



Capital Power Generation Services Inc.

Halkirk 2 Wind Power Project Amendment

July 27, 2023

Alberta Utilities Commission

Decision 27691-D01-2023

Capital Power Generation Services Inc.

Halkirk 2 Wind Power Project Amendment

Proceeding 27691

Applications 27691-A001 and 27691-A002

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Contents

1	Decision summary	1
2	Introduction	1
2.1	Capital Power Generation Services Inc.'s applications	1
2.2	Intervenors.....	4
3	Legislative and evidentiary framework	4
3.1	The role of the Commission.....	4
3.2	How the Commission assesses the public interest.....	5
3.2.1	The Commission's assessment of the public interest in this proceeding.....	6
3.3	How the Commission considers and weighs different types of evidence.....	7
3.3.1	The Commission's consideration of evidence in this proceeding	8
4	Discussion and findings	10
4.1	Aerodrome use and aviation safety	11
4.1.1	The aerodromes.....	11
4.1.2	Legal constraints on the Commission's ability to approve a power plant in the vicinity of an aerodrome	12
4.1.2.1	Regulatory landscape.....	13
4.1.2.1.1	TP312 <i>Aerodrome Standards and Recommended Practices</i>	14
4.1.2.1.2	TP1247 <i>Land Use in the Vicinity of Aerodromes</i>	15
4.1.2.2	Commission findings concerning Transport Canada documents	15
4.1.3	Aerodrome use and safety.....	17
4.1.3.1	Traffic circuits	19
4.1.3.2	Impacts on the Fetaz aerodrome	20
4.1.3.2.1	Turbine structures.....	20
4.1.3.2.2	Downwind turbulence	22
4.1.3.3	Impacts on the Maier aerodrome	24
4.1.4	Consultation on aviation impacts.....	26
4.2	Impacts of the amended project on the PPA, Carmen Felzien and Doreen Brown	27
4.2.1	Economic issues.....	28
4.2.1.1	Aerial spraying.....	28
4.2.1.2	Property devaluation	30
4.2.1.3	Lack of benefits to ratepayers.....	31
4.2.2	Social issues	32
4.2.2.1	Noise	32
4.2.2.2	Shadow flicker.....	34
4.2.2.3	Construction impacts	36
4.2.2.4	Safety relating to ice throw and fires	37
4.2.2.5	Emergency response	37
4.2.2.6	Consultation.....	38
4.2.2.7	Project contribution to cumulative effects on rural life	39
4.2.2.8	Health.....	40
4.2.2.9	Livestock.....	41
4.2.2.10	Municipal setback infringements.....	41
4.2.2.11	Viewscapes	42

4.2.2.12	Unknown historical resources.....	42
4.2.3	Environmental issues	43
4.2.3.1	Wildlife	43
4.2.3.2	Wetlands	46
4.2.3.3	Flood plains and drainage.....	47
4.2.3.4	Water wells	48
4.2.3.5	Weeds and crop disease	49
4.2.3.6	Reclamation	50
4.3	Goldeye 620S Substation	51
5	Conclusion	52
6	Decision	54
	Appendix A – Proceeding participants	55
	Appendix B – Oral hearing – registered appearances.....	56
	Appendix C – Summary of Commission conditions of approval	57

List of figures

Figure 1.	Proposed location of the amended project.....	2
Figure 2.	Approved (red) and proposed (blue) wind turbine locations in proximity to the Fetaz aerodrome	17
Figure 3.	Approved (red) and proposed (blue) wind turbine locations in proximity to the Maier aerodrome (R053).....	18
Figure 4.	Standard left-hand circuit.....	19
Figure 5.	Fetaz aerodrome circuit with downwind turbulence from turbines	23

1 Decision summary

1. In this decision, the Alberta Utilities Commission approves applications from Capital Power Generation Services Inc. (Capital Power) to amend, construct and operate a power plant project, designated as the Halkirk 2 Wind Power Project, subject to conditions including the removal of certain proposed turbines. The project consists of a wind power plant, with a maximum generating capability of 151 megawatts, and the Goldeye 620S Substation.

2 Introduction

2.1 Capital Power Generation Services Inc.’s applications

2. Capital Power pursuant to Approval 25047-D02-2020¹ and Permit and Licence 25047-D03-2020² has approval to construct and operate a power plant designated as the Halkirk 2 Wind Power Plant and Goldeye 620S Substation, in the Halkirk area. The project was approved with a construction completion date of December 1, 2022.

3. Capital Power filed applications with the Commission for approval to amend, construct and operate the Halkirk 2 Wind Power Project, under sections 11, 14, 15 and 19 of the *Hydro and Electric Energy Act*. The Commission granted an interim extension of Approval 25047-D02-2020 and Permit and Licence 25047-D03-2020, under subsection 8(5) of the *Alberta Utilities Commission Act*, while the amendment applications were under consideration.³

4. The project was previously approved to be sited on 274.3 hectares of private land northeast of the village of Halkirk and to consist of 74 two-megawatt wind turbines. Capital Power’s amendment will reduce the total project footprint to 260.1 hectares. While Capital Power has not finalized a turbine make and model, it requested approval for up to 35 wind turbines with a combined maximum capacity of 151 megawatts. The final wind turbine selected will have a maximum hub height of 120 metres and a maximum tip height of 200 metres. In comparison, the previously approved project consisted of 74 two-megawatt turbines with a hub height of 95 metres and maximum tip height of 150 metres.

5. Capital Power also proposed a new location for the project substation. The Goldeye 620S Substation was previously approved to be located in the northeast quarter of Section 35, Township 39, Range 15, west of the Fourth Meridian. It will now be located in the southwest quarter of Section 12, Township 40, Range 15, west of the Fourth Meridian. Capital Power

¹ Power Plant Approval 25047-D02-2020, Proceeding 25047, Application 25047-A001, March 5, 2020.

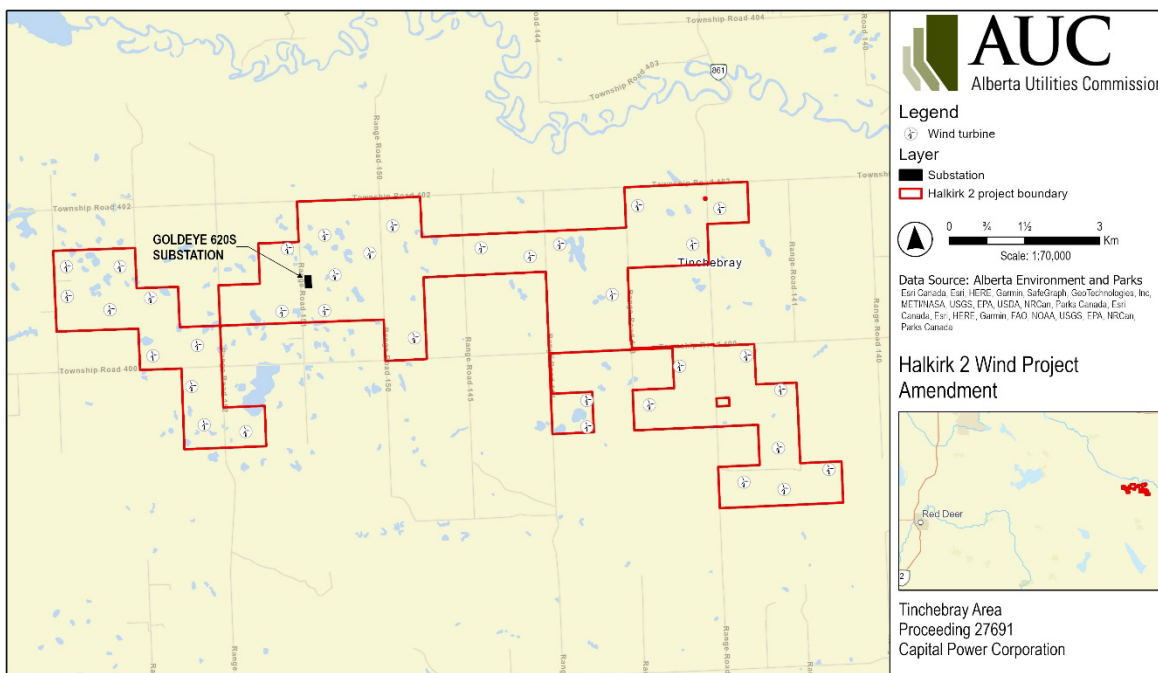
² Substation Permit and Licence 25047-D03-2020, Proceeding 25047, Application 25047-A002, March 5, 2020.

³ Exhibit 27691-X0054, AUC letter - Interim time extension.

anticipated the new substation location will require less transmission development to connect the project to the electrical grid.

6. The map below shows the proposed location of the amended project:

Figure 1. Proposed location of the amended project



7. Capital Power submitted the amendment will result in no adverse effects, beyond those that were previously considered and accepted by the Commission. In some cases, the amendment will reduce the effects of the project. For example, the reduction in the total number of wind turbines results in a general increase in separation distance between residences and wind turbines, and the removal of wind turbines from sensitive environmental areas.

8. Capital Power described the overall project benefits as including local labour employment opportunities during construction and operation, municipal tax revenues, the addition of renewable electricity to Alberta's power sector, and the supply of local electrical load.⁴ Capital Power submitted that beyond the benefit of generating emission-free electricity, the project will create approximately 200 jobs during peak construction and several maintenance and operations jobs during operation. It submitted that the project also will generate approximately \$56 million in tax revenue over the project's lifespan.

9. Capital Power's applications contained the following key components:

- A participant involvement program summary, which detailed consultation with stakeholders within 800 metres of lands required for permanent project infrastructure and notification of stakeholders within 2,000 metres of the previously approved project layout, as well as notification to owners of aerodromes within 4,000 metres from

⁴ Exhibit 27691-X0009, Halkirk 2 Power Project Amendment Application, PDF page 11.

proposed turbine locations. Capital Power explained that there are no First Nation reserves or Metis Settlements within the consultation or notification radius; however it provided project information to eight Indigenous communities (seven that were notified during the previous application and Métis Nation of Alberta Region 3). No concerns were raised by the Indigenous communities.⁵

- An environmental evaluation, which described baseline environmental conditions, identified potential environmental effects of the Halkirk 2 project, described mitigation measures to be implemented during construction, operation and decommissioning of the project, and assessed the predicted residual effects.⁶
- An environmental protection plan, which detailed the mitigation measures, commitments, and applicable environmental legislation that applies to the project.⁷
- An Alberta Environment and Protected Areas - Fish and Wildlife Stewardship (AEPA)⁸ renewable energy amendment letter, dated June 16, 2022, which stated the project continues to pose a moderate risk to wildlife and wildlife habitat.⁹
- A conceptual conservation and reclamation plan developed with the objective of returning the project land to an equivalent land capability.¹⁰
- A *Historical Resources Act* approval from the Ministry of Arts, Culture and Status of Women (Alberta Culture), dated June 22, 2022.¹¹
- A noise impact assessment, which concluded that the project would comply with Rule 012: *Noise Control*.¹²
- A shadow flicker assessment update, which demonstrated a minimal potential for shadow flicker effects from the updated project.¹³
- A preliminary site-specific emergency response plan¹⁴ and correspondence with local first responders.¹⁵

⁵ Exhibits 27691-X0016, Attachment N - Halkirk 2 Wind Participant Involvement Program, 27691-X0014, Attachment N - Halkirk 2 Wind Participant Involvement Program - Appendix A to I2, and 27691-X0015, Attachment N - Halkirk 2 Wind Participant Involvement Program - Appendix J to P.

⁶ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation.

⁷ Exhibit 27691-X0006, Attachment I - Environmental Protection Plan.

⁸ On October 24, 2022, the Ministry of Environment and Parks (AEP) was renamed the Ministry of Environment and Protected Areas (AEPA). Any references to AEP in Rule 033: *Post-approval Monitoring Requirements for Wind and Solar Power Plants* and elsewhere that relate to forward-looking obligations or commitments between the applicant and AEP should be interpreted as meaning Alberta Environment and Protected Areas. The term AEPA will be used throughout this decision regardless of whether the referenced document or information was issued prior to the name change.

⁹ Exhibit 27691-X0008, Attachment L – Renewable Energy Project Submission Amendment Approval Letter.

¹⁰ Exhibit 27691-X0012, Attachment J - Conceptual Conservation and Reclamation Plan.

¹¹ Exhibit 27691-X0013, Attachment M - Signed HRA Response.

¹² Exhibit 27691-X0007, Attachment K - Noise Impact Assessment.

¹³ Exhibit 27691-X0004, Attachment F - Shadow Flicker Assessment.

¹⁴ Exhibit 27691-X0002, Attachment D - Emergency Response Plan.

¹⁵ Exhibit 27691-X0003, Attachment E - Correspondence with Local First Responders.

10. Capital Power expected the project to commence commercial operation in December 2024 but requested a construction completion date of January 31, 2025, to allow for schedule flexibility.¹⁶

2.2 Interveners

11. The Commission received numerous responses to its notice of applications.¹⁷ The following parties filed statements of intent to participate and were granted standing in the proceeding:

- Individual stakeholders near the Halkirk 2 project boundary who subsequently formed the Paintearth Protection Association (PPA).
- Gerard and Donna Fetaz.
- Carmen Felzien, in her own capacity and as representative of Doreen Brown.
- Doreen Blumhagen, who indicated support for the project.

12. The Commission held a virtual hearing from April 24, 2023, to April 28, 2023, to consider the applications and concerns raised. The registered proceeding participants and the registered appearances for the oral hearing can be found in appendixes A and B, respectively, of this decision.

13. In the following sections of this decision, the Commission provides its findings on the applications. The Commission begins with a discussion of the legislative and evidentiary frameworks that guide its decision-making. The Commission then discusses specific concerns and factors that it has considered, including impacts on aerodrome use and aviation safety, and impacts on local landowners.

3 Legislative and evidentiary framework

14. In this section, the Commission describes the legal landscape in which its decisions are made. First, the Commission explains its mandate and powers when considering a power plant application. Second, the Commission describes how it assesses the public interest, including how this assessment is performed in the context of an amendment application. Last, in response to intervenor concerns about the meaning of “expert” evidence, the Commission describes how it considers and weighs evidence.

3.1 The role of the Commission

15. The Commission is an independent, quasi-judicial agency of the province of Alberta. The Commission’s powers are conferred on it by the provincial legislature and set out in legislation. As a quasi-judicial agency, the Commission is similar in many ways to a court when it holds hearings and makes decisions. Like a court, the Commission bases its decisions on the evidence before it and allows interested parties to cross-examine each other’s witnesses to test the evidence as well as provide argument. Unlike a court proceeding, the Commission’s proceedings

¹⁶ Exhibit 27691-X0009, Halkirk 2 Power Project Amendment Application, PDF page 19.

¹⁷ Exhibit 27691-X0032, Notice of applications - Halkirk 2 Wind Power Project Amendment.

are not matters between two or more competing parties to determine who wins and who loses. Instead, the Commission deals with specialized subject matter requiring it to assess and balance a variety of public interest considerations.

16. The applicant has the onus to demonstrate that approval of its application is in the public interest. Parties who may be directly and adversely affected by the Commission's approval of the application may attempt to show how the applicant has not met its onus. These parties may do so by bringing evidence of the effects of the project on their own private interests and explaining how the public interest may be better served by accommodating their private interests, and they may use the evidence filed by all parties to the proceeding to argue what a better balancing of the public interest might be. It is the Commission's role to test the application and the concerns raised about the project to determine whether approval is in the public interest.

17. The Commission recognizes that responding to an application requires a person's time and resources. In order to alleviate this burden, the Commission makes funding available to local interveners to enable them to hire legal representation, consultants and experts to assist with their participation.

3.2 How the Commission assesses the public interest

18. The Commission holds hearings to determine an outcome that meets the public interest mandate set out in its enabling legislation. When the Commission receives an application to construct and operate a power plant, Section 17(1) of the *Alberta Utilities Commission Act* is engaged. This provision states that, in addition to any other matters it may or must consider, the Commission must give consideration to whether the proposed project is in the public interest, having regard to the social and economic effects of the project and its effects on the environment.

19. The Commission must also take into consideration the purposes of the *Hydro and Electric Energy Act* and the *Electric Utilities Act*. These statutes provide for economic, orderly and efficient development of facilities and infrastructure, including power plants, in the public interest, and set out a framework for a competitive generation market, where decisions about whether and where to generate electricity are left to the private sector. When the Commission conducts a public interest assessment of a power plant application, it does not consider the economics of the project or if there is a need by consumers for the electricity it will provide.¹⁸

20. Conducting a public interest assessment requires the Commission to assess and balance the competing elements of the public interest in the context of each specific application before it. Part of this exercise is an analysis of the nature of the impacts associated with a particular project, and the degree to which the applicant has addressed these impacts. Balanced against this is an assessment of the project's potential public benefits. The assessment includes the positive and adverse impacts of the project on those nearby, such as landowners.

¹⁸ *Hydro and Electric Energy Act*, RSA 2000, c H-16, Section 3(1)(c).

21. The Commission has previously affirmed that the public interest will be largely met if an application complies with existing regulatory standards, and the project's public benefits outweigh its negative impacts.¹⁹

22. As a starting point, a power plant application filed with the Commission must comply with Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines* and Rule 012: *Noise Control*.

