted decibel scale
EE	environmental evaluation
EPP	Environmental Protection Plan
ESA	Environmentally Significant Area
Golder	Golder Associates Ltd.
ha	hectare
Hz	hertz
ISO	International Organization for Standardization
ISO 1996	International Organization for Standardization 9613-2 technical standard
kV	kilovolt
MVA	megavolt amperes
MW	Megawatts
NIA	noise impact assessment
PCMM Plan	Post-Construction Monitoring and Mitigation Plan
RES	BHEC-RES Alberta G.P. Inc
STD	standard full power
Suncor	Suncor Energy Inc.
VAD	vibroacoustic disease

Appendix E – Ruling on further process



AUC ruling on further
process.pdf

(consists of 9 pages)

Appendix F – Ruling on standing



AUC ruling on
standing.pdf

(consists of 6 pages)

March 6, 2018

To: Parties currently registered on Proceedings 22966, 23030, and 23049

Three wind energy projects in the County of Forty Mile proposed by Renewable Energy Systems Canada Inc., Suncor Energy Inc. and Capital Power Whitla LP

Proceedings 22966, 23030, and 23049

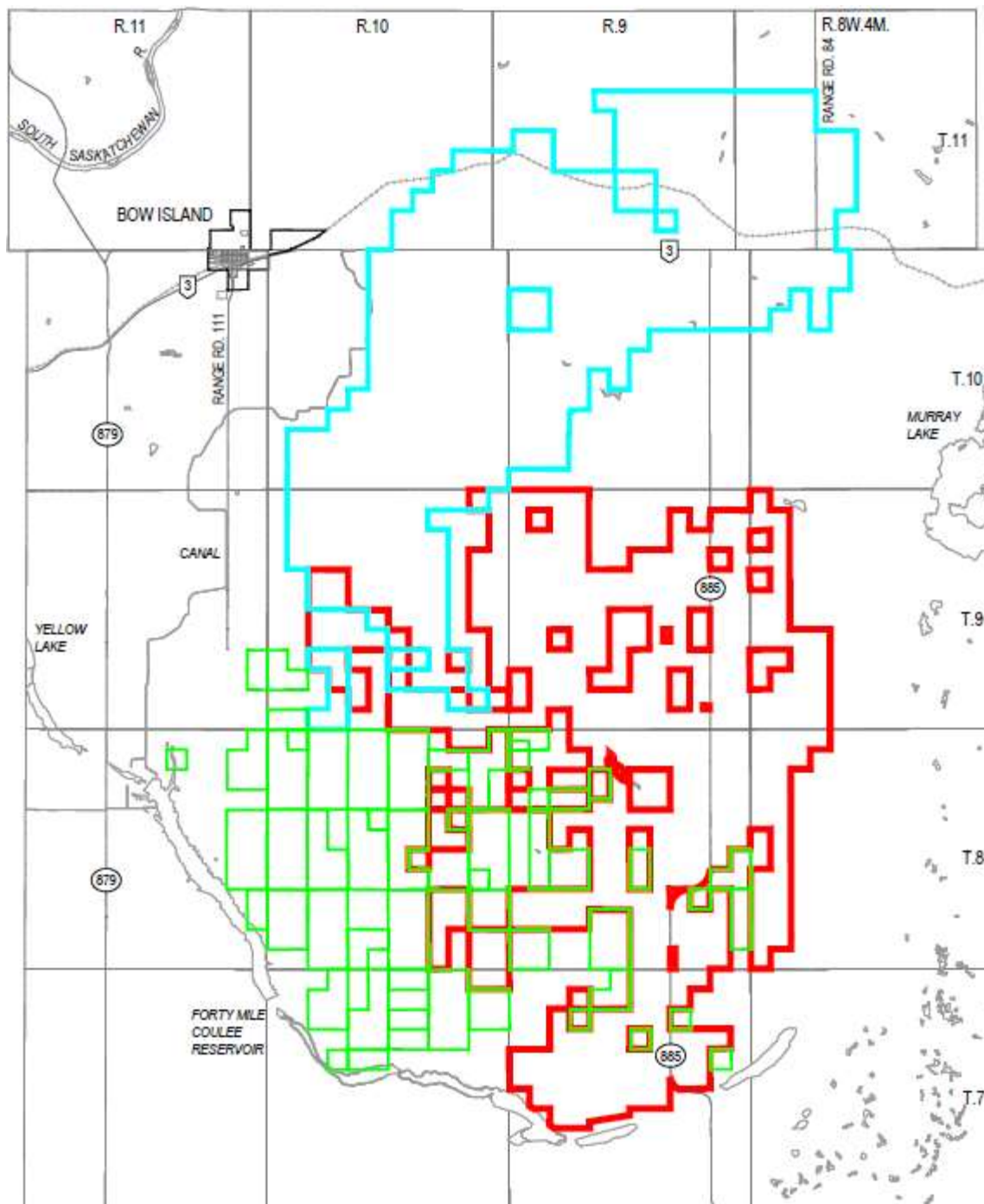
Applications 22966-A001, 23030-A001 to 23030-A005, and 23049-A001 to 23049-A002

Ruling on further process

1. The Commission received applications from Renewable Energy Systems Canada Inc., (RES) Suncor Energy Inc. (Suncor) and Capital Power Whitla LP (Capital Power) for the following wind energy projects located in the County of Forty Mile:

- RES's 398.48-megawatt (MW) Forty Mile Wind Power Project;
- Suncor's 400-MW Forty Mile Wind Power Project; and
- Capital Power's 298.8-MW Whitla Wind Project.

2. As shown in the map on the following page, the three projects are adjacent to each other and, in some cases, overlap.



- Proceeding 22966 - Forty Mile Wind Project, Berkshire Hathway Energy Company and Renewable Energy Systems Alberta Limited Partnership
- Proceeding 23030 - Forty Mile Wind Project, Suncor Energy Inc.
- Proceeding 23049 - Whitta Wind Project, Capital Power Corporation

3. Given the large scale of the projects and their overlapping nature, the Commission decided to hold a technical meeting and requested pre-filed written submissions from the three applicants. Due to scheduling conflicts the Commission substituted a written process for the technical meeting.

4. In its notice of technical meeting, the Commission requested that the parties address the following topics in their submissions:

- How the Commission should consider the cumulative impacts from the three wind projects.
- The need for representative noise impact assessments (NIAs) that take into account all three proposed projects.
- Whether the NIAs should employ common modelling parameters, common dwelling labels and common reporting formatting.
- Noise mitigation plans if cumulative sound levels at any noise receptors are predicted to exceed permissible sound levels.
- The need for environmental impact reporting that takes into account the impact of all three projects.
- Whether the environmental studies can use consistent and similar techniques, equipment and personnel for surveys of the three projects, particularly for the pre-construction acoustic bat activity surveys and for the post-construction bird and bat mortality surveys.
- Determination on final turbine locations and turbine models, including adequate spacing for migratory birds and bats between the turbines of different projects.
- Transmission proliferation and the potential for sharing transmission interconnections.
- Potential to combine the three proceedings.
- Timing for finalized applications.

5. RES, Suncor and Capital Power each provided written submissions on the above topics in early January.¹ All three applicants subsequently responded to a round of information requests (IRs) issued by the Commission and filed written reply submissions.²

¹ Exhibit [22966-X0073](#), BHE RES AUC Technical meeting submissions (January 5, 2018); Exhibit [23030-X0069](#), Suncor letter to AUC regarding pre-filing materials in advance of technical meeting (January 5, 2018); Exhibit [23049-X0063](#), Written submissions of Capital Power (Whitla) LP re technical meeting (January 5, 2018).

² Exhibit [22966-X0091](#), BHEC-RES reply submission (February 2, 2018); Exhibit [23030-X0078](#), Suncor - 40 Mile - AUC IR response reply (February 2, 2018); Exhibit [23049-X0075](#), Reply argument of Capital Power – AUC technical session (February 2, 2018).

6. The goal of this preliminary technical meeting process was to establish a fair and effective schedule and process for the review and consideration of the three projects having regard to the following: (i) the three applications were filed within weeks of each other,³ (ii) the proposed projects are located in the same area and overlap, and (iii) each project is relatively large, between 300 and 400 MW. The Commission considers this factual situation to be unique, and as such sought input from parties on whether a specific process tailored to these circumstances is required.

7. The Commission has considered the process that it will follow to review these three projects in this instance, and has authorized me to communicate its decision as set out below.

Separate proceedings for the applications

8. In its notice of technical meeting, the Commission requested submissions on the potential to combine the three proceedings, as well as the timing for finalized applications. Capital Power and RES submitted that a single hearing would be procedurally unfair to the applicants. Suncor submitted that the parties should enter into negotiations for the purpose of resolving issues surrounding cumulative noise impacts, which would likely render a combined proceeding unnecessary. However Suncor submitted that if that process failed, the Commission may have to implement a combined process specifically to determine noise-related matters.