3.2.1 The Commission's assessment of the public interest in this proceeding

23. In applications such as this one, where the applicant seeks to amend its previously approved project, the Commission's public interest consideration focuses on the incremental effects associated with the proposed amendment. In the ordinary course, an amendment application does not reopen an approval, allow for reconsideration of the project as a whole, or create an opportunity to relitigate issues previously decided and not affected by the proposed amendment, or advance evidence or arguments that could have been considered in the original proceeding. To hold otherwise would permit collateral attacks on the original decision and undermine the principle of finality.²⁰ It is in the public interest for parties to be able to rely on the finality of decisions and relitigating decided issues may undermine confidence in regulatory processes and cause the unnecessary expenditure of resources.²¹

24. Although an amendment application does not reopen consideration of the project as a whole, amendments to project infrastructure and layouts can result in effects of a different nature or scale than were previously considered, and it is not always possible to isolate the incremental effects. The Commission commented on this in a ruling in this proceeding, where it explained that "as some of the amendments, in particular turbine layout and size, represent a significant change, certain impacts considered in the original proceeding may need to be reconsidered in the context of the new structure locations and turbine size."²²

25. Specifically, in the original proceeding, G. Fetaz asserted that one particular turbine would directly obstruct the Fetaz aerodrome; the Commission agreed that it might.²³ The Commission mandated that Capital Power engage with the Fetazes to determine whether the turbine could be relocated in a manner that would minimize any effects on the safe operation of the aerodrome. The Commission also indicated that, based on the outcome of the engagement, it may implement further process to address the issues of aerodrome use and aviation safety.²⁴ Capital Power applied for this amendment before that condition was resolved. Although the total number of turbines in proximity to aerodromes has been reduced in this amendment application, and the turbine previously identified as a concern has been removed, the amended locations and sizes of specific turbines may nevertheless affect aerodrome use and aviation safety in ways that

¹⁹ Alberta Energy and Utilities Board Decision 2001-111: EPCOR Generation Inc. and EPCOR Power Development Corporation - 490-MW Coal-Fired Power Plant, Application 2001173, December 21, 2001, PDF page 12.

²⁰ Decision 25296-D01-2021, Aura Power Renewables Ltd. – Fox Coulee Solar Project Amendment, Proceeding 25296, Application 25296-A001, February 11, 2021, paragraphs 24-25.

²¹ See *British Columbia (Workers' Compensation Board) v Figliola*, 2011 SCC 52, paragraph 34.

²² Exhibit 27691-X0100, AUC letter - Ruling on motion to consider as new application and standing, PDF page 3.

²³ Decision 22563-D01-2018, PDF pages 17 to 18, paragraphs 65 and 71.

²⁴ Decision 22563-D01-2018, PDF pages 18 and 66, paragraphs 71 and 319.

are different than was previously contemplated, and that cannot be directly compared with the Commission's findings in the original decision.

26. Accordingly, the Commission has considered any incremental effects resulting from the change in turbine model and locations, and corresponding changes to the project layout, collector system and access roads, as well as changes to the substation. The Commission has also considered any effects resulting from the proposed amended project on aerodrome use and aviation safety. The Commission discusses these project-specific impacts in Section 4 of the decision.

3.3 How the Commission considers and weighs different types of evidence

27. In this section, the Commission discusses the differences between fact and opinion evidence, and how it considers and weighs these different types of evidence.

28. The evidence considered by the Commission in its proceedings can be broadly divided into two categories: fact evidence and opinion evidence. Fact evidence is evidence given by a witness about facts; for example, what a witness has seen or heard. Opinion evidence refers to inferences made from observed facts.

29. Opinion evidence often involves inferences on a scientific or technical subject matter provided by a person with specialized knowledge, experience or training in that field – this person is called an expert witness. A person may become an expert in a subject matter through education, training, experience or a combination thereof. In *R v Howard*, the Supreme Court of Canada succinctly explained the role of an expert witness as follows: “Experts assist the trier of fact in reaching a conclusion by applying a particular scientific skill not shared by the judge or the jury to a set of facts and then by expressing an opinion as to what conclusions may be drawn as a result.”²⁵ A person who is not an expert witness is called a lay witness.

30. As a general rule, Canadian courts consider opinion evidence to be inadmissible. However, this general exclusionary rule is a presumption, and there are many exceptions.²⁶

31. One exception is opinion evidence that is a compilation of ordinary observations.²⁷ Under this exception, the opinion functions as a shorthand for expressing all of the small facts that are implicit in the opinion.²⁸ For example, the conclusion that it will rain may be comprised of the factual observations that it is summertime, clouds have rolled in, the clouds are dark, and the temperature has dropped.

32. A lay witness may provide opinion evidence that is a compilation of ordinary observations if (1) they are in a better position than the decision-maker to form the opinion; (2) the opinion could be made by a person of ordinary experience; and (3) although not expert, the lay witness has the relevant experience to make the conclusion.²⁹ As Justice Dixon, writing for the unanimous Supreme Court of Canada, concluded: “I can see no reason in principle or in

²⁵ *R v Howard*, [1989] 1 SCR 1337.

²⁶ *White Burgess Langille Inman v Abbott and Haliburton Co*, 2015 SCC 23 at paragraphs 14-15.

²⁷ *Graat v The Queen* [1982] SCR 819.

²⁸ *O’Kane v Lillqvist-O’Kane*, 2021 ABQB 925 at paragraph 9.

²⁹ *O’Kane v Lillqvist-O’Kane*, 2021 ABQB 925 at paragraph 10.

common sense why a lay witness should not be permitted to testify in the form of an opinion if, by doing so, he is able more accurately to express the facts he perceived.”³⁰

33. Another exception is opinion evidence from witnesses with expertise. With respect to the level of expertise required, the decision-maker must be satisfied the person has a sufficient degree of expertise to provide the opinion, but there is no minimum degree of formal training required. Any deficiencies in expertise beyond that, go to the weight to be afforded to the evidence, not its admissibility.³¹ For example, an expert in cattle nutrition may have sufficient expertise to provide opinion evidence on the effects of contaminants in cattle feed, although the nutritionist is not a toxicologist or a pathologist. However, the nutritionist’s opinion evidence on such contaminants may be afforded less weight than conflicting evidence given by a toxicologist or pathologist.³²

34. Witnesses with expertise include independent experts retained to provide opinions to the decision maker, but who were not involved in the underlying events; witnesses with expertise who were involved in the underlying events, but who are not parties to the proceeding; and parties to a proceeding (which includes employees of corporate parties) with expertise.³³

35. Typically, if a matter requires special knowledge or skill to form opinions based on the facts, independent expert witness will provide those opinions. Those expert witnesses may be permitted to provide opinion evidence if certain criteria are satisfied, including that the witness be independent, impartial, and free from bias.³⁴

36. Canadian courts have concluded that, while they are able to admit opinion evidence from parties with expertise, they must not do so uncritically; the partisan perspective of a witness who has a vested interest in an outcome may colour their opinions. Even if the opinion evidence of the party with expertise is admitted, it is not necessarily entitled to be put on an equal footing with the evidence of independent experts, or given any weight at all.³⁵

37. One of the ways in which the Commission’s process differs from that of the court is that it is not required to strictly apply the rules of evidence that apply to judicial proceedings.³⁶ While this provides the Commission with flexibility to determine admissibility and weight of evidence, it cannot ignore the principles that underlie the formal rules of evidence.³⁷

3.3.1 The Commission’s consideration of evidence in this proceeding

38. During the hearing, the Commission heard testimony from many witnesses who described how the project may affect them, their families, and their businesses. While this evidence included opinion evidence, that evidence was relevant and necessary for the Commission to hear to be able to accurately assess how approval of the project may affect

³⁰ *Graat v The Queen* [1982] SCR 819 at 837.

³¹ *R v Marquard*, [1993] 4 SCR 223 at 243.

³² *Crooked Post Shorthorn v Masterfeeds Inc*, 2010 ABCA 106, paragraphs 16-22.

³³ *Kon Construction Ltd v Terranova Developments Ltd*, 2015 ABCA 249 at para 35.

³⁴ *White Burgess Langille Inman v Abbott and Haliburton Co*, 2015 SCC 23 at paragraphs 15, 22-25.

³⁵ *O’Kane v Lillqvist-O’Kane*, 2021 ABQB 925 at para 26.

³⁶ Alberta Utilities Commission Act, Section 20.

³⁷ Decision 2011-436: AltaLink Management Ltd. and EPCOR Distribution & Transmission Inc. - Heartland Transmission Project, Application 1606609, Proceeding 457, November 1, 2011, paragraph 92.

stakeholders. Accordingly, the Commission accepted as relevant the opinion evidence of many lay witnesses in coming to its decision on the applications.

39. In some cases, lay witnesses also provided opinion evidence on matters of a scientific or technical nature. For example, individual interveners provided testimony on how the project may affect their health. The Commission recognizes that individuals are well-positioned and capable of providing reliable evidence about their own health, such as symptoms they experience in their day-to-day lives. However, evidence about how the project may affect an individuals' health involves opinions; that is, the evidence is not limited to facts within the witness' direct knowledge, and requires the witness to draw inferences about what has occurred or is likely to occur.

40. The Commission has previously identified certain subject matter areas for which it will generally require opinion evidence to be provided by independent experts with specialized expertise. These include human health, noise impacts, environmental effects, and property valuation, among others. The reason why the Commission must assess a witness's expertise before giving weight to their opinion evidence in these areas relates to both the complexity of the subject matter and the nature of opinion evidence. The Commission can choose to accept and rely on facts provided to it by a witness. In some cases, the Commission can also draw its own inferences and conclusions from those facts. If, however, the subject matter is complex enough that it requires the Commission to rely on inferences or conclusions drawn by someone else, the Commission must be confident that the person has the training, knowledge, and experience required to make relevant and helpful inferences, and is acting in a manner that is independent and impartial. This will usually require an independent expert witness.

41. In order to assist the Commission in its determination of their scope of expertise, it is important that expert witnesses identify the limits of their expertise when providing evidence before the Commission. For example, both Glenn Grenier and Charles Cormier testified that, while they were experts in aspects of aviation, they were not experts in downwind turbulence.³⁸

42. Expert witnesses in Commission proceedings will generally be retained and paid by a party to the proceeding. This alone does not undermine the expert witness's independence or impartiality. Like lay witnesses, expert witnesses provide testimony under oath. Additionally, expert witnesses are required to acknowledge that they have a duty to provide opinion evidence to the Commission that is fair, objective and non-partisan.

43. The Commission wishes to emphasize that its requirement for expert evidence on some subject matter areas is not a reflection of how it views the relevance, truthfulness or pertinence of the interveners' testimony. Where, for example, interveners express concerns about the impacts of the project on human health, the Commission can take into account the fact that these concerns exist, are being relayed truthfully and are sincerely held. The Commission cannot, however, give weight to opinions about the medical or scientific correlation between a project and certain health conditions unless a witness is able to establish that they possess the skill, knowledge, and experience to establish themselves as an expert. In such a case, the value and weight of that evidence would have to be considered in light of the independence of the witness,

³⁸ See for example Transcript, Volume 3, page 542, line 22 - page 543, line 5 and Transcript, Volume 2, page 248, lines 14-25 concerning G. Grenier and C. Cormier, respectively.

the process followed by the witness at arriving at his or her opinion, and the substance of the evidence on which the witness relied.

44. The Commission's reliance on expert witnesses to provide opinion evidence on certain subject matter areas does not mean that lay witnesses are not permitted to provide any testimony on these matters, nor that their evidence on these matters will not be considered by the Commission. Lay witnesses, both interveners and corporate witnesses for project proponents, are able to provide information within their personal knowledge, and may present their relevant observations in the form of opinions. In some cases, their personal knowledge may be extensive and detailed.

45. For example, several interveners have lived in the Halkirk area for many years and some have also been generationally present on that land; they are therefore likely to be extremely familiar with that area and with area specific information such as wildlife, historic flooding events, and traffic safety. This local knowledge is a valuable asset. Further, while G. Fetaz was not put forward as an expert witness, the Commission recognizes that he has significant firsthand experience and knowledge relating to flying conditions in the area and the use of the Fetaz aerodrome. The Commission also heard testimony in this proceeding from corporate witnesses who are employees of Capital Power, but who are not independent experts. In some cases, this evidence touched on specialized or technical subject matters. For example, Wilhelm Danek, who has several years of experience in developing wind projects, provided evidence concerning the performance of wind turbines.

46. The Commission evaluates the evidence provided by all lay and expert witnesses who participated in the hearing in the same way. The Commission will first consider the nature of the evidence provided, i.e., does it deal with fact or opinion? If the evidence addresses a specialized or technical subject matter, the Commission will also consider whether the witness has demonstrated that he or she has the necessary skill, knowledge, and experience to provide an opinion on the subject matter, and whether or to what degree the evidence may have been influenced by the witness' partisan perspective. Based on these considerations, the Commission then determines whether to admit the evidence provided, and if so, the appropriate weight to give that evidence.

4 Discussion and findings

47. The Commission has reviewed the applications and has determined that the information requirements specified in Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines* have been met. Additionally, the Commission finds that Capital Power's participant involvement program satisfied the requirements of Rule 007.

48. The Commission considers the project, which consists of the Halkirk 2 Wind Power Plant and Goldeye 620S Substation, as amended, to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*, subject to the conditions described below which include the removal of certain turbines, and subject to conditions that remain in effect from the previous approval. The Commission's approval of the amendment applications is also premised on its understanding that commitments made by Capital Power are binding and will be treated as such.

49. In the following sections, the Commission discusses the project's impacts on the intervening parties who were granted standing. First, the Commission discusses aerodrome use and aviation safety. In this section the Commission considers the impacts to the Fetazes and Steve Maier along with general aviation issues. Next, the Commission considers other impacts of the project on interveners, including economic, social and environmental issues. In this section, the Commission addresses the concerns of the Paintearth Protection Association, and C. Felzien on behalf of her mother, D. Brown.

4.1 Aerodrome use and aviation safety

50. A major issue in this proceeding involved the effects of the project on two nearby aerodromes. The first aerodrome is owned and operated by G. and D. Fetaz, and referred to in this decision as the Fetaz aerodrome. The second aerodrome is owned and operated by S. Maier, a member of the Paintearth Protection Association, and referred to in this decision as the Maier aerodrome.

51. Both the Fetazes and S. Maier raised concerns about their continued ability to fly out of their aerodromes after the project is constructed, due to the existence of turbines within their flight paths. The PPA expressed concerns about the potential of the project to infringe on local aerodrome operations, and safety implications for users and residents nearby.

52. The Commission will begin this section by providing background information on the two aerodromes at issue in this proceeding. The Commission will then survey the relevant legislation, case law, and regulatory documents to determine whether there are any legal constraints on its ability to approve a power plant in the vicinity of an aerodrome, beyond its obligation to make a decision in the public interest. Next, the Commission will explain its public interest mandate, and how the public interest balances the broader interest of Albertans generally, with the specific private interests of directly affected landowners. Lastly, the Commission will provide its findings on why approval of the power plant is in the public interest, subject to conditions intended to mitigate its effects on the use of the Fetaz aerodrome.

4.1.1 The aerodromes

53. The Fetaz aerodrome is located approximately 2.5 kilometres from the amended project boundary. It is a registered aerodrome as of June 2019 and is listed in the *Canada Flight Supplement* as CPE8. The Fetaz aerodrome has been operating for over 30 years, and is primarily used by G. Fetaz, a pilot who currently flies a 1957 Cessna 180, but is also used by other pilots who reside locally and ones who visit the area. G. Fetaz indicated that he flies from the aerodrome 30-40 times per year. Use of the aerodrome by other pilots requires prior notice to the Fetazes.

54. The Fetaz aerodrome consists of one airstrip that is approximately 2,640 feet long and 60 feet wide and situated in an east-west orientation. The airstrip surface is grass, and the centre of the airstrip has been built up to facilitate drainage so that it can be used in variable weather conditions. The aerodrome is used year round but there is limited winter maintenance. The airstrip is fenced on its south and west ends to prevent livestock from accessing it. A pilot can take off from either end of the airstrip. When taking off towards the west, a pilot is using Runway 26. When taking off towards the east, the pilot is using Runway 08.

55. The Fetaz aerodrome is located to the north of a coulee through which runs the Paintearth Creek. The presence of the coulee is significant to this proceeding because, as discussed in greater detail below, the Commission heard testimony that the coulee is a source of mechanical turbulence that may limit the takeoff and descent paths available to a pilot.

56. The proposed turbines located nearest in distance to the Fetaz aerodrome are T10, T18, T23, T24, T25, and T27.

57. The Maier aerodrome is situated on land adjacent to the project and is located approximately 879 metres from the nearest turbine. It is an unregistered aerodrome that is also referred to in the PPA submissions as the Mule's Head Airstrip. It is primarily used by S. Maier, who flies an ultralight aircraft. S. Maier has been flying from the Maier aerodrome since 2018, and his flight logs denote approximately 11 occasions on which he or another pilot has used Maier aerodrome since that time, with some occasions involving multiple takeoffs and landings.³⁹ In response to an information request from Capital Power, the PPA explained that the Maier aerodrome has been used by at least four other pilots besides S. Maier, but that other pilots have not used the aerodrome frequently in recent years due to the COVID-19 pandemic.

58. The Maier aerodrome consists of one grass airstrip that is approximately 850 feet long and situated in a north/northeast-south/southwest orientation. The runways at the Maier aerodrome are not formally named, but a pilot can similarly take off in either direction, subject to wind conditions.