9. The Commission recognizes that the advantages of a combined proceeding could include the ability for interveners affected by all three projects to streamline their intervention, and the potential benefits of assessing the projects' cumulative effects.

10. However, there may be significant disadvantages to a combined proceeding. The three projects have been proposed by separate entities and are not at the same stage of the application process, nor do they necessarily share significant common factual or legal issues. Although there may be some interveners common to all three projects, there may also be interveners and objections specific to each proceeding. In a combined process, one applicant's decisions, such as changing its final turbine layout or amending the project, could have a significant impact on another applicant's project. As a result, the regulatory process for all three projects could be unduly delayed as a result of the actions of only one project proponent, thereby prejudicing the other applicants.

11. The Commission has consequently determined that the potential benefits of a combined proceeding are outweighed by the potential prejudice posed by such a process, and that it will not combine the three applications into a single proceeding. Each project will be assessed in a separate process. The Commission will consider the potential cumulative effects of the three projects, including cumulative noise and environmental effects, in the manner set out below.

Assessment of cumulative noise impacts: when applications are "deemed complete"

12. The purpose of the Commission's Rule 012: *Noise Control* is to ensure that the noise from a facility, measured cumulatively with noise from other energy-related facilities, does not exceed the permissible sound level (PSL) calculated in accordance with the rule. Measured

³ The applications were registered on the Commission's eFiling System as follows: (i) RES on September 22, 2017; (ii) Suncor on October 22, 2017; and (iii) Capital Power on October 26, 2017.

independently of each other, the NIAs submitted for the three proposed projects each appear to individually meet the PSL for the receptors (dwellings) identified, as stipulated in Rule 012. However, because the three NIA's do not take into account noise from the other projects proposed for the area, it is possible that the PSL at some receptors may, and likely will, be exceeded if more than one of the projects is approved.

13. The Commission's Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* does not currently contain requirements facilitating the consideration of cumulative impacts for projects located in proximity to each other and applied for within a similar timeframe. Rule 007 therefore does not provide additional guidance for the process to be followed in these circumstances.

14. Rule 012 is designed to consider cumulative noise impacts by requiring new facilities to take into account existing noise in the area when determining compliance with the rule. The cumulative sound level as defined in Rule 012 includes: (i) the comprehensive sound level;⁴ (ii) noise from "proposed facilities"; (iii) noise from energy-related facilities that have been approved but not yet constructed; and (iv) the predicted noise from the applicant's proposed facility. Rule 012 defines a proposed facility as "a facility for which an application has been deemed complete by the Commission, but is not yet approved or for which an approval has been issued, but is not yet constructed." The current approach under Rule 012 therefore requires applicants to include noise impacts from other applied-for projects only once those applications are "deemed complete".

15. In the present circumstances, three applications for overlapping wind projects were submitted to the Commission within weeks of each other. Although there is an ongoing consultation process with respect to potential revisions to Rule 012,⁵ and future amendments to that rule may or may not include criteria for when an application is "deemed complete", there is currently no definition in Rule 012 that addresses the present situation.

16. In light of the unique facts before it, the Commission will apply a specific definition of "deemed complete" to the three wind projects proposed in proceedings 22966, 23030, and 23049 for the purposes of assessing noise impacts under Rule 012. For these three proceedings, an application will be "deemed complete" when: (i) a final turbine layout has been submitted; and (ii) the Commission is satisfied that the applicant has provided all of the information required by Rule 007 for a wind power plant.

- i. **Final layout:** notwithstanding that Rule 007 does not expressly require a final turbine layout, the Commission considers that, in these singular circumstances, a finalized layout is necessary to allow the Commission to assess whether persons may be directly and adversely affected by the applications. This includes that there are no remaining alternative turbine locations. More particularly, the Commission considers that in order to assess the potential impacts of the projects in these circumstances, it requires NIAs that are based on final turbine locations.

⁴ The comprehensive sound level includes ambient sound level, noise from existing facilities and energy-related facilities and should exclude abnormal noise events.

⁵ [Bulletin 2017-11](#), AUC Rule 012: Noise Control – Consultation on noise issues, December 13, 2017.