59. The proposed turbines located nearest in distance to the Maier aerodrome are T8 and T10.

4.1.2 Legal constraints on the Commission's ability to approve a power plant in the vicinity of an aerodrome

60. No party to this proceeding challenged the Commission's authority to approve the construction and operation of a power plant in the vicinity of an aerodrome under Section 11 of the *Hydro and Electric Energy Act*. However, there was significant dispute between the parties about whether the Commission should uphold a minimum distance between the aerodrome and any project components that may constitute obstacles, such as turbines or the downwind turbulence caused by turbines. Specifically, the Fetazes and PPA submitted that the Commission should not issue any approval unless it preserves a 4,000-metre radius free of obstacles around the aerodromes.

61. In this subsection, the Commission surveys the relevant legislation, case law and guidance documents to determine whether there are any legal constraints on its ability to approve a power plant within a particular vicinity of an aerodrome. The Commission concludes that there is no legal authority that prohibits it from approving the construction and operation of a power plant within any particular distance of an aerodrome, other than its overriding statutory mandate to make decisions in the public interest.

62. The Commission finds that it is not required to preserve a 4,000-metre radius free of obstacles around the aerodromes. As described below, the Commission is of the view that

³⁹ Exhibit 27691-X0197, Attachment #2 – Maier Logbook records. Approximated by summing the logbook entries on PDF pages 1-2 that include associated flight time entries.

Transport Canada has not mandated any prohibition on obstacles within that radius. Transport Canada has, however, recommended certain practices, including marking obstacles within the 4,000-metre radius, to ensure a satisfactory level of safety. Therefore, in assessing whether the approval of the amendment applications are in the public interest, the Commission has examined the evidence before it to determine whether obstacles related to the proposed project are consistent with aviation safety and the continued, safe use of the aerodromes.

63. Where proposed project infrastructure has the potential to interfere with the continued safe use of the aerodromes, the Commission is faced with competing, and potentially irreconcilable interests. The Commission must then consider whether the project is in the public interest notwithstanding the fact that it may render the aerodromes unusable. As always, the onus is on the applicant to demonstrate that the project is in the public interest. Determining whether the project is in the public interest in these circumstances requires the Commission to weigh the project's public benefits against its harmful effects on the interests of aerodrome users. This necessarily involves consideration of the particular circumstances and usership of each of the aerodromes in question.

64. In the current circumstances, for the reasons described below, the Commission has concluded that it is in the public interest to approve the project, provided that certain proposed turbines are removed to preserve the ability to safely use the Fetaz aerodrome and subject to Capital Power demonstrating to the satisfaction of the Commission that certain other turbines are consistent with the continued, safe operation of the Fetaz aerodrome.

4.1.2.1 Regulatory landscape

65. The federal government regulates aviation matters in Canada pursuant to the *Aeronautics Act* and *Canadian Aviation Regulations*. This legislation is administered by the federal Minister of Transport, through Transport Canada.

66. Transport Canada recognizes different categories of aerodromes: non-registered aerodromes, registered aerodromes and certified aerodromes (which are sometimes referred to as airports). Each of these types of aerodromes is subject to different safety requirements.

67. NAV Canada is a federal not-for-profit corporation that owns and operates Canada's civil air navigation system. NAV Canada provides air navigation services, such as aviation weather reporting and aeronautical information, to pilots. NAV Canada also publishes the *Canada Flight Supplement*, which is a directory of registered and certified aerodromes in Canada containing information about the physical characteristics and flight procedures of the listed aerodromes.

68. Transport Canada produces a number of publications related to civil aviation and aerodromes in Canada. Two of these publications are of particular relevance to this proceeding:

- TP312 *Aerodrome Standards and Recommended Practices* (TP312)
- TP 1247 *Aviation Land Use in the Vicinity of Aerodromes* (TP1247)

69. The interaction between TP312 and TP1247 was the subject of significant disagreement between Capital Power and interveners. In order to provide context for its findings, the Commission will briefly describe each of these documents.

4.1.2.1.1 TP312 *Aerodrome Standards and Recommended Practices*

70. TP312 sets out the standards and recommended practices for aerodromes in Canada and establishes the minimum level of compliance required for the planning and design of airport infrastructure or level of service changes. It is incorporated by reference into the *Canadian Aviation Regulations*, which state that certified airports shall comply with the most current version of TP312. Aerodromes other than certified airports are not required to comply with TP312 except in specific circumstances.⁴⁰ However, the evidence of both parties in the current proceeding was that all aerodrome operators are encouraged and recommended to meet the standards and practices contained in TP312, regardless of whether they are certified airports.⁴¹

71. The current version of TP312 is the 5th edition, which came into force in 2015, and was most recently amended in 2020. The previous version of TP312, the 4th edition, was in force between 1993 and 2015.

72. TP312 4th edition referenced a concept called an Obstacle Limitation Surface (OLS). An OLS establishes limits to which objects may project into the airspace associated with an aerodrome. There are several types of OLSs defined in TP312 4th edition, each of which describes a different geometric plane extending from an aerodrome. One type of OLS identified in TP312 4th edition is called the outer surface, which is established at an elevation of 45 metres above the aerodrome and extends outwards to a radius of 4,000 metres. The other types of OLSs defined in TP312 4th edition are called takeoff/approach surfaces, and transitional surfaces.

73. As described above, TP312 5th edition came into force in 2015 and, among other revisions, made changes to the OLSs that were previously defined in the 4th edition. Specifically, TP312 5th edition defines four types of OLSs: inner transitional surfaces, transitional surfaces, takeoff surfaces and approach surfaces. Notably, the outer surface (as described in TP312 4th edition) was not retained as an OLS. TP312 5th edition still discusses a geometrical plane established at an elevation of 45 metres and extending outwards in all directions to a distance of 4,000 metres; however, this plane is described as an Obstacle Identification Surface (OIS), and not an OLS.

74. TP312 5th edition states that an object infringing on an OIS is to be reported to the aeronautical information service provider (i.e., NAV Can) and Transport Canada for further assessment regarding:

- (a) The requirement to light, mark or chart the object.
- (b) Any impact on visual flight rules arrival/departure and circuit procedures.
- (c) Any impact on instrument flight rules arrival/departure procedures.
- (d) Any impact on aerodrome zoning regulations, where applicable.

⁴⁰ Such as where deemed necessary by the Minister of Transport.

⁴¹ Transcript, Volume 1, page 66, line 10 to page 67, line 17; Transcript, Volume 3, page 565, line 4 to page 566, line 4.

4.1.2.1.2 TP1247 Land Use in the Vicinity of Aerodromes

75. TP1247 states that it “is designed to assist planners and legislators at all levels of government in becoming familiar with issues related to land use in the vicinity of aerodromes.” The current edition of TP1247 is the 9th edition, which was published in 2013, prior to the coming into force of TP312 5th edition in 2015. TP1247 was most recently modified in 2019 but the changes were not substantive.⁴²

76. TP1247 explains that land use around aerodromes can have significant impacts on safety at the aerodrome and can negatively impact the operational viability of the aerodrome. It notes that reliance by land use planners on the guidelines contained in TP1247 may result in “more compatible aerodrome and community development.”

77. As TP1247 pre-dates the coming into force of TP312 5th edition in 2015, it defines OLS to include an outer surface. This definition was retained when TP1247 was most recently modified in 2019. Additionally, TP1247 describes the dimensions of an outer surface using similar language to that use in TP312 4th edition, namely at an elevation of 45 metres and extending to a horizontal distance of at least 4,000 metres.

4.1.2.2 Commission findings concerning Transport Canada documents

78. Parties to this proceeding held different views on the significance of TP312 and TP1247, and on the interaction between these documents.

79. C. Cormier, who was retained by Capital Power, took the position that TP312 5th edition replaced TP312 4th edition, and in doing so, reclassified the outer surface as an OIS rather than an OLS.⁴³ In his view, the effect of this reclassification is that obstacles within the outer surface are no longer prohibited and can instead be managed through tools such as lighting or marking.

80. G. Grenier, who was retained by the Fetazes, disagreed with this characterization. In G. Grenier’s view, the outer surface still exists as an OLS.⁴⁴ He emphasized that the *Canadian Aviation Regulations* define OLS to include the outer surface, and that treatment of the outer surface as an OLS is prevalent in airport zoning regulations.

81. The Commission has considered the interaction between TP312 and TP1247 on previous occasions. In Decision 22665-D01-2018,⁴⁵ the Commission recognized that the definition of OLS used in TP1247 is not consistent with the definition used in TP312 5th edition. In that proceeding, the Commission distinguished between TP312, which is a standards document, and TP1247, which is a guidance document. The Commission noted that TP312 sets out recommended safety standards for all aerodromes, including by defining OLS to mean “[a] surface that establishes the limit to which objects may project into the airspace associated with an aerodrome so that aircraft operations at the aerodrome may be conducted safely.” The Commission also expressed a view that if turbine placements do not penetrate the OLS at an aerodrome, aircraft operations at the aerodrome may still be conducted safely. In this regard, the Commission found that references to previous versions of TP312 are not helpful and only serve

⁴² Transcript, Volume 3, page 554, lines 1-12.

⁴³ Transcript, Volume 1, page 68, lines 1-10.

⁴⁴ Exhibit 27691-X0144, Report of Glenn Grenier, March 7, 2023, PDF page 22.

⁴⁵ Decision 22665-D01-2018: EDP Renewables SH Project GP Ltd. – Sharp Hills Wind Project, Proceeding 22665, Applications 22665-A001 to 22665-A004, September 21, 2018.

to complicate the issue. The edition of TP312 in force at that time and now does not characterize the outer surface as an OLS.

82. With respect to TP1247, the Commission emphasized that it is a guidance document intended to assist planners in becoming familiar with issues related to land use, but not intended to bind land use planning decisions. In any event, the language in TP1247 does not suggest that the unobstructed integrity of the outer surface must always be preserved. The outer surface is defined in TP1247 as follows:

1.3 Outer Surface

An outer surface shall be established where required for the protection of aircraft conducting a circling procedure or manoeuvring in the vicinity of an aerodrome. The outer surface establishes the height above which *it may be necessary* to take [*sic*] one or more of the following actions:

- (a) restrict the erection of new structures which would constitute an obstruction; or
- (b) remove or mark obstacles to ensure a satisfactory level of safety and regularity for aircraft manoeuvring visually in the vicinity of the airport before commencing the final approach phase. [emphasis added]

83. The Commission held that the phrases “shall be established where required” and “[t]he outer surface establishes the height above which it may be necessary” do not indicate a definitive prohibition on structures within the outer surface. Further, TP1247 identifies that one potential action to ensure a satisfactory level of safety and regularity for aircraft manoeuvring is to mark obstacles, rather than remove them altogether.

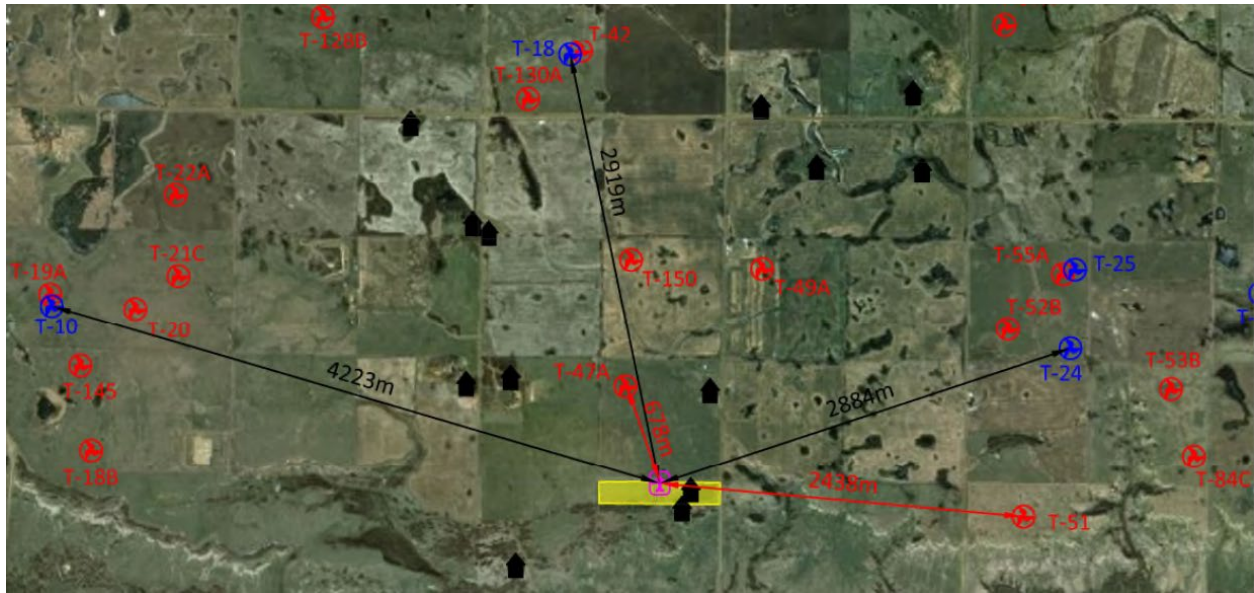
84. In the current proceeding, the Commission is similarly not persuaded that any of the relevant Transport Canada regulations or publications restrict the erection of structures or other obstacles within 4,000 metres of the Fetaz or Maier aerodromes.

85. Rather, the Commission maintains its view that compliance with the OLSs, as defined in TP312 5th edition suggests that aircraft operations at the aerodrome may be conducted safely. While both TP312 5th edition and TP1247 may assist the Commission in determining whether a proposed project poses a risk to aircraft and aerodrome operations, the Commission does not accept that the intent or effect of either document is to prohibit the siting of structures within a 4,000-metre radius of an aerodrome. Nor does the Commission interpret these documents to mean that obstacles cannot be safely located within that radius. As noted in TP312 5th edition, that document was developed with the objective of having “a cohesive safety document, while maintaining flexibility for operations and development of the aerodrome.” Rather than applying a 4,000-metre radius to the aerodromes, the Commission has assessed the evidence to determine whether the project can proceed in a manner that is consistent with the continued, safe use of the aerodromes based on their particular circumstances and usership, and whether conditions or modifications should be imposed to achieve this.

4.1.3 Aerodrome use and safety

86. With respect to the Fetaz aerodrome, as compared to the previously approved project, Capital Power has removed 14 of the 17 turbines within 4,000 metres and the distance to the nearest turbine has increased from 678 metres to 2,884 metres.

Figure 2. Approved (red) and proposed (blue) wind turbine locations in proximity to the Fetaz aerodrome⁴⁶

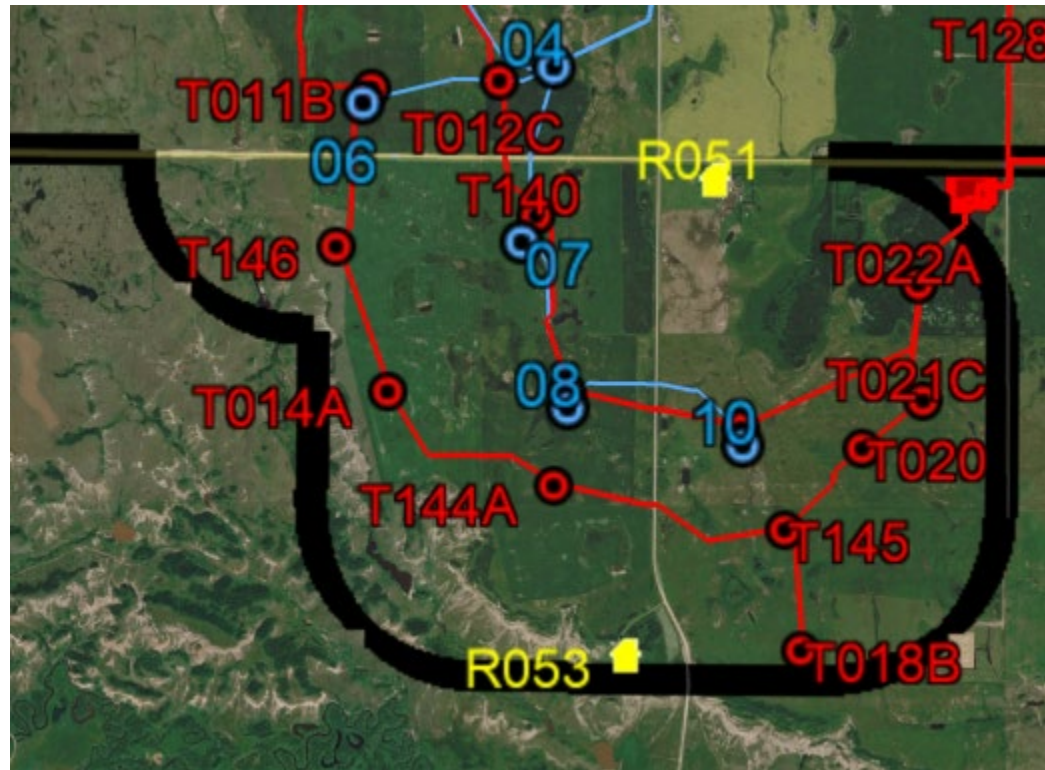


87. Similarly, the number of turbines near the Maier aerodrome has been reduced and the distance to the nearest turbine has increased as a result of the amendment.⁴⁷ In the image below, the Maier aerodrome (R053) appears to be less impacted by the turbines proposed in the amendment (shown in blue) compared to the previously approved turbine locations (shown in red).

⁴⁶ Exhibit 27691-X0036, Attachment A – Turbine Distances to Fetazes, PDF page 3.

⁴⁷ Transcript, Volume 2, page 283, lines 10-14.

Figure 3. Approved (red) and proposed (blue) wind turbine locations in proximity to the Maier aerodrome (R053)⁴⁸



88. The Commission finds that the amended layout generally reduces the impact on aerodromes due to the reduction in the total number of turbines and the remaining turbines being sited further away. However, as discussed above, the Commission has considered all effects resulting from the proposed amended project on aerodrome use and aviation safety. This includes the site-specific impacts of the amended project layout and changes to the turbine size.

89. The Fetazes stated that the amended project would prevent the safe operation of their aerodrome. S. Maier added that the amended project would stop his ability to fly.⁴⁹ Capital Power submitted that the use of the aerodromes could continue safely after the implementation of mitigation measures such as turbine lighting.

90. As noted above, G. Grenier and C. Cormier were retained by the Fetazes and Capital Power, respectively, to provide expert evidence in this proceeding. G. Grenier is a pilot and lawyer whose primary expertise is in Canadian aviation law. C. Cormier is a pilot and aviation consultant whose primary expertise is in aerodrome design and the development of instrument flight procedures.

91. The concerns advanced by aerodrome users in the proceeding centre around two different hazards posed by the project. First, that the physical presence of the wind turbines is hazardous to aircraft because the turbines constitute an obstacle within an area that pilots are required to fly.

⁴⁸ Exhibit 27691-X0105, Attachment A to CAPITAL POWER IR Responses to PPA Round 1.

⁴⁹ Transcript, Volume 4, page 823, lines 20-23.

Second, that the downwind turbulence caused by rotating turbine blades is hazardous to aircraft and constitutes a separate obstacle from the physical presence of the turbines.

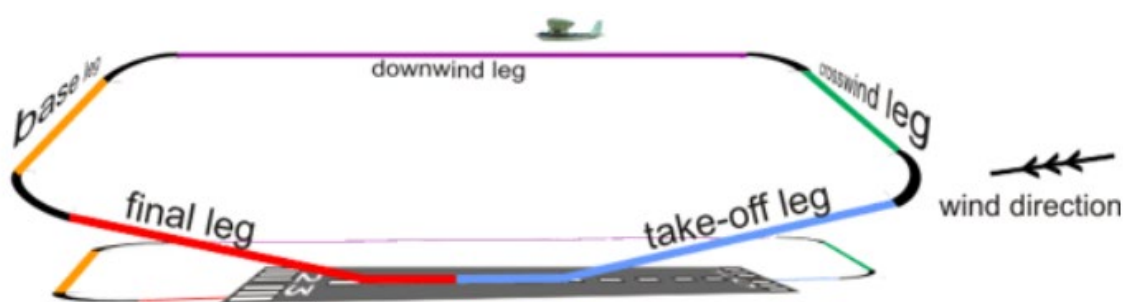
92. The Commission will address each of these concerns as it relates to both aerodromes. The Commission will begin with a brief discussion of traffic circuits (circuits), and their significance for aircraft takeoffs and departures. The Commission will then assess the project's impacts on the circuits flown by pilots, beginning with the Fetaz aerodrome, and then turning to the Maier aerodrome.

4.1.3.1 Traffic circuits

93. A circuit refers to a rectangular pattern flown by aircraft when approaching or taking off from an aerodrome. In his report, G. Grenier explained that all aircraft at uncontrolled aerodromes, such as the Fetaz aerodrome, are required to follow the circuit when approaching or taking off from an aerodrome. In oral testimony, G. Grenier clarified that in some circumstances it is also permissible to fly straight on takeoff without entering the circuit.⁵⁰ G. Grenier submitted that the purpose of the circuit is for all aircraft to carry out the same maneuvers, in the same way, at the same altitude, while calling out on the common aerodrome radio frequency what they are doing or about to do. This is so pilots know and expect where to look for other aircraft, and so they can maintain visual contact to keep separation and maintain a sequenced order of landings, coordinated with those aircraft using the same runway to take off.⁵¹

94. As illustrated in Figure 4, below, on takeoff, a standard circuit starts with the takeoff leg where an aircraft will take off and reach an elevation of 500 feet above ground level (agl), then it will turn left and continue to climb to 1,000 feet agl to fly the crosswind leg, and lastly it will turn left again to fly the downwind leg. When preparing for landing, an aircraft will make a left turn and fly the base leg as it descends to 500 feet agl, then it will make another left turn to fly the final leg as it descends and lands on the airstrip.

Figure 4. Standard left-hand circuit⁵²



95. Because a standard circuit involves left turns, a circuit performed when taking off or landing on Runway 08 at the Fetaz aerodrome would require a pilot to fly north of the airstrip.

⁵⁰ Transcript, Volume 3, page 555, lines 9-18.

⁵¹ Exhibit 27691-X0144, Report of Glenn Grenier, March 7, 2023, PDF pages 12-13.

⁵² Exhibit 27691-X0144, Report of Glenn Grenier, March 7, 2023, PDF page 11.

4.1.3.2 Impacts on the Fetaz aerodrome

4.1.3.2.1 Turbine structures

96. G. Grenier submitted that the presence of wind turbines to the north of the Fetaz aerodrome would be hazardous to aircraft operating from the aerodrome because the turbines would interfere with a pilot's ability to perform a circuit. When taking off on Runway 08, the standard left-hand circuit would result in a flight path directly into the wind project. G. Grenier identified that turbines T10, T18, T24, T25 and T27 are located within the Transport Canada mandated circuit of the Fetaz aerodrome, and emphasized that there would not be sufficient space to safely perform a circuit north of the Fetaz aerodrome. C. Cormier countered that there are no prescribed distances for how far the takeoff and landing legs of a circuit must extend beyond the end of the runway, and there is no prescribed distance for the separation between the runway and the downwind leg. Therefore, a pilot could perform a left-hand circuit on Runway 08 to the north of the aerodrome and still avoid the turbines.

97. To further mitigate safety concerns associated with the turbines, C. Cormier submitted that a circuit could be flown to the south of the aerodrome to avoid the wind turbines all together. For Runway 08, that would require a non-standard circuit using turns towards the right (right-hand circuit). C. Cormier noted that the use of a right-hand circuit requires approval from Transport Canada, but that right-hand circuits are commonly used to ensure separation from natural or man-made obstacles.⁵³

98. G. Grenier disputed that flying a right-hand circuit is a reasonable form of mitigation, and asserted that right-hand circuits are less safe than standard left-hand circuits because a pilot sitting in a left-hand seat will have a more obstructed view of the flight path. In any event, while a pilot might otherwise be able to avoid the hazard posed by the turbines by performing a circuit to the south of the aerodrome, G. Grenier submitted that this ability is significantly constrained at the Fetaz aerodrome by the presence of the coulee. A right-hand circuit from Runway 08 would take a pilot over the coulee, which subjects the aircraft to mechanical turbulence. G. Fetaz stated that he would not request Transport Canada approval for a right-hand circuit over the coulee because he does not think that performing such a circuit is safe and would not expect other pilots to do it.⁵⁴ He added that he has avoided climbing out over the coulee for over 30 years.⁵⁵ G. Fetaz explained that an airplane is in its most stressed state during takeoff, and that he would not want to manoeuvre over the coulee in that instance⁵⁶ because the coulee lacks suitable terrain for emergency landings.

99. Capital Power questioned G. Fetaz's explanation, noting that the prevailing wind direction at the Fetaz aerodrome would ordinarily favour the use of Runway 26, and that a standard takeoff or landing on Runway 26 would entail a left-hand circuit over the coulee. In response, G. Fetaz stated that when using Runway 26, he does not perform a circuit on takeoff and flies straight west as a permitted departure vector. G. Fetaz added that he conducts his landings on Runway 08, even if the wind would ordinarily favour a landing on Runway 26, and

⁵³ Exhibit 27691-X0203.01, Appendix A Aviation Report of C.Cormier, PDF pages 1 and 24.

⁵⁴ Transcript, Volume 3, page 665, line 20 to page 666, line 5.

⁵⁵ Transcript, Volume 3, page 639, lines 18-21.

⁵⁶ Transcript, Volume 3, page 716, lines 5 to 8.

flies the circuit to practice takeoffs and landing only from Runway 08, so as to avoid the coulee.⁵⁷

100. Notwithstanding G. Fetaz's testimony that he avoids performing circuits over the coulee, Capital Power and C. Cormier maintained that performing a circuit over the coulee is safe. Capital Power submitted that mechanical turbulence that may be caused by the coulee is a normal and manageable part of flying. C. Cormier further noted that S. Maier flies his ultralight aircraft over the coulee often and that he manages the risk associated with turbulence by exercising appropriate caution with respect to the wind conditions in which he flies.

101. In response to G. Fetaz's evidence that he typically takes off straight west from Runway 26 without performing a circuit, Capital Power submitted that a pilot taking off towards the east on Runway 08 could similarly fly straight out and not enter the circuit. In these circumstances, Capital Power stated that for a west departure there are no obstructions posed by the project, and for an east departure the nearest turbine is over 4.8 kilometres away.⁵⁸

102. Based on the evidence in this proceeding, including the testimony of G. Fetaz and G. Grenier, the Commission understands that a circuit is of greater importance for landing than take off, and that a pilot is permitted and able to take off in a straight trajectory unless practicing a circuit.⁵⁹ The Commission therefore considers that the primary impacts of the project on the Fetaz aerodrome would concern a pilot's ability to perform a circuit on landing, and to practice a circuit for training purposes.

103. G. Grenier submitted that even if the coulee were not a concern, performing a circuit to the south of the aerodrome when landing would also not be possible. This is because a pilot must join the circuit from the upwind side (meaning the side opposite of the downwind leg).⁶⁰ In the case of the Fetaz aerodrome, this would require a pilot who is performing a circuit to the south of the aerodrome in preparation for landing, to approach from north of the aerodrome, where turbines would be located. G. Grenier explained that a pilot would join the circuit from the upwind side and fly over the aerodrome in order to confirm wind direction and to make sure the runway is clear of obstacles. Based on this, G. Grenier submitted that the project would eliminate both circuit options, and that it would therefore not be possible to land on either runway.

104. Capital Power disagreed, and maintained that it would still be possible to safely perform a circuit to the north of the Fetaz aerodrome. Capital Power noted that G. Fetaz testified that his flights are typically short and that he does not necessarily need to fly over the runway since the wind direction and condition of the runway are unlikely to have changed in a short time period. Capital Power submitted that he can instead join the south circuit on the downwind leg, away from the turbines.⁶¹ Capital Power submitted that, should a pilot need to fly over the aerodrome from the north to confirm conditions prior to landing, they can fly above the wind turbines, as long as there is enough vertical separation. To join the south circuit by crossing the aerodrome from the north, a pilot would have to fly over the turbines at an elevation of approximately 1,650 feet agl. After the pilot has passed the turbine, they would have three kilometres to

⁵⁷ Exhibit 27691-X0190, Fetaz Responses to Capital Power Information Requests, Apr 6, 2023, PDF pages 3-4.

⁵⁸ Transcript, Volume 5, page 991, line 23 to page 992, line 5.

⁵⁹ Transcript, Volume 3, page 555, lines 9-18; page 577, line 15- page 578, line 15.

⁶⁰ Transcript, Volume 3, page 608, line 3 to page 610, line 10.

⁶¹ Transcript, Volume 5, page 992, line 15 to page 993, line 9.

descend vertically to 1,500 feet agl to observe the aerodrome. Capital Power submitted that this would not be an issue.⁶²

105. The evidence in this proceeding is that the project would have a minimal impact on G. Fetaz's existing use of Runway 26, as he does not presently fly a circuit on takeoff from Runway 26, and as he avoids landing on that runway. However, the Commission accepts the evidence of G. Grenier and G. Fetaz that, if the project were constructed as proposed, all potential standard circuits (right- and left-hand) from Runway 08 would be constrained, either by the project turbines or by the coulee.

106. While a right-hand circuit from Runway 08 would direct an aircraft away from the wind turbines, the Commission accepts that G. Fetaz is the primary user of the aerodrome and is not comfortable flying over the coulee. The Commission finds that, based on G. Fetaz's experience and statements about what he considers to be safe, requiring him to fly right-hand circuits over the coulee would likely eliminate his ability to safely use the aerodrome.

107. The Commission is not persuaded that any individual pilot's continued use of an aerodrome must necessarily be protected from competing uses. However, in the current circumstances the Commission has taken into consideration that the Fetaz aerodrome has been in regular use for over 30 years. During this proceeding, the Commission heard extensively about G. Fetaz's use of his aerodrome. G. Fetaz provided his pilot logbook and aircraft journey logbook, which describe regular and consistent use of his aerodrome dating back to 1988.⁶³ The aerodrome has also provided a number of community benefits during that time, including G. Fetaz's use of the aerodrome to introduce community members to flying and to assist in locating livestock. The fact that many landowners expressed concerns that the project will impact the aerodrome is a testament to its local importance. The Commission has therefore turned its mind to whether the project could be modified so as to preserve use of the aerodrome.

108. G. Fetaz testified that he flies slightly shorter circuits (lengthwise) than depicted in the G. Grenier report. Therefore, based on the description of the circuit typically flown by G. Fetaz, it appears that turbines T24 and T25 most prominently intrude on the left-hand circuit from Runway 08. The Commission finds that turbines T24 and T25 must be removed as potential turbine locations. The effect of this removal is that no turbines will be located within the circuit north of the aerodrome, based on both G. Grenier's depiction of a standard circuit and G. Fetaz's description of the circuit he typically flies.

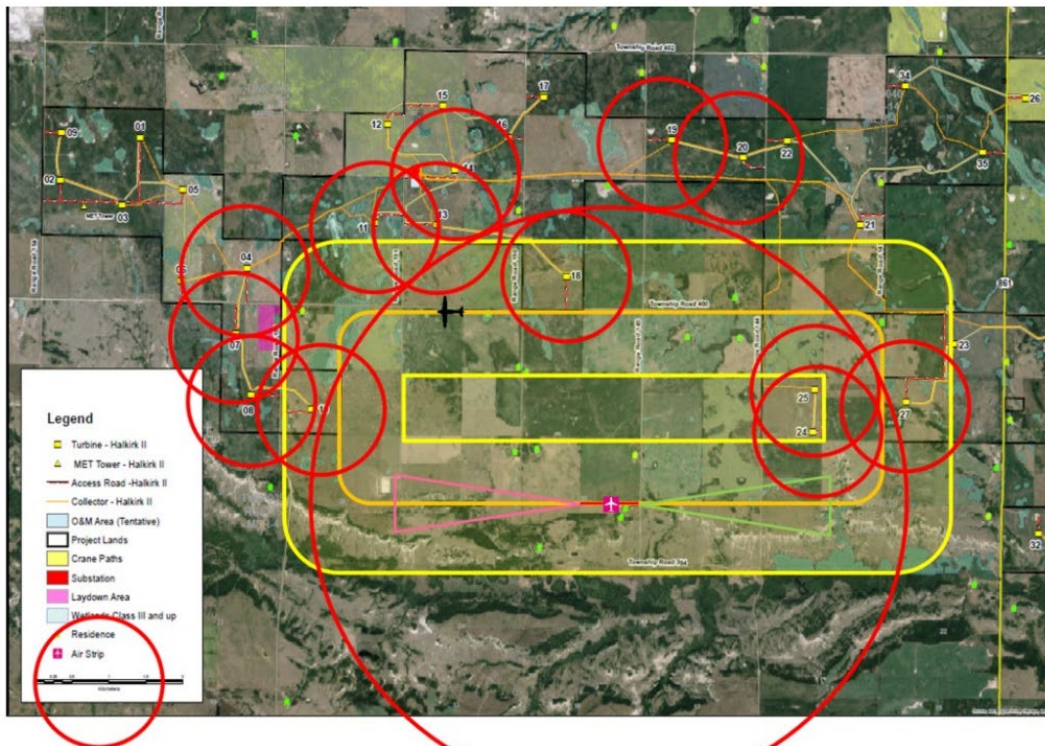
4.1.3.2.2 Downwind turbulence

109. In addition to the obstacle presented by the physical presence of turbines, the Commission heard submissions from Capital Power and G. Fetaz about the prospect of turbulence downwind from wind turbines. G. Grenier submitted that this turbulence itself constitutes as an obstacle that would penetrate the circuit surface. To illustrate these concerns, G. Grenier provided the following diagram depicting how downwind turbulence would interface with the Fetaz aerodrome and circuit to the north of it, assuming that downwind turbulence propagates to a distance of five rotor diameters.

⁶² Transcript, Volume 5, page 993, line 19 to page 995, line 9.

⁶³ Exhibits 27691-X0191, Schedule 'A' – Fetaz Pilot Logbooks (PART 3), to 27691-X0194, Schedule 'B' - Fetaz Aircraft Journey Logbooks.

Figure 5. Fetaz aerodrome circuit with downwind turbulence from turbines⁶⁴



110. G. Grenier explained that the circles depicted in his diagram have radii of five rotor diameters and represent the minimum area for downwind turbulence. He noted that in other regulatory proceedings, experts had advanced the use of more conservative assumptions concerning downwind turbulence, such as a propagation distance of 10 or 15 rotor diameters.

111. G. Grenier's diagram illustrates that the downwind turbulence would encroach on the outer surface, as defined in TP1247, as well as the takeoff and approach OLS as defined in TP312 5th edition. Based on this diagram, downwind turbulence generated by turbines T10, T18, T24, T25, and T27 would interfere with the circuit north of the aerodrome, based on both G. Grenier's depiction of a standard circuit and G. Fetaz's description of the smaller circuit that he typically flies.