- ii. **Rule 007 completeness:** this means that the Commission is satisfied that all of the information requirements of Rule 007 have been met. For further clarity, the Commission's IR process does not necessarily have to be concluded for an application to have met the information requirements in Rule 007. The Commission may, after an application is deemed complete, ask IRs requesting information that is in addition to Rule 007 requirements, or for the purpose of clarifying or testing the information provided. However, until all of the answers to the Commission's IRs seeking information necessary to meet Rule 007 requirements have been provided, the application cannot be "deemed complete". This would include, for example, the signoff required under Rule 007, Section 3.2, PP10 from Alberta Environment and Parks (AEP) for new wind project applications, any Commission IRs related to that signoff, and the noise impact assessment required under Rule 007, Section 3.2, PP27.

17. Once an application is deemed complete, the Commission will issue a notice. In these circumstances, the notice will specify the date when the application was deemed complete. Any applications deemed complete after that point must take into account the preceding projects (those for which notice of application has been issued) for the purpose of calculating the cumulative sound level in Rule 012, and incorporate "proposed facilities" into NIAs and any applicable noise mitigation plans.

Assessment of cumulative noise impacts: common NIA elements

18. In the notice of technical meeting, the Commission also asked the applicants whether the NIAs should employ common modelling parameters, common dwelling labels and common reporting formatting. The applicants provided a collaborative response on common modelling parameters and turbine labels for their respective NIAs to facilitate the Commission's comparison and review.⁶ The applicants did not agree on the use of common receptor/dwelling labels and all submitted that the use of common reporting formatting was not necessary.

19. The Commission finds that the common modelling parameters agreed to by the applicants and set out in the table below are reasonable and will facilitate its review of the projects' respective NIAs.

Proposed NIA common modelling parameter	Proposed NIA common input value
Ground Absorption	0.50
Max Radius of Influence (Search radius)	5 kilometres
Terrain	The CanVEC database produced by Natural Resources Canada (NRCan) with standard 8 metre terrain intervals.
Receptor Height	One-storey dwellings will be modelled using receptors at 1.5 metres above ground level. Two-storey dwellings will be modelled using receptors at 4.5 metres above ground level.
Third Party Facilities (TPFs)	Five (5) TPFs have been identified and parties have agreed to use the same noise emission values for

⁶ [23049-X0071](#), Capital Power Responses to AUC Joint Technical Meeting IRs, Attachment 2, PDF page 14; [22966-X0089](#), BHE RES AUC IR response, Appendix 1, PDF page 15; [23030-X0074](#), Suncor cover letter joint IR responses, PDF pages 1-2.

	<p>these TPFs. All projects will use the following agreed upon noise emissions from these TPFs:</p> <ul style="list-style-type: none"> • Pine Cliff Energy Ltd. 16-2-7-9- W4 Compressor Station (RWDI Measured) • Encana Corporation 15- 19-7-9-W4 Compressor Station (RWDI Measured) • AltaLink substation 13- 33-7-9-W4 Substation (RWDI Measured) • Craft Oil Ltd 15-13-8-10-W4M Compressor Station (Stantec Measured) • Bellatrix Exploration Compressor Station (Golder Measured)
Relative Humidity	70 %
Temperature	10° C
Model Version (CADNA A)	2017

20. The parties agreed on the following common labelling system for individual wind turbines: (i) RES turbines will start with “B” (B-1, B-2, etc.); (ii) Suncor turbines will start with “S” (S-1, S-1, etc.); and (iii) Capital Power turbines start with “C” (C-1, C-2, etc.).

21. The parties appeared to agree in principle with the use of common labelling for dwellings/receptors, but did not agree to provide a unique identifier for each receptor affected by the three projects using a number and letter identifying the project causing the effect. Suncor submitted that consensus must first be reached on an approach to determine which projects affect which receptors. Capital Power submitted that any project design changes could create an unworkable and cumbersome process. RES proposed a concordance table process in each NIA rather than a negotiated common receptor list, as the parties discussed consistent labelling and UTM coordinates for receptors but could not reach final agreement on those values.

22. Since they filed their submissions to the Commission, Capital Power and RES have submitted updated NIAs⁷ that use all of the agreed-upon common modelling parameters in the table above, as well as the common labelling system for individual wind turbines. Suncor has submitted an updated NIA⁸ which uses most of the agreed-upon common modelling parameters, except ground absorption, terrain parameters, and search radius. All of the applicants have not used a consistent dwelling/receptor labelling system, but in some cases have identified where receptors are common to multiple projects.⁹

23. The Commission considers that identifying receptors at the same locations for multiple projects would be useful to facilitate its assessment of the projects and that the most efficient method of achieving this goal is for all three applicants to provide a table of concordance identifying any receptors which are the same as those identified in another project’s NIA. The Commission directs the parties to file this concordance by March 20, 2018. Further, as Suncor has not updated its NIA to include all of the agreed-upon common modelling parameters, the Commission directs Suncor to provide an updated NIA as of the date that it has eliminated its alternate turbine locations thus finalizing its turbine layout.