112. C. Cormier did not dispute the existence of downwind turbulence. C. Cormier did however dispute the accuracy of the downwind turbulence depiction provided by G. Grenier, suggesting that the turbulence would only occur downwind of the turbine and would be shaped like a trail rather than a circle. C. Cormier also declined to endorse any particular distance to which downwind turbulence would propagate. He acknowledged that he had previously produced expert evidence in other proceedings depicting downwind turbulence to a distance of five rotor diameters, but indicated that this distance was provided to him by a turbulence expert, that it was not selected based on C. Cormier's own expertise, and that he was not qualified to provide an opinion on that subject.

⁶⁴ Exhibit 27691-X0144, Report of Glenn Grenier, March 7, 2023, PDF page 38.

113. Above, the Commission found that turbines T24 and T25 must be removed as potential turbine locations. Based on the figure provided by G. Grenier, the removal of turbines T24 and T25 will eliminate the risk of downwind turbulence within the OLS of TP312. However, as noted above, downwind turbulence propagating from turbines T10, T18, and T27 would still interfere with the circuit north of the aerodrome.

114. The Commission notes that the evidentiary record on the issue of downwind turbulence in this proceeding is not robust; neither aviation expert professed to have expertise in downwind turbulence. Nevertheless, the Commission finds that the best evidence available to it suggests that downwind turbulence exists, that it has the potential to pose a hazard to pilots, and that it is generally understood to propagate to a distance of at least five rotor diameters. On that basis, and applying the precautionary principle in light of the nexus of this issue with aviation safety, the Commission has outstanding and unresolved concerns about the safety impacts of approving turbines T10, T18, and T27.

115. As a result, approval of these turbines is conditional on Capital Power submitting further evidence regarding downwind turbulence from turbines T10, T18, and T27 to demonstrate, to the satisfaction of the Commission, that those turbines are consistent with the continued safe use of the Fetaz aerodrome. In light of that fact that the layout and number of turbines for the project has not yet been finalized, the Commission imposes the following condition of approval:

- a. Once Capital Power has finalized its equipment selection and turbine locations for the Halkirk 2 Wind Power Project, it must file a final project update to the Commission to confirm that the project has stayed within the final project update specified allowances for wind power plants. The final project update must be filed at least 90 days prior to the start of construction. Should Capital Power wish to proceed with turbines T10, T18, and T27, it must provide evidence demonstrating that any potential downwind turbulence caused by these turbines does not constitute a hazard for aircraft, or that the hazard posed by such downwind turbulence can be adequately mitigated. Evidence filed should consider both the characteristics of downwind turbulence (i.e., distance, direction, favourable and unfavourable conditions) and the effects of turbulence on the operation of aircraft.

116. Upon receipt of a final project update, the Commission will establish a process to test any evidence filed concerning downwind turbulence.

4.1.3.3 Impacts on the Maier aerodrome

117. S. Maier submitted that the project will impact his ability to use his aerodrome for flying ultralight aircraft. The project is located to the north of the Maier aerodrome, with the nearest turbines situated in a north-northeast direction from the aerodrome. The Maier aerodrome is oriented such that one runway extends towards the north-northeast at an approximate compass bearing of 030 degrees, and the other runway extends towards the south-southwest at an approximate compass bearing of 210 degrees.

118. S. Maier confirmed that, like G. Fetaz and other pilots, he performs left-hand circuits in his ultralight aircraft. He described the circuits he performs as being substantially the same as those performed by G. Fetaz, but smaller. The difference in size is attributable to the fact that S. Maier's ultralight aircraft has a slower groundspeed than G. Fetaz's aircraft, meaning that in

the time it takes to attain a particular altitude, the horizontal distance covered relative to the ground is shorter.

119. Because winds at the aerodrome predominately originate from the northwest, S. Maier confirmed that he ordinarily takes off and lands on the runway extending towards the north-northeast. S. Maier confirmed that he uses the other runway when wind conditions favour it, but also noted that use of that runway entails a shorter takeoff and additional elevation change relative to the ground, because of the topography of the surrounding land.⁶⁵

120. S. Maier stated that if Capital Power applied a 2,500 metre setback from his aerodrome, similar to what was done for the Fetaz aerodrome, turbines T4, T6, T7, T8, and T10 would be removed. The PPA requested that turbines T8 and T10 be removed should fewer turbine locations be required by Capital Power.

121. C. Cormier submitted that the nearest turbines to the Maier aerodrome are over 900 metres away. He stated that S. Maier would continue to be able to fly his ultralight aircraft safely from the Maier aerodrome. When questioned about that statement during the hearing, C. Cormier did not address whether flight to the north/northeast of the aerodrome would continue to be possible, but explained that S. Maier could safely operate from the east clockwise to northwest as well as south of his aerodrome.⁶⁶ S. Maier emphasized that as an ultralight pilot, he is particularly susceptible to wind conditions meaning that (provided the wind is not too great to prevent flight) he ordinarily takes off and lands towards the north. He emphasized that turbines T8 and T10 are directly in his flight path when using the north-northeast runway.

122. As described above, the approval of turbine T10 is conditional at this time, because of the Commission's concerns about the prospect of downwind turbulence interfering with the circuit north of the Fetaz aerodrome.

123. Whether or not turbine T10 is ultimately constructed, the Commission acknowledges that the use of the Maier aerodrome will likely be constrained by the presence of turbine T8, and potentially other turbines to the north of the Maier aerodrome. While specific evidence was not provided to demonstrate how the circuits flown by S. Maier interact with the proposed turbines, based on S. Maier's description of his flight patterns, the Commission understands that a left-hand circuit of the size typically flown by S. Maier from the north-northeast runway would bring a pilot in proximity to at least one turbine, and potentially within the five rotor diameter range of several others. The Commission accepts S. Maier's testimony that the construction of turbines T8 and T10 would likely prevent him from flying, at least as it relates to use of the north-northeast runway.

124. Having determined that the project will have this effect on the Maier aerodrome, the Commission must assess whether the project is in the public interest notwithstanding this adverse effect.

125. The Commission has weighed a variety of factors in this consideration. These include the testimony and written submissions of S. Maier, about his passion for flying and how his family and friends have used the Maier aerodrome. The Commission considers that this testimony was sincere and that S. Maier's interest in preserving his existing use of the Maier aerodrome is

⁶⁵ Transcript, Volume 4, page 822, lines 16-21.

⁶⁶ Transcript, Volume 2, page 278, lines 4-9.

genuine. The Commission has not taken these concerns lightly. Ultimately, however, the Commission finds that the public interest favours approval of the project, subject to the conditions described above, and does not consider that the removal of additional turbines is warranted for the purpose of preserving the existing use of the Maier aerodrome.

126. In this regard, the Commission notes that, unlike the Fetaz aerodrome which is impacted by a unique set of circumstances arising from the existence of the coulee, the evidence in this proceeding is that S. Maier will still be able to use the Maier aerodrome in certain wind conditions by flying from the south-southwest runway. In other words, while the project does constrain use of the Maier aerodrome, it does not preclude the ability to safely fly from the aerodrome altogether. Additionally, unlike the Fetaz aerodrome which has a history of several decades of consistent use as evidenced by flight logs, the Maier aerodrome is relatively new and, in fact, has only been in use since after the project was originally approved. On balance, the Commission does not find that the removal of additional turbines is in the public interest. For the same reasons, the Commission does not consider it reasonable to require Capital Power to pay for the construction or leasing of a hangar for S. Maier at the Fetaz aerodrome, and will not make that request a condition of approval.

4.1.4 Consultation on aviation impacts

127. The Fetazes raised concerns about Capital Power's consultation efforts dating back to the time of the original application, that caused them to lose confidence in Capital Power's consultation procedure. This includes Capital Power not initially identifying the Fetaz aerodrome in its Aeronautical Assessment Form for Obstruction Evaluation, and not providing a clear answer to the Fetazes concerning the safe distance from an aerodrome to a turbine.⁶⁷ The Fetazes stated they are still looking for an answer to this question. The Fetazes and Capital Power also disputed when Capital Power became aware of the Fetaz aerodrome. In the Commission's view, when Capital Power first became aware of the Fetaz aerodrome was irrelevant this proceeding given Capital Power knew of the Fetaz aerodrome when it started considering amendments to the original approval.

128. The Fetazes submitted, while they did have some personal engagement with Capital Power, the consultation process was not collaborative. They did not feel that Capital Power consulted with the intent to incorporate the Fetazes' views and concerns, but rather simply to present them with a chosen project layout.⁶⁸

129. Capital Power submitted that it has consulted with the Fetazes extensively on their aerodrome concerns. Capital Power noted that it redesigned its project, taking into account this consultation, resulting in the removal of 14 of the 17 turbines previously approved within 4,000 metres of the Fetaz aerodrome, and an increase in distance between the aerodrome and nearest turbine from 678 metres to 2,884 metres. Capital Power disagreed with the Fetazes' characterization that its consultation efforts were merely to present a revised layout. Capital Power explained that a preliminary project layout must be created as a starting point so that there is something to discuss. It pointed to a virtual meeting between the Fetazes, Capital Power and their respective consultants, which resulted in further layout revisions, and

⁶⁷ Exhibit 27691-X0141, To AUC re submissions of Gerard and Donna Fetaz, Mar 7, 2023, PDF page 7.

⁶⁸ Transcript, Volume 5, page 1057, lines 19-25.

cited this meeting as evidence that it conducted a proper consultation, taking into account stakeholder feedback.⁶⁹

130. As previously set out in the Commission's ruling, concerns about consultation in regard to the previous application are out of scope of this proceeding. The Commission finds Capital Power's consultation with the Fetazes was adequate and appropriate with respect to the amendment application considered in this proceeding. The Commission observes that the consultation record indicates 41 consultation activities with the Fetazes, including the virtual meeting between the parties and their consultants.⁷⁰ Capital Power's revisions to the site layout, including the removal of 14 turbines within 4,000 metres of the Fetaz aerodrome and increasing the separation distance from the aerodrome to the nearest turbine, are indications that Capital Power took its consultation with the Fetazes seriously and made efforts to address the aviation concerns. The fact that Capital Power made additional changes as a result of the virtual meeting further shows it properly considered the Fetazes input during consultation. While it appears the Fetazes would have preferred to have been involved from the outset of the project layout design, this is not a Commission requirement for consultation.

4.2 Impacts of the amended project on the PPA, Carmen Felzien and Doreen Brown

131. In this section of the decision, the Commission addresses impacts of the project on the PPA, as well as on C. Felzien and D. Brown.

132. The PPA includes 21 members granted standing. The PPA submitted that the proposed amendment would not be in the public interest, would result in significant adverse social, economic and environmental effects, and should be denied. Among other concerns, the PPA argued that the amended project should be denied due to its potential impacts to wildlife (in particular, birds and bats), and impacts to the quality of life of local residents.

133. If the Commission were to approve the project, the PPA requested that the Commission codify any commitments made to the PPA as conditions of approval, and adopt additional conditions requested by the PPA. Given that Capital Power indicated that it may not ultimately construct all of the applied-for turbines, the PPA requested that the Commission give priority to the PPA's ranked list turbines it wished to see removed from the project.

134. C. Felzien acted as agent for her mother, D. Brown, in this proceeding. D. Brown raised concerns with the visual impact of the project (turbines T24 and T25), potential flooding of her land due to changes in surface water (turbine T20), mechanical turbulence and impacts on aerial spraying (turbine T4), and consultation.

⁶⁹ Exhibit 27691-X0202, CAPITAL POWER Reply Evidence, PDF page 24.

⁷⁰ Exhibit 27691-X0142, Appendix A to Submissions of Donna and Gerard Fetaz, PDF pages 58 to 65.

4.2.1 Economic issues

135. In this section, the Commission discusses the interveners' concerns regarding aerial spraying, property devaluation, and lack of benefits to taxpayers.

4.2.1.1 Aerial spraying

136. The PPA stated that the amended project would further restrict the ability of its members to aerially spray crops. The PPA suggested that the project may result in much of that land becoming "boxed in" and impossible to aerial spray due to the size and location of the turbines.

137. C. Felzien, on behalf of D. Brown, submitted that D. Brown leases her land to family members to farm, and that these family members (including Dwayne Felzien) employ aerial spraying in their farming operations. She raised particular concerns with the placement of turbines T4 and T20, which are approximately 400 metres south and north of D. Brown's property, respectively.

138. The PPA submitted that D. Felzien and his family members, and Brian Perreault use aerial crop spraying on their lands for weeds, disease, insects and harvest burn-off, depending on the weather conditions. The PPA explained how "some of their land will likely become unsprayable by aircraft due to the location of some turbines representing an obstacle to safe flight operations, and the turbulence of the wind turbines are creating an additional hazard."⁷¹ The Felziens acknowledged that Capital Power was proposing to remove many previously approved turbine locations but were concerned about some of the remaining turbines, which are now larger, and, they submitted, in more problematic locations. The PPA also cited concerns about the potential for wind turbines to create turbulence and inversion, which the PPA submitted could cause aerial and ground spray drift. The PPA requested that if the project were approved, the Commission require Capital Power to retain an independent third-party to perform a study on these effects.

139. The Felziens provided flight logs from an aerial spray provider who had sprayed on their fields, which show overlap with some of the turbine locations.⁷² The Felziens also provided emails from the aerial spray provider commenting that the turbines would likely result in an increased charge for services, may prevent spraying, and may create hazards, wakes, and turbulent air. In the emails, the Felziens' aerial spray provider suggested that the turbines may necessitate helicopter spraying, which would be more expensive and may not be available in the area. The Felziens and B. Perreault mentioned that they spray their land up to multiple times per year. In an information request response, B. Perreault clarified that he had not personally relied on aerial spraying for over 17 years. However, he has rented his land to a tenant who does aerial spray. The PPA provided a letter from B. Perreault's tenant, Keichinger Farms Inc., stating that the project would have a negative affect on the farm's operation by taking away their ability to use aerial application on its crops.⁷³

140. Capital Power argued that aerial spraying on PPA members' land is infrequent, noting that there was no record of aerial spraying in 2018, 2019, 2020, and 2021.⁷⁴ In response,

⁷¹ Transcript, Volume 5, page 1086, lines 12-17.

⁷² Exhibits 27691-X0149, Attachment #2 - 2022 Wetaskiwin aerial applicator Photo #1, to 27691-X0151, Attachment #4 - 2022 Wetaskiwin aerial applicator Photo 33.

⁷³ Exhibit 27691-X0199, Attachment #4 - Keichinger Farms statement.

⁷⁴ Exhibit 27691-X0204, Appendix B_Telford Land Valuation, PDF page 2.

D. Felzien stated that he had aerial sprayed in 2019, and that drought and storm conditions contributed to the lack of spraying the other years.⁷⁵

141. Capital Power asserted that the PPA's evidence around aerial spraying was neither objective nor informative – rather than providing expert evidence from an aerial spraying professional, the PPA provided excerpted email exchanges between D. Felzien and his aerial sprayer. In response, the PPA argued that its members have sufficient knowledge on the issue to provide reliable information to the Commission.

142. Capital Power stated that it intends to work with aerial sprayers and owners of specific land parcels who use these services, to ensure aerial spraying activities can be conducted safely. Capital Power indicated a willingness to pause turbine operations when provided a minimum of 24 hours' notice that aerial spraying will occur in proximity to any turbines.⁷⁶ Capital Power noted that in the original proceeding, it had committed to considering suspending operation of a turbine if aerial spraying was anticipated within 150 metres.⁷⁷ However, at the oral hearing Capital Power clarified that it would consider suspending turbines at a greater distance than 150 metres.⁷⁸ Capital Power subsequently put forward a modified version of this commitment that did not limit the turbine shut-off protocol to any particular distances.⁷⁹

143. The PPA submitted that Capital Power's proposal to suspend turbine operations if aerial spraying will occur within 150 metres of a turbine is insufficient, as D. Felzien's applicator prefers a safety buffer of 800 metres. The PPA also stated that the 24 hours' notice requirement may not be practical for situations where the weather changes suddenly, or where spraying needs to be completed immediately. The PPA requested that the Commission require Capital Power to expand the radius in which it would suspend turbine operations from 150 metres to 800 metres, and co-operate with interveners who need to aerial spray on less than 24 hours' notice.

144. The Commission acknowledges that aerial spraying operations may be impacted by the presence of turbines in the area. The Commission understands that, among the interveners, the impacts on aerial spraying would be borne primarily by the Felziens and B. Perreault.

145. The Commission appreciates and respects the knowledge of D. Brown, D. Felzien and B. Perreault as farmers and landowners who reside in the Halkirk area. This evidence assisted the Commission in understanding the circumstances in which aerial spraying is used. Capital Power also submitted evidence concerning the potential impacts that the project may have on aerial spraying. However, the Commission would have benefitted from expert evidence from a witness with specific expertise in conducting aerial spraying. For example, first-hand testimony from an aerial spray operator, who may have been able to provide evidence on the constraints of operating aerial spray aircraft on the particular fields in question, or offer expert opinions on matters such as the distance at which spraying would be impacted, and the identification of particular turbines of concern.

⁷⁵ Transcript, Volume 4, page 903, lines 9-11.

⁷⁶ Exhibit 27691-X0124, CP IR Response Round 2 to Paintearth Protection Association PPA (CP-PPA-2023FEB21-001 to CP-PPA-2023FEB21-047), PDF page 72.