⁷ Exhibit 23049-X0076, Responses to AUC Round 2 IRs; Exhibit 22966-X0093, BHEC-RES Forty Mile NIA Update.

⁸ Exhibit 23030-X0003.01, Attachment 11 – Noise Impact Assessment.

⁹ E.g. Exhibit 23049-X0076, Responses to AUC Round 2 IRs, PDF page 32, Table 1, Receptor IDs 68, 69, and 71 are identified as common with the RES project. Receptor R35 is identified as receptor 72 from the RES project.

24. Finally, the Commission does not find it necessary for the applicants to use a common reporting format in their respective NIAs. The Commission considers that such a direction would not yield additional information and would create an added administrative burden without a significant corresponding benefit.

Assessment of cumulative environmental impacts

25. The Commission also requested submissions on the need for environmental impact reporting that takes into account the impact of all three projects, and whether the environmental studies can use similar techniques, equipment and personnel.

26. All three applicants submitted that the current regulatory requirements in place are sufficient to address the environmental impacts for each project. RES and Capital Power both noted the Rule 007 requirement for AEP signoff of each project's environmental evaluation for the purpose of ensuring compliance with AEP requirements. AEP assesses each project to ensure compliance with the *Wildlife Directive for Alberta Wind Energy Projects*, and this process provides a sufficient understanding of the projects' environmental effects, both individually and collectively, such that adequate monitoring and mitigation measures can be developed and implemented. Suncor submitted that the environmental evaluation of each project was completed in accordance with the current regulatory regime and that a cumulative assessment of these projects should not be required. The applicants all submitted that the environmental studies for all three projects already use consistent techniques where necessary, and that any further similarities in techniques, equipment or personnel are either unnecessary or impractical, particularly with respect to the potential for conflicts of interest and other issues surrounding the use of common personnel.

27. The Commission finds that it would not be useful for the applicants to redo their environmental evaluations for the purpose of using common techniques, equipment and/or personnel, because it would not provide additional information to assist in its determination of the environmental effects of the projects. Given the work already performed in accordance with current regulatory requirements, it is not necessary for the applicants to conduct a single, cumulative environmental assessment in order to consider the environmental effects of the projects.

28. By way of separate letter, the Commission will instead request that AEP provide comments and recommendations on the potential cumulative effects of the projects and mitigation measures that may be considered to address those effects.

Transmission proliferation

29. Finally, the Commission requested comments on transmission proliferation and the potential for sharing transmission interconnections. Capital Power and Suncor commented that there are limited opportunities to mitigate transmission proliferation in the area by sharing interconnection infrastructure. All three applicants submitted that interconnection matters are generally left to the transmission facility owner, in consultation with market participants and the Alberta Electric System Operator (AESO), and are therefore outside the scope of the present applications.

30. The Commission recognizes that there is a specific process for the development of transmission facilities to connect generation facilities to the Alberta interconnected electric system. That said, Section 2 of the *Hydro and Electric Energy Act* (HEEA) provides that one of its purposes is to provide for the “economic, orderly and efficient” generation and transmission of electric energy in Alberta. In considering an application for a power plant under Section 11 of the HEEA, the Commission must consider whether the construction or operation of the proposed power plants is in the public interest, having regard to its social, economic, and environmental effects. The public interest test in Section 11 must be considered in light of HEEA’s stated purpose to provide for the efficient generation and transmission of electric energy in the province. In certain circumstances, this may include consideration of whether proposed projects will contribute to the duplication of transmission infrastructure.

31. Notwithstanding that the Commission has not yet received applications for the transmission facilities required to connect the three projects to the Alberta interconnected electric system, the Commission strongly encourages the applicants to continue to explore the possibility of shared transmission facilities with the transmission facility owner(s) and the AESO.

32. Please contact me at 403-592-4385 or at Kim.Macnab@auc.ab.ca if you have any questions about the matters addressed in this ruling.