⁷⁷ Exhibit 27691-X0124, CP IR Response Round 2 to Paintearth Protection Association PPA (CP-PPA-2023FEB21-001 to CP-PPA-2023FEB21-047), PDF page 72.

⁷⁸ Transcript, Volume 2, page 411, lines 13-22.

⁷⁹ Exhibit 27691-X0262, Capital Power's Response to Undertaking No. 1 - List of all Commitments and Conditions, PDF page 7.

146. The Commission notes that no evidence was filed by the PPA to substantiate its concerns regarding the potential for inversions or spray drift to impact the effectiveness of aerial spraying. Instead, the PPA requested that Capital Power be directed to study this phenomenon. As discussed in Section 3, the Commission makes funding available to interveners to retain their own consultants to assist with preparing evidence in Commission proceedings. In the absence of evidence to substantiate any impacts on the interveners arising from inversions or spray drift, the Commission was unable to determine that an adverse effect may result.

147. The Commission acknowledges that aerial spraying is currently relied on by interveners in at least some circumstances. While alternatives to current aerial spraying practices exist, the Commission accepts that those alternatives may be less practical or more costly. Nevertheless, in the Commission's view aerial spraying occurs infrequently on land owned or farmed by the interveners. The Commission also notes that Capital Power has agreed to work with landowners to temporarily halt turbine operation when requested. On this basis, the Commission finds that the impacts of the amended project on aerial spraying can be mitigated to an acceptable degree.

148. Capital Power has proposed a turbine shut-off protocol requiring a minimum 24 hours' notice to suspend turbine operations. The Commission expects Capital Power to create a protocol that is clear and straightforward for neighbouring farmers to follow, regardless of whether they are participating in the project. The Commission finds that the 24 hours' notice requirement is reasonable as Capital Power requires time to communicate availability to the Alberta Electric System Operator.⁸⁰ However, the Commission expects Capital Power to respond to such requests in as timely a manner as possible, given the potentially urgent nature of such requests.

149. The Commission sets out the following condition of approval:

- b. Capital Power shall implement a turbine shut-off protocol to be followed when it receives a request at least 24 hours in advance of impacted aerial spraying operations. The protocol will include: (i) the direct phone number for the site supervisor and the remote operations control centre; (ii) a process to identify which localized turbines should be paused; (iii) a confirmation of dates, times and duration for planned aerial spraying activities; (iv) a process to ensure the site is safe and secure for spraying to occur; and (v) a process to ensure that Capital Power is notified when spraying is completed. Capital Power shall update the protocol as needed, and provide a copy of the protocol and any updates to all persons who expressed concerns about aerial spraying at any point during its consultation for this proceeding, and any landowners or tenants who express concerns about impacts to aerial spraying as a result of the project in the future.

4.2.1.2 Property devaluation

150. The PPA theorized that because the individual turbines proposed in the amendment are larger and will result in greater visual impacts, and because some turbine locations have changed, the amendment may result in additional negative impacts on property values. The PPA stated that its members do not want to live near large wind turbines: Bob and Pam Copeland testified that they had recently purchased a property that they would not have purchased if they had known about the project, and the Potters indicated that, due to the project, they have taken steps to move away from the area.

⁸⁰ Transcript, Volume 2, page 239, lines 14-19.

151. The PPA alluded to expert reports considered by the Commission in other proceedings which have assessed a five to 15 per cent negative impact on property value for properties located near wind projects.⁸¹ The PPA acknowledged that Capital Power has moved all wind turbines (except turbine T34) beyond the 1,000-metre residential setback required by Paintearth County.

152. Capital Power noted that the PPA did not provide any expert evidence, and so had no basis on which to substantiate any decreases in property value resulting from the project. Capital Power retained Robert Telford of Telford Land & Valuation Inc. to provide a report discussing property value impacts. R. Telford concluded that, due to a lack of information and sales data in the area, it was not possible to complete a paired sales analysis, resale analysis or statistical analysis for the area. R. Telford did not identify any information that would indicate an impact to land value on the properties in the vicinity of the project.

153. The Commission notes that the PPA agreed with much of Capital Power's views regarding the inconclusive nature of the data in the area. The PPA conceded that it is debatable whether properties in the area that are listed on the market in the future could be sold for more without the presence of a wind project nearby.⁸² However, it maintained the view that some property devaluation would occur.

154. The evidentiary record before the Commission in this proceeding does not allow it to determine conclusively whether the amended project would result in incremental negative property value effects, as compared to the originally approved project, or to quantify those effects. The Commission acknowledges that, as a result of the increase in turbine size and change in certain turbines locations, some properties will be affected differently by the amendment than they were by the original project. However, the Commission notes that the originally approved project included 74 turbines, and the amendment contemplates a maximum of 35 turbines. The Commission considers that the substantial reduction in the total number of turbines may counteract the negative effects of the turbine size. On balance, the Commission is unable to conclude that there will be any measurable effect on property values arising from the amendment.

4.2.1.3 Lack of benefits to ratepayers

155. The PPA submitted that there is no evidence that renewable electricity projects lower electricity pool prices for Albertans, and that the proliferation of renewable energy projects contributes to increased distribution and transmission charges for Albertans. In the PPA's view renewable generation is not reliable and does not replace other generation sources, meaning that costs associated with connecting renewables projects to the Alberta Interconnected Electric System therefore constitute additional costs that would not otherwise be borne by ratepayers, and result in higher distribution and transmission charges.

156. Capital Power requested that the Commission disregard the PPA's arguments on these issues. Capital Power noted that benefit to ratepayers is not an "economic effect" assessed by the Commission in power plant applications. Additionally, the Commission is prohibited by

⁸¹ Exhibit 27691-X0147, Master Final Evidence Submission, PDF page 22.

⁸² Transcript, Volume 5, page 1089, lines 1-5.

Section 3(1)(c) of the *Hydro and Electric Energy Act* from considering whether a generating unit is an economic source of electric energy, or whether there is a need for a facility at all.

157. As a preliminary comment, the Commission notes that the statutory framework governing electricity generation in Alberta provides for a competitive generation market where decisions about whether and where to generate electricity are left to the private sector. The operation of the competitive marketplace is facilitated by provisions that ensure that generators who wish to provide electricity to the power pool are provided a reasonable opportunity to do so. As noted by the Commission in the Grizzly Bear Creek decision, Section 3(1)(c) of the *Hydro and Electric Energy Act* reflects the fact that in an openly competitive market, it is the proponent's role to consider whether there is a market demand for the electricity a power plant will provide, or in other words, whether the electricity is needed to meet consumer requirements.⁸³

158. When a power plant application is filed, the Commission considers whether approval of the application is in the public interest by assessing the information provided by the applicant and interveners, all of which feeds into its public interest determination. Regardless of the source of generation, the Commission considers the project-specific social, economic and environmental effects on a case-by-case basis to ensure that the overall project is in the public interest, and that any effects on individual persons or groups have been minimized or mitigated to an acceptable degree.

159. In this case, the Commission is considering an application to amend a previously approved project. The concerns identified by the PPA in this section relate to renewables projects in Alberta generally. As explained previously, this proceeding is not a re-hearing of the original application and it does not create an opportunity advance arguments that could have been considered in the original proceeding. Even if the PPA had adduced specific evidence to demonstrate the effect of the project on the delivered price of electricity, which it did not, the Commission does not consider that these concerns fall within the scope of an amendment.

4.2.2 Social issues

160. In this section, the Commission discusses the interveners' concerns regarding noise, shadow flicker, construction impacts, safety relating to ice throw and fires, emergency response, consultation, and other issues including cumulative effects of the project on lifestyle, health and annoyance, livestock, viewscapes, municipal setback infringements, and unknown historical resources.

4.2.2.1 Noise

161. Capital Power retained Golder Associates Ltd. (WSP Golder) to complete a noise impact assessment (NIA) to assess potential noise impacts from the amended project. In the NIA, WSP Golder concluded that noise from the amended project will be compliant with Rule 012: *Noise Control* and there will be no project-related low frequency noise issues at any receptors.⁸⁴

⁸³ Decision 26677-D01-2022, PDF page 11.

⁸⁴ Exhibit 27691-X0007, Attachment K - Noise Impact Assessment.

162. The PPA expressed concerns that even if the amended project is not predicted to exceed permissible sound levels set out in Rule 012, the proposed amendment has resulted in an increase in sound levels at receptors.⁸⁵

163. Capital Power explained that compared to the approved project, cumulative sound levels from the amended project are predicted to decrease or remain unchanged at most of the receptors, and six of 27 receptors would experience a marginal increase in sound levels.⁸⁶

164. Capital Power clarified that although the NIA predicted noise from the project will comply with Rule 012, in the unlikely event of non-compliance with the permissible sound levels once the project commences operations, it would implement noise mitigation measures to reduce the noise contribution from the project and ensure that noise from the project remains compliant with Rule 012. Capital Power explained that potential mitigation measures it could implement in the event of non-compliance include the installation of serrated trailing edge blades on the project turbines, use of reduced noise operating modes, and turbine suspension as “a last resort.” Capital Power stated that it will submit a final project update prior to the start of construction in which it would confirm the final project design remains compliant with Rule 012 and whether the selected turbine technology requires noise mitigation (e.g., serrated trailing blades) for the project to remain compliant.⁸⁷

165. Conditions 8 and 9 of Approval 25047-D02-2020 required Capital Power to operate the project turbines in specific operating modes.⁸⁸ The Commission will remove these two conditions from the amended power plant approval, as those specific operating modes were determined based on the previous equipment selection and do not reflect the amended project. The Commission notes that Capital Power will submit a final project update once the final project equipment has been selected and before project construction begins. Capital Power must confirm noise compliance and describe necessary mitigation measures in the final project update for the project.

166. Condition 10 of Approval 25047-D02-2020 required Capital Power to conduct a post-construction comprehensive sound level (CSL) survey at receptors R019, R033, R070 and R051.⁸⁹ As the NIA for the amended project predicted that cumulative sound levels at receptors R015, R027, R036, R046, and R081 will be slightly over or close to the nighttime permissible sound level of 40 dBA, the Commission will again order a CSL survey to verify the project’s compliance. For that reason, and as the project will be a dominant sound source at those receptors, the Commission considers receptors R015, R027, R036, R046, and R081 suitable CSL survey locations. Accordingly, the Commission imposes the following condition of approval:

- c. Capital Power shall conduct a post-construction comprehensive sound level (CSL) survey, including an evaluation of low frequency noise, at receptors R015, R027, R036, R046, and R081. The post-construction CSL survey must be conducted under

⁸⁵ Exhibit 27691-X0147, Master Final Evidence Submission, PDF page 33.

⁸⁶ Exhibit 27691-X0202, CAPITAL POWER Reply Evidence, PDF page 14; and Exhibit 27691-X0205, Appendix C_Dr Christopher Ollson Expert Report, PDF page 5.

⁸⁷ Exhibit 27691-X0035, Round 1_IR Responses of Capital Power (9 Nov 2022), PDF pages 11; Transcript, Volume 2, page 423, lines 7-25; page 424, lines 1-25.

⁸⁸ Power Plant Approval 25047-D02-2020, Capital Power Generation Services Inc., Time Extension to Construct the Halkirk 2 Wind Power Project, March 5, 2020.

⁸⁹ Power Plant Approval 25047-D02-2020, Capital Power Generation Services Inc., Time Extension to Construct the Halkirk 2 Wind Power Project, March 5, 2020.

representative conditions and in accordance with Rule 012: *Noise Control*. Within one year after the project commences operations, Capital Power shall file a report with the Commission presenting measurements and summarizing the results of the post-construction CSL survey.

167. Overall, the Commission finds that the NIA for the project meets the requirements of Rule 012 and expects that the project will comply with Rule 012. The Commission is satisfied with Capital Power's commitment to implement necessary mitigation measures in the event of non-compliance.

4.2.2.2 Shadow flicker

168. PPA members were concerned that they would experience an increase in shadow flicker, and pointed out that predicted shadow flicker at the residence of Ken Breed is 30 hours per year, which is equal to the threshold used in the shadow flicker assessment.⁹⁰ Further, the PPA submitted that shadow flicker is "more than just an indoor phenomenon" and it can negatively affect aerial spraying, livestock and outdoor workers.⁹¹

169. Capital Power retained Dr. Christopher Ollson of Ollson Environmental Health Management to provide an expert opinion on the potential health effects of the project. Dr. Ollson explained that shadow flicker is only caused by blades passing over the windows of an enclosed space (i.e., a home), which creates a change in the light intensity in a room, and that outdoors, turbines merely create a shadow on the ground that does not "flicker" or change light intensity.

170. The Commission agrees with Dr. Ollson's explanation of shadow flicker and finds that it is not an outdoor phenomenon. Rule 007 defines a receptor as a permanently or seasonally occupied dwelling used for the purpose of human rest and specifies that, for shadow flicker assessments, receptors must have the potential for shadow flicker and be located within 1.5 kilometres from the centre point of each turbine. This reflects the fact that shadow flicker requires repeated changes to light levels, which can occur when the shadow of a turbine blade falls across the window of a dark room, but not in cases when ambient light levels are very high (e.g., outdoors). Shadow flicker impacts depend on differences in the brightness of ambient light surrounding the receptor and the light intermittently obstructed by turbine blades. While circumstances may exist in which shadow flicker occurs outdoors, it is unlikely that the intensity of any such shadow flicker will be significant.

171. Dr. Ollson evaluated two modelling scenarios in his shadow flicker assessment: Case A, which assumed that the sun is always shining during daylight hours, all turbine blades are always rotating, and all turbine rotors are always perpendicular to the sun; and Case B, which used statistical weather data to estimate the probability of sunshine for each month of the year and to estimate the probability of different wind directions, and hence turbine orientations. Dr. Ollson submitted that the assumptions used in Case A are unrealistic and highly conservative, and that Case B predicts potential shadow flicker effects under more realistic, but still conservative

⁹⁰ The shadow flicker assessment stated as there are no federal or provincial guidelines or regulations for shadow flicker effects from wind power project in Alberta, it compared the predicted shadow flicker duration to guidelines from other jurisdictions, which recommend that exposure to shadow flicker be limited to a maximum of 30 hours per year and a maximum of 30 minutes per day. (Exhibit 27691-X0004, Attachment F - Shadow Flicker Assessment, PDF page 12)

⁹¹ Exhibit 27691-X0147, Master Final Evidence Submission, PDF pages 33 and 34.

environmental conditions. The Commission accepts that Case B produced conservative estimates of potential shadow flicker effects and finds that it represents more realistic conditions than Case A. The Commission will therefore will rely on the Case B estimates in its assessment of the impacts of shadow flicker.

172. Dr. Ollson's shadow flicker assessment predicted that three receptors may experience more than 30 hours of shadow flicker per year (i.e., up to 61 hours per year), but that no intervener will experience more than 30 hours of shadow flicker per year. Compared to the approved project, shadow flicker levels are predicted to increase at 19 of 27 receptors, with a maximum predicted increase of 55 hours per year, and that shadow flicker levels at the other receptors are predicted to decrease or remain unchanged.⁹²

173. Capital Power submitted that mitigation could be implemented if shadow flicker is deemed to be an issue, and identified installation of screenings (e.g., shutters, blinds or curtains) on windows, planting additional vegetation, and temporary curtailment of turbine operations as potential mitigation measures.⁹³

174. The Commission notes that receptor R007, which is located at K. Breed's residence, is predicted to experience 30 hours of shadow flicker per year. The Commission also notes that receptor R034 is predicted to experience 28 hours of shadow flicker per year. Dr. Ollson stated that, although the Commission has not established limits on exposure to shadow flicker, in his view, 30 hours per year is a reasonable guideline above which mitigation measures should be considered. Capital Power has yet to finalize the project layout, and is permitted to remove turbines or relocate each turbine up to 100 metres from its approved location without filing a further amendment application or a letter of enquiry. In particular, as discussed in Section 4.2.2.11, Capital Power has committed to meeting municipal setback requirements, which may result in the removal or relocation of turbine T34, the closest turbine to K. Breed's residence. The Commission does not anticipate that the removal or relocation of turbines within the 1,000-metre threshold is likely to have adverse impacts on the shadow flicker experienced at nearby receptors; instead removal or relocation of turbines may reduce the total hours of shadow flicker experienced. However, given that the above-noted values are at or near the guideline identified by Dr. Ollson, the Commission considers it reasonable to impose the following condition of approval:

- d. Capital Power shall, at the time it submits the final project update, confirm the number of hours of shadow flicker that receptors R007 and R034 are predicted to experience in a year.

175. Overall, the Commission finds that Capital Power has assessed the project's shadow flicker impacts in accordance with Rule 007. There are no existing provincial or federal regulations imposing a criteria for shadow flicker impacts. Rather, the Commission requires Capital Power to address complaints or concerns from residents regarding shadow flicker from the project and to take prompt actions, including mitigation measures, to address these

⁹² Exhibit 27691-X0205, Appendix C_Dr Christopher Ollson Expert Report, PDF pages 6 and 15.

⁹³ Exhibit 27691-X0262, Capital Power's Response to Undertaking No. 1 - List of all Commitments and Conditions, PDF page 3; Exhibit 27691-X0035, Round 1_IR Responses of Capital Power (9 Nov 2022), PDF pages 12-14; and Transcript, Volume 2, page 425, lines 1-25; page 426, lines 1-2.

complaints or concerns. Therefore, the Commission imposes the following condition of approval:

- e. Capital Power shall file a report with the Commission detailing any complaints or concerns it receives from local landowners regarding shadow flicker from the project during its first year of operation, as well as Capital Power's response to the complaints or concerns. If Capital Power implements mitigation to reduce shadow flicker impacts, the report shall detail the mitigation measures and associated landowners' feedback regarding the mitigation. Capital Power shall file this report no later than 13 months after the project becomes operational.