Regards,

Kim Macnab
Commission Counsel

April 13, 2018

To: Parties currently registered on Proceeding 22966

**BHEC-RES Alberta GP Inc.
Forty Mile Wind Power Project
Proceeding 22966
Application 22966-A001**

Ruling on standing

1. In this ruling, the Alberta Utilities Commission decides whether to hold an oral public hearing to consider an application by Renewable Energy Systems Canada Inc., acting as agent for BHEC-RES Alberta L.P. and BHEC-RES Alberta G.P. Inc., relating to its 398.475-megawatt (MW) Forty Mile Wind Power Project located in the County of Forty Mile No. 8, Alberta. BHEC-RES Alberta GP Inc. (RES) would be the approval holder should the project be approved.
2. The Commission must hold a hearing if persons who have filed a statement of intent to participate (SIP) in Proceeding 22966 have demonstrated that they have rights that may be “directly and adversely affected” by the Commission’s decision. Such a person may participate fully in the hearing, including giving evidence, questioning of witnesses, and providing argument. This permission to participate is referred to as standing.
3. The Commission issued notices of application for Proceeding 22966 on October 20, 2017 and December 15, 2017. SIPs were received from 1576834 Alberta Ltd. (Benign Energy Canada II Ltd. (BECI)), Anna-Marie Bridge, Nathan Hofmann, Jaap Remijn, John Crooymans, Roline Van Der Haar, Serge Langeweg, Suncor Energy Inc., Anita Jenkins, Harold Angle, and James Hadnagy. Ms. Bridge, on behalf of the Town of Bow Island, subsequently requested to be removed from Proceeding 22966. Mr. Crooymans subsequently retracted his intervention, stating that his concerns have been met by RES.
4. The Commission has authorized me to communicate its decision on standing. The Commission has decided that Jaap Remijn, Roline Van Der Haar, Suncor Energy Inc., Anita Jenkins, Harold Angle, and James Hadnagy have standing, and is prepared to confirm that Serge Langeweg has standing upon confirmation that Mr. Langeweg holds an interest in property within 2,000 metres of the project area. The Commission finds that BECI and Mr. Hofmann do not have standing in Proceeding 22966.

Statements of intent to participate

Nathan Hofmann

5. Mr. Hofmann stated in his SIP that he and his wife operate an aerial application service called Top Crop Applicators Inc. out of the Bow Island Airport. Mr. Hofmann identified the legal land description of the Bow Island Airport in his SIP and stated that it is greater than

1,000 metres from the proposed project. Mr. Hofmann indicated that the Commission's decision on the application will affect his ability to serve existing customers within a two-mile radius of any approved wind turbine and, more generally, the economics of his business. He also explained that the proposed turbines raise concerns with the safety of his flight crew due to a large number of movements required to and from the Bow Island Airport, including the reduction of available flight paths to and from the airport.

Benign Energy Canada II Inc.

6. BECI filed a SIP in each of proceedings 23049, 22966 and 23030 along with maps of the area.¹ BECI stated that it "registers the required SIP in order to follow the regulatory process and AUC decisions only as they pertain to same, given BECI intervener status is not qualified for". BECI then listed a number of questions and concerns with the three applications, including concerns with the potential cumulative noise and environmental effects of the proposed projects, the Commission process to be followed in considering those applications, and the transmission system's ability to accommodate the projects.

7. BECI subsequently filed an updated SIP in each of the three proceedings that included additional maps, information from Ducks Unlimited Canada, the US Fish and Wildlife Service, the Saskatchewan Ministry of Environment, Environment and Climate Change Canada, and identified additional environmental concerns with the projects.²

8. BECI also filed a letter on the record of proceedings 23049, 22966 and 23030³ responding to what it characterized as "false accusations" made by Suncor⁴ on the record of Proceeding 23030. The letter included additional concerns with the three projects and information relating to tailings ponds.

9. BECI subsequently filed additional correspondence for the stated purpose of supporting the AUC's assessment of the cumulative effects of the three projects. BECI included comments on cumulative noise assessments, information relating to the Alberta Electric System Operator's generation queue as of 2009, and information relating to the Oldman 2 Wind Project.⁵

Jaap Remijn

10. In his SIP, Mr. Remijn confirmed that he owns land within 1,000 metres of the proposed project. He explained that he is an agricultural producer growing potatoes under irrigation and that he uses aerial applicators in his operations. Mr. Remijn explained that approval of the

¹ Exhibits 23049-X0025, 23049-X0026, 23049-X0027, 23049-X0028, 23030-X0044, 23030-X0045, 23030-X0046, 23030-X0047, 22966-X0038, 22966-X0040, 22966-X0041, 22966-X0042.