4.2.2.3 Construction impacts

176. PPA members were concerned about the impacts of the project on road safety during construction and maintenance, and the location of the project's laydown area. These concerns centred around the use of Township Road 400, which is the main road that PPA members use to conduct their daily business, including time-sensitive farming operations. The concerns raised by the PPA include concerns about increased traffic, construction workers driving at unsafe speed, and dust from vehicles. PPA members also expressed concerns about the siting of the laydown area at the intersection of Township Road 400 and Range Road 152.

177. Given the original application's planned and approved use of Township Road 400, the Commission does not find it necessary to extensively revisit the issue in the amendment proceeding. The Commission notes that in the original proceeding, Capital Power committed to developing a detailed traffic management plan for the project in consultation with landowners and local residents, and to use water trucks or other methods to control dust during the construction phase of the project. In the original proceeding, the Commission accepted Capital Power's mitigations and commitments relating to the development of a traffic management plan to manage roads and dust. Given the original application's planned and approved use of Township Road 400, the Commission does not find it necessary to extensively revisit the issue in the amendment proceeding. Capital Power confirmed that its existing commitments related to road use, traffic and dust remain valid. It provided additional commitments to restrict the speed of project vehicles to 50 kilometres per hour within the project area during construction of the project and confirmed that it would enforce speed limits with all contractors.⁹⁴

178. The Commission understands that the amendment may result in additional construction traffic volumes due to larger turbines and their associated foundations, and despite the fewer overall number of turbines. However, the Commission considers that these changes can be dealt with adequately through Capital Power's traffic management plan. The Commission also finds that the commitments made by Capital Power are responsive to intervenor concerns regarding speed and dust.

179. The Commission understands that the laydown yard is located at the same intersection as the previously approved application, but has moved across the street to the south side of

⁹⁴ Exhibit 27691-X0262, Capital Power's Response to Undertaking No. 1 - List of all Commitments and Conditions, PDF pages 8 and 10.

Township Road 400. The Commission is not persuaded that this change will result in any incremental impacts.

4.2.2.4 Safety relating to ice throw and fires

180. The PPA noted that, due to the taller turbines in the amendment applications, ice throw was a relevant safety concern as the new turbines would throw ice further. Ice throw occurs when ice accumulates on the turbine blades and is projected when it dislodges from turbine blade while the turbine is spinning.

181. Capital Power noted that the proposed layout follows the industry standard design of a 1.1x turbine height setback from roadways, neighbouring property lines and other infrastructure, the turbines will all have ice detection systems, and the project design is consistent with international best practices to prevent ice throw becoming a risk.

182. The PPA was also concerned about the potential spread of fires from wind turbines or associated infrastructure to surrounding property. The PPA requested that the Commission impose a condition requiring Capital Power to indemnify neighbouring landowners against fire damages resulting from wind project infrastructure, and that Capital Power maintain adequate fire breaks around the substation, install and ensure adequate fire suppression equipment on site, and maintain a reservoir for firefighting purposes.

183. Capital Power stated that it was not prepared to speculate on the future payment of fire costs, but that it would comply with all county bylaws and policies, including ones relating to firefighting costs. Capital Power was also not prepared to accept the PPA's other firefighting conditions. Capital Power did not agree that fire breaks are necessary to contain fire associated with the project. Further, Capital Power explained that it views the risk of turbine fire as low, and that in the rare event of a fire within a turbine, it would be unlikely to spread from the perimeter of the base of the turbine.

184. The Commission is satisfied that, because the amendment contemplates fewer turbines than the original application, the risks of ice throw and fires due to the project are unlikely to increase. With respect to ice throw, the Commission is satisfied that the mitigations proposed serve to adequately address the risks, despite the use of taller turbines for the amended project because an ice detection system will continue to be employed, and because the setback distance applied to the turbines reflects the increase in height.

185. The Commission notes that Capital Power committed to continuing to revise and advance its emergency response plan, as well as continuing to consult with local fire departments and first responders, who may make specific recommendations to address risks based on their expertise. Capital Power has also committed to continue abiding by previous conditions to work with local landowners, residents, emergency responders, and the county regarding emergency response, and develop a site-specific emergency response plan in consultation with those same groups. The Commission is satisfied that these commitments adequately address the concerns raised.

4.2.2.5 Emergency response

186. PPA members were concerned that the project would limit access for air ambulances in the area such as STARS or HALO, as helicopters may not be able to operate near turbines. The PPA submitted that ground ambulance response time could be longer or access more difficult, which could prove dangerous depending on the situation. The PPA was also concerned about

limited nighttime visibility for emergency responders due to the lighting system for the turbines, which only turns on when it detects aircraft, and because lighting is not present on every turbine.

187. Capital Power stated that it had consulted with STARS and HALO and neither raised concerns with the project, nor expressed concerns about the impact of the project on nighttime or general operation. Additionally, because the project footprint and number of turbines has been reduced, and because there are no turbines within 1,000 metres of any PPA member residence, Capital Power suggested that the amendment would result in an improvement to the ability of STARS and HALO to operate in the area.

188. With respect to the PPA's concerns about the ability of emergency responders to access their residences as a result of the amended project, the Commission places significant weight on the statements from both STARS and HALO that "the presence of wind turbines, does not impede the ability of STARS or any air medical transport service to operate safely and effectively in the area"⁹⁵ and "helicopters can operate safely in, and around, power generation facilities; including landing near a wind turbine in the event of an emergency scene call..."⁹⁶ The Commission understands the PPA's concern that Capital Power has not yet finalized its emergency response plan. As discussed above, Capital Power has committed to finalizing a site-specific emergency response plan in consultation with local landowners, residents and emergency responders prior to commencing construction.

4.2.2.6 Consultation

189. Interveners in this proceeding expressed dissatisfaction with Capital Power's consultation efforts and emphasized the poor relationship between Capital Power and interveners. The PPA submitted that Capital Power had failed to engage the community to resolve issues, and noted that some landowners now refuse to speak with Capital Power's land agents due to what landowners perceive as misconduct and misrepresentation by these individuals. C. Felzien, on behalf of D. Brown, submitted that Capital Power was attempting to push the amendment forward without allowing interveners adequate time to examine the evidence and test the impacts of project changes. C. Felzien emphasized that Capital Power's engagement with her and other members of the public had not been appropriate, and repeatedly requested an apology from Capital Power for harm it has caused and the division it has created in the community.

190. Capital Power relied on the Commission's ruling that evidence regarding consultation in this proceeding should be limited to the consultation associated with the amendment applications. Capital Power maintained that it had developed and carried out a robust participant involvement program in accordance with applicable Rule 007 requirements. Capital Power also emphasized that, following one-on-one consultation with area stakeholders, it made changes to the project, including relocation of turbines.

191. The Commission acknowledges that tension between Capital Power and those opposed to the project is high, and has continued in the time that has lapsed since the initial project application. The Commission recognizes that interveners have outstanding concerns with both consultation in relation to the original project, and consultation in relation to the current

⁹⁵ Exhibit 27691-X0121, Capital Power IR Response 44(a) - Appendix C- STARS Letter of Support for the Updated Project.

⁹⁶ Exhibit 27691-X0122, Capital Power IR Response 44(a) - Appendix B - HALO Letter of Support for the Updated Project.

proceeding. However, the Commission also notes that throughout this proceeding, both the PPA and C. Felzien went beyond the scope set out in the standing ruling, and provided written and oral evidence relating to consultation throughout the project's history. This served to complicate the record rather than aid with the Commission's assessment of the amendment applications.

192. The Commission has reviewed the consultation documents provided by Capital Power regarding the amendment applications and finds that the participant involvement program meets the requirements set out in Rule 007. The Commission reiterates its findings regarding consultation from the project's original decision, where many of the same general concerns were initially discussed:

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, as it pertained to their interests specifically, was insufficient or superficial. The above-noted views of the parties demonstrate that the perceptions of the applicant and some interveners about the quality and effectiveness of the public consultation are quite different. This is not the fault of the applicant or the interveners; it merely reflects the fact that the parties do not agree.

...

What is important for the Commission's consideration of the PIP is that all landowners are given a sufficient opportunity to learn about the project and have an opportunity to engage with Capital Power regarding their concerns...⁹⁷

193. While it was made clear that PPA members had concerns that remained unresolved in this proceeding, the Commission finds that Capital Power engaged with landowners appropriately and made reasonable efforts to resolve these concerns. The Commission is satisfied that the fundamental objectives of consultation and Rule 007 have been met and that potentially directly and adversely affected persons were provided an opportunity to understand the application, have a reasonable opportunity to voice concerns and have concerns addressed when feasible.

4.2.2.7 Project contribution to cumulative effects on rural life

194. PPA members raised concerns with the cumulative effects of nearby industrial development (e.g., transmission, oil and gas, and electricity infrastructure, and other industrial projects) and their impact on rural life. The PPA expressed stress, frustration and concern about the project's potential effects on their day-to-day activities.

195. Capital Power submitted that the project's contribution towards cumulative effects on the interveners' rural life will be minimal and less than the previously approved project. Capital Power explained that the amended project should reduce impacts as there will be an overall reduction of turbines constructed in the area. The revised project layout will also be more dispersed than the original layout.

196. The Commission recognizes the PPA members have concerns about the project's contribution to cumulative effects on their rural life; however, these types of concerns relate to the existence of the project in general rather than the proposed amendments. Concerns about the project's impacts on rural life, as well as on the character and aesthetic of the area were raised by interveners and considered by the Commission in the original proceeding. The Commission finds

⁹⁷ Decision 22563-D01-2018, PDF pages 13 to 15, paragraphs 46 and 52.

that the amendment will not result in increased impacts on rural life, above what was originally considered by the panel that approved the original project.

4.2.2.8 Health

197. Several interveners expressed concerns regarding potential adverse impacts that the project may have on their health. For example, the Copelands, who had recently moved to the Halkirk area to provide a quieter environment for their daughter in light of concerns about her health, expressed concerns that shadow flicker and noise may worsen her health, and cause adverse health effects to their family more generally.

198. D. Brown raised concerns that the wind turbines, and the turbulence caused by wind turbines, would impact her health. There are six proposed turbines located within 2,000 metres of D. Brown's residence, and her house is downwind from the turbines during the predominant wind conditions. She stated that she currently experiences debilitating episodes of vertigo, and extreme pressure sensitivity, which manifests as headaches and disorientation under certain atmospheric conditions.⁹⁸ After reading about "Wind Turbine Syndrome," she became concerned that the project would exacerbate her conditions. While she acknowledged that "Wind Turbine Syndrome" has not been proven, her concerns related to the potential inadequacy of Capital Power's response if her health worsens.

199. The PPA submitted that wind turbines have negative health effects, and that while these negative effects are difficult to prove, commonly heard anecdotes support their existence. Among these negative health effects is annoyance arising from exposure to noise or shadow flicker. The PPA provided a number of articles and studies that describe negative health effects on people living near wind projects, and attributing the cause of these health effects to, among other things, certain characteristics of the noise emitted from wind projects. C. Felzien also provided a number of articles and studies describing negative health effects related to wind projects.

200. The Commission did not consider the articles and studies to be of assistance in its decision-making. The Commission has previously described human health as a highly technical issue, requiring expert evidence. The interveners did not put forward an expert in human health who could attest to the content of these articles and studies, explain how these articles and studies fit within the larger body of scientific knowledge, or speak to whether the conclusions of these articles and studies are applicable in the context of this amendment proceeding. Further, there was no opportunity to test the assertions of the authors of those articles and studies, as they were not made available for cross-examination.

201. Dr. Ollson, who has significant experience in the assessment of impacts to health, reviewed the health concerns raised by interveners and provided evidence on the potential for the project to impact intervener health. He concluded that adherence to Rule 012 noise limits, shadow flicker guidelines, and an adequate setback from homes would ensure the protection of the health of all residents. Dr. Ollson was not able to locate any peer-reviewed research suggesting individuals with specific health conditions such as autism, ASD or ADHD are affected by living in proximity to wind turbines.⁹⁹ Further, Dr. Ollson stated that there is nothing in the peer-reviewed scientific literature to suggest that D. Brown's pre-existing condition would

⁹⁸ Exhibit 27691-X0137, 2023-03-06 Evidence Carmen Felzien for Doreen Brown, PDF page 13.

⁹⁹ Exhibit 27691-X0205, Appendix C_Dr Christopher Ollson Expert Report, PDF page 16.

be exacerbated by acoustic emissions from the wind turbines.¹⁰⁰ He concluded that shadow flicker and annoyance resulting from wind turbines do not negatively affect health.

202. The Commission accepts Dr. Ollson's evidence and finds that the project is not likely to exacerbate the pre-existing health conditions identified by the interveners. Further, in the original decision, the Commission was not persuaded that the project was likely to cause adverse health effects for nearby residents. In this proceeding, the Commission accepts Capital Power's submission that in light of compliance with Rule 012 and the application of reasonable setbacks and mitigations, the noise and shadow flicker effects of the amended project are acceptable and within ranges that are consistent with the protection of human health.

203. While the Commission is satisfied that the project is not likely to cause adverse health effects, the Commission notes that Capital Power has confirmed that any reasonable complaints related to health will nevertheless be investigated, and that it will work with affected individuals to understand their complaints and to implement any appropriate mitigation.¹⁰¹ This is a reasonable measure to address any concerns that may arise.

4.2.2.9 Livestock

204. PPA members Brenda Anderson, Gerald Borgel, Doug and Lynne Potter, and Bob and Pam Copeland, expressed concerns about the potential effects of the project on their livestock. They were worried about increased noise and shadow flicker, and how that would impact their horses, cattle, and feedlot operations.

205. Based on a systematic review of the literature on potential health effects to livestock near wind projects, Dr. Ollson concluded that there is nothing published in literature suggesting an impact on horses or livestock. The PPA did not provide any expert evidence to the contrary.

206. As stated above, the changes in noise and shadow flicker effects are marginal, as between the amended and approved project and remain within thresholds that are protective of human and animal health. The Commission is satisfied that the project is not likely to cause adverse health effects to livestock.

4.2.2.10 Municipal setback infringements

207. The PPA noted that Paintearth County has implemented a 1,000-metre residential setback from turbines for any dwelling on lands not leased for wind projects. Capital Power has complied with this setback for all but one resident: K. Breed. His residence is 640 metres from the nearest turbine.¹⁰²

208. In response, Capital Power acknowledged that an agreement with K. Breed contemplating the location of the turbine in proximity to his residence had expired, and the turbine in proximity to his residence may no longer be compliant with the municipal setback for non-participating landowners. Capital Power confirmed that it will comply with the municipal

¹⁰⁰ Exhibit 27691-X0205, Appendix C_Dr Christopher Ollson Expert Report, PDF page 17.

¹⁰¹ Exhibit 27691-X0124, CP IR Response Round 2 to Paintearth Protection Association PPA (CP-PPA-2023FEB21-001 to CP-PPA-2023FEB21-047), PDF page 22.

¹⁰² Exhibit 27691-X0147, Master Final Evidence Submission, PDF page 33.

setback for all turbines and acknowledged that this may require it to remove or relocate this turbine.

209. The PPA requested that the Commission impose a condition enforcing compliance with the municipal setback for all turbines. The Commission has determined that such a condition is not required as Capital Power has committed to abiding by the 1,000-metre municipal setback. The Commission reiterates that it considers commitments made by an applicant to be binding on the applicant regardless of whether they are ultimately listed as conditions in the decision.

4.2.2.11 Viewscapes

210. The interveners expressed concerns that, because the turbines in the amended project will be larger than those previously approved, the associated visual impacts will increase. They also expressed concerns that the visual simulations provided by Capital Power did not accurately depict the potential impacts to their viewscapes.

211. Capital Power submitted that impacts to the interveners' viewscapes will be lessened as a result of the proposed amendments, as there will be significantly fewer turbines. Capital Power also indicated that it will provide further visual simulations to interveners who have requested them.¹⁰³

212. The Commission notes that in the amended project, as compared to the approved project, the distance from the nearest turbine to the location of each intervener residence has increased, and that the number of turbines within 1.5 kilometres of each intervener residence has decreased. As discussed in Section 4.1.3.2.1, the Commission has found that turbines T24 and T25 must be removed as potential turbine locations; this will further reduce the visual impacts of the amended project as compared to the approved project.

213. The Commission acknowledges that the turbines in the amended project will be taller, but notes that the number of turbines has significantly decreased. It also notes that Capital Power has committed to complying with the municipal setbacks for turbines. While it understands visual impacts are subjective, the Commission is not convinced the visual impact on community members, in general, will increase as a result of the amended project.

4.2.2.12 Unknown historical resources

214. The PPA explained that the Halkirk area has a rich Indigenous culture, tradition, and history, and provided a photo of artifact items often found throughout the project area.¹⁰⁴ The PPA requested that if the project were approved, that the Commission impose a condition requiring Capital Power to have an Indigenous culture expert on staff and to immediately stop construction if artifacts are found, until the artifacts can be properly removed and handled.