² Exhibits 23049-X0031, 23049-X0032, 23049-X0033, 23049-X0034, 23049-X0035, 23030-X0056, 23030-X0057, 23030-X0058, 23030-X0059, 23030-X0060, 22966-X0053, 22966-X0054, 22966-X0055, 22966-X0056, and 22966-X0057.

³ Exhibits 23049-X0061, 23030-X0067, and 22966-X0071.

⁴ Exhibit 23030-X0063.

⁵ Exhibit 23049-X0066, 22966-X0086, and 23030-X0071.

proposed project would interfere with aerial applicators in the area, and requested that wind turbines be located no closer than five miles from any irrigation land.

Roline Van Der Haar

11. In her SIP, Ms. Van Der Haar confirmed that she owns land within 800 metres of the proposed project. She identified concerns with visual impacts and decreased property value as a result of turbines in proximity to her property. Ms. Van Der Haar also raised concerns with respect to the impact of noise on health, and the effects on wildlife in the area.

Serge Langeweg

12. Mr. Langeweg explained in his SIP that he is an agricultural producer growing potatoes under irrigation, and that he uses aerial applicators in his operations. Mr. Langeweg submitted that aerial applicators will not go closer than two miles from a wind turbine, which would reduce the land base upon which he grows potatoes. He added that this includes not only his own land, but also land from neighbours that he rents from or trades with. Mr. Langeweg identified that he owns land located at 20-10-11-W4, which is approximately nine kilometres away from the proposed project area, and requested that wind turbines be located no closer than five miles from any irrigation land.

Suncor Energy Inc.

13. Suncor Energy Inc. (Suncor) submitted that it has filed an application with the Commission for a wind power project adjacent to RES's proposed project area. Suncor identified concerns with noise and the environment in RES's application, and confirmed that it holds interests in various parcels of land within 2,000 metres or less of the proposed power plant.

Anita Jenkins

14. In her SIP, Ms. Jenkins confirmed that she owns land within 1,100 metres of the proposed project. Ms. Jenkins identified concerns with the project's proximity to her property, including visual impacts, noise, shadow flicker, agricultural operations including aerial spraying, and property value. Ms. Jenkins also identified a concern with notification for the project.

James Hadnagy

15. In his SIP, Mr. Hadnagy identified concerns with the relocation of turbines off of his land, as a result of concerns raised by other persons in relation to the turbines' proximity to the Bow Island Airport. He confirmed that he owns land within 200 metres of the proposed project.

Harold Angle

16. Mr. Angle filed a SIP in support of the proposed project as a participating landowner. Mr. Angle submitted that the RES project would be beneficial to his business and the community.

How the Commission determines standing

17. Section 9(2) of the *Alberta Utilities Commission Act* sets out how the Commission must determine standing:

(2) If it appears to the Commission that its decision or order on an application *may directly and adversely affect the rights of a person*, the Commission shall

- (a) give notice of the application in accordance with the Commission rules,
- (b) give the person a reasonable opportunity of learning the facts bearing on the application as presented to the Commission by the applicant and other parties to the application, and
- (c) hold a hearing. [emphasis added]

18. The meaning of the key phrase, “directly and adversely affect,” has been considered by the Alberta Court of Appeal on multiple occasions, and the legal principles set out by the court guide the Commission when it determines standing. Standing is determined by application of a two-part test. The first test is legal: a person must demonstrate that the right being asserted is recognized by law. This could include property rights, constitutional rights or other legally recognized rights, claims or interests. The second test is factual: a person must provide enough information to show that the Commission’s decision on the application may “directly and adversely affect” the person’s right, claim or interest.⁶

19. To determine if a right is “directly” affected, the court has said that “[s]ome degree of location or connection between the work proposed and the right asserted is reasonable.”⁷ When considering the location or connection, the Commission considers factors such as residence and the frequency and duration of the applicant’s use of the area near the proposed site.⁸

20. The Commission summarized court decisions relating to the meaning of the phrase “directly and adversely affected” in a decision issued in 2015 and concluded that to pass the test for standing, “the potential effects associated with a decision of the Commission must be personal rather than general and must have harmful or unfavourable consequences.” The Commission further commented that the court decisions “highlight the need for persons seeking standing to demonstrate the degree of connection between the rights asserted and potential effects identified.”⁹

21. The Commission assesses the potential for a “direct and adverse effect” on a case-by-case basis. It considers the specific circumstances of each proposed project application and each statement of intent to participate that it receives. In the past, the Commission has decided that general or broad concerns about a proposed project will generally be insufficient to establish

⁶ *Cheyne v Alberta (Utilities Commission)*, 2009 ABCA 94; *Dene Tha’ First Nation v Alberta (Energy and Utilities Board)*, 2005 ABCA 68 [*Dene Tha’*].

⁷ *Dene Tha’*.

⁸ *Sawyer v Alberta (Energy and Utilities Board)*, 2007 ABCA 297.

⁹ Decision 3110-D02-2015: Market Surveillance Administrator Allegations against TransAlta Corporation et al., Phase 2 Preliminary matters; Standing and Restitution, Proceeding 3110, September 18, 2015.

standing, unless a more specific link or connection to the demonstrated or anticipated characteristics of a proposed project is established.

Ruling

22. The Commission is satisfied that the persons or entities listed below have demonstrated that they have legal rights that may be directly and adversely affected by the Commission's decision on the application. The listed persons all have interests in land in close proximity to the proposed project and have demonstrated that the Commission's decision on the application has the potential to result in a direct and adverse effect on them. The potential effects described by these persons include proximity of the project, decreased property values, visual effects, noise, interference with agricultural operations, interference with business operations, and effects on the environment.

Persons with standing in Proceeding 22966
Jaap Remijn
Roline Van Der Haar
Suncor Energy Inc.
Anita Jenkins
Harold Angle
James Hadnagy

23. It is unclear from Mr. Langeweg's SIP whether he has an interest in land within 2,000 metres of the proposed project. In his SIP, Mr. Langeweg identified that he owns land approximately nine kilometres away from the proposed project, but also referred to land that he rents from neighbours. The Commission is prepared to confirm Mr. Langeweg's standing upon confirmation from him that he holds an interest in land within 2,000 metres of the project area.

24. The Commission finds that Mr. Hofmann has not met the first part of the standing test because he has not demonstrated that he has a legal right that could be affected by the Commission's decision on the application. In order to meet the first part of the standing test, a person must assert a right recognized by law. The Commission considers that Mr. Hofmann is asserting an economic interest in providing aerial spraying services to a particular area, or customer base. The Commission is not satisfied that this economic interest is a right recognized by law, and accordingly finds that Mr. Hofmann does not meet the first part of the standing test.

25. However, the Commission has authority to control its own process and discretion to allow parties without standing to participate in its proceedings, as well as to determine the level of that participation. That is, the Commission may permit a person without standing to participate by filing a brief written submission explaining his or her position, or it may allow the person to fully participate in the hearing by filing evidence, cross-examining witnesses and submitting argument. When deciding whether to grant participation rights, the Commission takes into account whether the person or group requesting participation has relevant information that may assist the Commission in carrying out its duties or functions. Whether a person is granted or denied standing has important implications for whether that person is eligible to claim the costs of their participation at the end. Namely, a person who has been denied standing is not eligible to claim costs associated with their participation in the proceeding.

26. The Commission considers that Mr. Hofmann may have information relevant to its determination of RES's application and is prepared to allow Mr. Hofmann to participate in the hearing by making a brief written or oral statement. However, in the event that all parties with standing withdraw their objections, the Commission may cancel the hearing and issue its decision without further input from Mr. Hofmann. The Commission emphasizes that Mr. Hofmann will not be eligible to recover any costs associated with his participation in the proceeding.

27. The Commission finds that BECI has not provided sufficient information to demonstrate that it holds rights that may be directly and adversely affected by the Commission's decision in this proceeding. BECI noted in its initial SIP that it does not qualify for intervener status, and it has not provided any additional information that would contradict this conclusion. The Commission therefore denies standing to BECI in Proceeding 22966.

28. Notwithstanding BECI's initial submission that it registered a SIP to follow the regulatory process, the Commission notes that BECI has filed voluminous information on the record of proceedings 23049, 22966 and 23030. The Commission has considered that information to the extent necessary to determine whether BECI meets its standing test, but will not consider it for any purpose outside the limited context of determining BECI's standing.

29. Please contact me at 403-592-4385 or at Kim.Macnab@auc.ab.ca if you have any questions about the matters addressed in this ruling.

Regards,

Kim Macnab
Commission Counsel