215. Capital Power stated that it would comply with the regulatory regime established by the Ministry of Arts, Culture and Status of Women (Alberta Culture), which, among other requirements, stipulates that any discovery of historical resources during the development of a project be reported immediately to Alberta Culture, and that all development activities cease while the historical resource is being evaluated.

¹⁰³ Transcript, Volume 1, page 169, line 17, to page 171, line 9.

¹⁰⁴ Exhibit 27691-X0147, Master Final Evidence Submission, PDF page 42.

216. The Commission is satisfied with Capital Power's commitment to address the discovery or identification of any historical artifacts, Indigenous or otherwise, to the extent required by Alberta Culture. In particular, upon the specific provision of a location of the Tinchebray post office, Capital Power has committed to assessing whether the project's collector lines will cross the site and will work with permitted archeologists and Alberta Culture to determine appropriate next steps. The Commission notes that a *Historical Resources Act* approval was obtained for the amendment in June of 2022, and that under the approval, the following standard condition applies:

“a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the Minister of the discovery.” The chance discovery of historical resources is to be reported to the contacts identified within Standard Requirements under the *Historical Resources Act*: Reporting the Discovery of Historic Resources.¹⁰⁵

217. The Commission acknowledges the authority of Alberta Culture in relation to historical resources pursuant to the *Historical Resources Act* and considers that compliance with the regulatory framework established by Alberta Culture satisfies the public interest. The Commission does not consider there to be evidence in this proceeding warranting any further specific mitigation relating to unknown or potential historical resources.

4.2.3 Environmental issues

218. In this section, the Commission discusses the interveners' concerns regarding wildlife; wetlands; flood plains and drainage; water wells; weeds and crop disease; and reclamation.

219. The amendment application results in the following changes that are relevant to the Commission's assessment of environmental impacts:

- A reduction in the number of turbines from 74 to 35 turbines which is associated to an overall reduction in the permanent project footprint from 45.9 hectares to 25.9 hectares.
- An increase in the temporary project footprint from 228.4 hectares to 234.2 hectares.¹⁰⁶

220. A referral report for the original project was issued by AEPA in April 2017 (2017 referral report). Capital Power updated the baseline wildlife surveys in 2021 in accordance with requirements of the referral report and acquired an amended referral report in June 2022 (2022 referral report amendment).

4.2.3.1 Wildlife

221. The 2017 referral report ranked the project as having an overall medium risk to wildlife and wildlife habitat. The 2017 referral report also indicated that the project would have medium risks to bird mortality and bat mortality.

222. The 2022 referral report amendment ranked the project as having overall moderate risk to wildlife and wildlife habitat. The 2022 referral report amendment provides risk rankings on a

¹⁰⁵ Exhibit 27691-X0013, Attachment M - Signed HRA Response, PDF page 2.

¹⁰⁶ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 15.

greater number of topics than the 2017 referral report. It identifies a low risk to sensitive wildlife features and breeding birds, and a high risk for wetlands, bird mortality, and bat mortality.

223. PPA members expressed concerns about the projects' potential impacts on bats and birds, and the high risk rankings in the 2022 referral report. The PPA submitted that risk rankings had been upgraded from moderate in the 2017 referral report to high in the 2022 referral report amendment. PPA members were also concerned that the wildlife surveys may have overlooked wildlife features known to PPA members.

224. In Capital Power's view, as "[t]he 2017 report provided only a single evaluation of the effects of the Project on wildlife,"¹⁰⁷ the fact that the 2022 referral report amendment contains risks ranked as high does not convey that the project has become more environmentally harmful, but merely reflects that the more recent referral report format breaks down the specific effects of the project to wildlife into more granular categories. In response to the concerns about overlooked wildlife features, Capital Power committed to looking into and confirming the status and species associated with those features if provided the exact location.¹⁰⁸

225. The Commission has reviewed both the 2017 referral report and the 2022 referral report amendment. The Commission disagrees with Capital Power's submission that the 2017 referral report provided only a single determination of effects to wildlife. In the Commission's view, the 2017 referral report provides risk rankings on several categories and some, but not all, of these categories correspond with those assessed in the 2022 referral report amendment. The 2017 referral report states that risk for bat mortality "is evaluated as medium" and "[b]ased on [AEPA's] assessment of risk the Halkirk 2 Wind Power Project has been identified as having a medium risk of bird mortality."¹⁰⁹ In comparison, the 2022 referral report amendment states that "[t]he risk of mortality to bats has been assessed as high"¹¹⁰ and that "[t]he overall risk of mortality to birds has been assessed as high..." and "[t]he risk to breeding birds has been assessed as low..."

226. The Commission has considered the differences between how AEPA currently determines risk, and how it determined risk in 2017. With respect to birds, the overall medium risk of bird mortality in the 2017 referral report grouped together migratory birds and breeding birds into a single category. The 2022 referral report amendment assigned a high risk of bird mortality based on high migratory activity, attractive stopover sites, attractive habitat for grassland breeding birds, and a high abundance of breeding raptors within the project area. However, the same referral report amendment also assigned a low risk to breeding birds. On balance, and taking into consideration the overall moderate risk ranking, the Commission is of the opinion that the overall impacts to birds appear similar as between the two referral reports.

227. The Commission recognizes that risk of bat mortality is ranked as high in the 2022 referral report amendment, in comparison to the medium risk of bat mortality identified in the 2017 referral report. However, the Commission finds that this risk is acceptable given Capital Power's commitments to introduce seasonal curtailment of turbines at night during high

¹⁰⁷ Exhibit 27691-X0124, CP IR Response Round 2 to Paintearth Protection Association PPA, PDF page 57.

¹⁰⁸ Transcript, Volume 2, page 428, lines 17-25.

¹⁰⁹ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 273.

¹¹⁰ Exhibit 27691-X0008, Attachment L - Renewable Energy Project Submission Amendment Approval Letter, PDF page 3.

migration periods, as described in the environmental protection plan¹¹¹ and the Renewable Energy Project Amendment Submission to AEPA.¹¹² As noted by AEPA in the 2022 referral report amendment, “[t]he [bat] mortality risk will be mitigated during operations and mitigations must reduce bat mortalities to acceptable levels.”¹¹³

228. In regard to bats and birds, Rule 033: *Post-approval Monitoring Requirements for Wind and Solar Power Plants* requires approval holders to submit annual post-construction monitoring survey reports to AEPA and the Commission. Capital Power has committed to conducting post-construction monitoring in accordance with Rule 033. The Commission therefore implements the following condition of approval to replace Condition 16 of Approval 25047-D02-2020:

- f. Capital Power shall submit an annual post-construction monitoring survey report, to Alberta Environment and Protected Areas (AEPA) and the Commission no later than January 31 of the year following the mortality monitoring period, and on or before the same date every subsequent year for which AEPA requires surveys pursuant to subsection 3(3) of Rule 033: *Post-approval Monitoring Requirements for Wind and Solar Power Plants* and Section 4.0 of the Post-Construction Survey Protocols for Wind and Solar Energy Projects.

229. The Commission notes that while the stated mitigation measures proposed by Capital Power may reduce impacts to birds and bats, if post-construction monitoring reveals that wildlife mortalities exceed acceptable levels (as determined by AEPA), Capital Power will be required to implement additional mitigation measures in consultation with AEPA.

230. Approval 25047-D02-2020 contained a condition requiring Capital Power to abide by any requirements and commitments outlined in the 2017 referral report and in the post-construction monitoring and mitigation plan developed for the project. Capital Power proposed that this condition be modified¹¹⁴ to remove the reference to the post-construction monitoring and mitigation plan, but did not provide an explanation for why this removal would be necessary. In the absence of an explanation, and given that a post-construction monitoring and mitigation plan remains in place for the amended project, the Commission does not see a persuasive reason to modify the condition. The Commission will retain the existing condition language, subject to minor revisions to reference the more current 2022 referral report amendment and related AEPA submission.¹¹⁵

231. In addition, due to the increase in wind project development in the province and the potential for cumulative impacts to be discovered in the future, Capital Power will be required to abide by any current and future requirements, recommendations and directions provided by AEPA as they relate to cumulative impacts. This includes participation in a working group and the future implementation of any additional monitoring and mitigation that AEPA considers

¹¹¹ Exhibit 27691-X0006, Attachment I - Environmental Protection Plan, PDF page 42.

¹¹² Exhibit, 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 224.

¹¹³ Exhibit 27691-X0008, Attachment L - Renewable Energy Project Submission Amendment Approval Letter, PDF page 3; Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 224.

¹¹⁴ Exhibit 27691-X0262, Capital Power’s Response to Undertaking No. 1 – List of all Commitments and Conditions, PDF pages 4-5.

¹¹⁵ Exhibit 27691-X0096, Clean Version 21452763_Capital Power_Halkirk2_EE_Rev0.

necessary to address cumulative impacts occurring from two or more projects within the local area, as defined by AEPA.

232. Given that the overall risk ranking for the project remains moderate, and in light of the commitments to mitigation, the Commission is satisfied that the potential adverse wildlife effects of the amended project are relatively unchanged as compared to the original project, and that they will be monitored and suitably addressed.

4.2.3.2 Wetlands

233. The PPA expressed concerns about the project's high risk to wetlands, and noted that many bird species rely on wetlands for their habitat.

234. The 2017 referral report does not provide a specific risk ranking for wetlands. However, it does identify that the project infrastructure, in some cases, would impinge on wetland setbacks and that there are potential negative effects associated with siting wind projects in proximity to wetlands, particularly in relation to species at risk and sensitive species.

235. With respect to the amended project layout, the 2022 referral report amendment states that "there are still numerous impacts to wetlands and wetland setbacks, and so the risk to wetland habitat remains high."¹¹⁶ [emphasis in original] Despite ranking the risk to wetlands as high, AEPA notes that the amended project has reduced the number of planned impacts to wetland habitat as compared to the original project.¹¹⁷ Specifically, the amended project would reduce infringements into setbacks around Class III and higher wetlands by 55 per cent, and would reduce the total impacted area of Class III and higher wetlands by 63 per cent.¹¹⁸ The Commission notes that WSP Golder described Class III and higher wetlands as having the greatest potential to support amphibians.

236. While the Commission recognizes that infringements of the 100-metre wetland setback are not compliant with the *Wildlife Directive for Alberta Wind Projects*, it finds that the overall effects on wetlands have been reduced as a result of the amendment, and that the amended project's effects on wetlands can continue to be mitigated to an acceptable degree using Capital Power's proposed mitigation measures.

237. The Commission notes that Approval 25047-D02-2020 contained a condition requiring Capital Power to complete amphibian surveys, following AEPA survey protocols, prior to construction where ground disturbance may occur within 100 metres of Class III to V wetlands; to communicate the results to AEPA; and to implement any mitigation measures recommended by AEPA. Capital Power proposed that the existing condition be modified¹¹⁹ to refer more generally to its commitments in the Environmental Evaluation and Renewable Energy Project Amendment Submission, which contain similar language regarding amphibian surveys.¹²⁰ As described above, the Commission considers Capital Power to be bound by its commitment to

¹¹⁶ Exhibit 27691-X0008, Attachment L - Renewable Energy Project Submission Amendment Approval Letter, PDF page 3.

¹¹⁷ Exhibit 27691-X0008, Attachment L – Renewable Energy Project Submission Amendment Approval Letter, PDF page 4.

¹¹⁸ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 125.

¹¹⁹ Exhibit 27691-X0262, Capital Power's Response to Undertaking No. 1 – List of all Commitments and Conditions, PDF page 4.

¹²⁰ Exhibit 27691-X0096, Clean Version 21452763_Capital Power_Halkirk2_EE_Rev0, PDF page 181.

adhere to the mitigation measures contained throughout its environmental evaluation and in its submissions to AEP. However, the Commission considers the specificity of the existing condition to be helpful and, in the absence of a persuasive reason to modify it, will retain the existing condition.

4.2.3.3 Flood plains and drainage

238. The interveners expressed concerns about the potential for the amended project infrastructure to alter drainage patterns and create water impoundments. For example, C. Felzien expressed specific concerns related to placement of the road and turbine pad associated with turbine T20.¹²¹ C. Felzien submitted that turbine T20 is sited directly in or beside a drainage ditch that collects excess surface water from neighbouring sections, and carries it towards the Battle River. C. Felzien explained that the drainage ditch is part of a network of existing ditches that channel water north from D. Brown's residence and west from the residence of Katrina and Tyler Smith. The ditches join and continue east towards Range Road 144. C. Felzien stated that turbine T20 and its service road bisects the ditch and that she is concerned this will cause backflooding towards the residences.¹²² C. Felzien noted that the environmental evaluation for the amended project stated that the drainage patterns will be altered by changes to the surrounding landscape as a result of pad and road development.¹²³

239. In response, Capital Power retained WSP Canada Inc. (WSP) to complete an assessment and technical memorandum on surface water drainage patterns as they relate to turbine T20 infrastructure. This assessment utilized digital elevation modelling to compare residents' yard elevations against major drainage pathway features, geographic collection areas, and potential anthropogenic impoundments.

240. WSP noted that turbine T20 is to be placed north of the existing drainage ditch and found that the turbine footprint would not interfere with local drainage. However, WSP confirmed that the access road does appear to cross the existing ditch. Based on its assessment of the differences in elevation between locations along the flow path, WSP concluded that there is "no potential for backflooding at the upstream residences, as substantial unmitigated ponding would be required to cause such an effect." However, WSP also stated that "[c]ulverts may be required to maintain drainage in ditches at junctions with existing roads" and "[p]rovision of a properly sized culvert at the T20 access road crossing should prevent backflooding that would adversely affect the Brown lands."¹²⁴ At the hearing C. Felzien reiterated her view that, should turbine T20 be constructed, a culvert should be installed at the onset, to ensure that water flows are unimpeded through that area.¹²⁵

241. The Commission notes that the project's environmental evaluation states that "surface and subsurface run-off controls (e.g., ditches and culverts) will be installed as appropriate."¹²⁶ Based on this mitigation measure, and evidence from both parties, it is the Commission's

¹²¹ Exhibit 27691-X0111, Carmen Felzien and Doreen Brown Information Request, PDF page 2; Exhibit 27691-X0137, 2023-03-06 Evidence Carmen Felzien for Doreen Brown, PDF pages 1 to 4; Exhibit 27691-X0147 Master Final Evidence Submission, PDF page 56, and Exhibit 27691-X0148, Attachment #1 - Felzien Family Evidence Submission, PDF pages 29 to 31.

¹²² Exhibit 27691-X0137, 2023-03-06 Evidence Carmen Felzien for Doreen Brown, PDF pages 11 and 12.

¹²³ Exhibit 27691-X0096, Clean Version 21452763_Capital Power_Halkirk2_EE_Rev0, PDF page 66.

¹²⁴ Exhibit 27691-X0209, Appendix G_WSP Reply Evidence_Surface Drainage.

¹²⁵ Transcript, Volume 3, page 739, lines 10 to 21.

¹²⁶ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 102.

expectation that Capital Power will assess and maintain drainages and install a culvert at the T20 access road crossing if necessary to do so, as well as at any other locations it determines necessary. Regarding the planning and installation of culverts in general, the Commission notes that Capital Power is required to consult with AEPA in regard to the potential alteration of drainage patterns when submitting requests for *Water Act* approvals.

4.2.3.4 Water wells

242. Barry Jackson raised concerns that the increased traffic on Township Road 400 during project construction would impact his water well, which was hand dug in 1911, and on which he relies on for watering cattle.

243. In the original proceeding, Capital Power committed to testing the groundwater quality and level at all residential and stock wells within 500 metres of a turbine location. Testing would be conducted prior to the construction of the turbine foundation to establish baseline conditions, and then conducted one year after cessation of ground disturbance. In the event that impacts to groundwater wells occurred due to construction or operations related to the project, Capital Power committed to working with impacted landowners to implement appropriate mitigation. During the hearing in this proceeding, Capital Power confirmed that its commitments regarding groundwater well testing remained valid.

244. B. Jackson's well is not captured by Capital Power's existing commitment to test groundwater quality and levels because it is not located within 500 metres of a turbine location. However, it is located approximately 79 feet from Township Road 400. B. Jackson acknowledged that Capital Power has committed to mitigating any damage to groundwater wells caused by the project, but wanted well testing to be done prior to construction to establish a baseline.¹²⁷

245. Capital Power would not commit to performing baseline testing on B. Jackson's well on the basis that there are no known studies indicating that traffic vibrations cause siltation in water wells. It added that the amendment has resulted in a reduction in the total number of turbines, and a corresponding decrease in the total number of project components to be delivered on Township Road 400.¹²⁸ Capital Power submitted that, while it would be prepared to investigate should a problem with B. Jackson's well water arise as a result of the project, other factors may impact the well, including whether it has reached the end of its life given its age, or natural variations in well water volumes or quality over time.¹²⁹ Capital Power argued that one well test will not establish a causal link between its activities and the well, so conducting baseline testing is of questionable relevance.

246. The Commission observes that Capital Power has committed to testing groundwater quality and level at all residential and stock wells within 500 metres of a turbine, despite its asserted belief that any vibrations from wind turbine construction and operation are of such a minor nature that they could not reasonably lead to impacts on the subsurface structures of the soils and affect groundwater wells. Capital Power first made this commitment in the original proceeding, in part because of evidence from landowners about the scarcity of water in the

¹²⁷ Exhibit 27691-X0154, Attachment #7 - Barry Jackson and Carol Morel evidence, PDF page 2.

¹²⁸ Transcript, Volume 1, page 164, lines 13 to 21.

¹²⁹ Transcript, Volume 1, page 166, lines 9 to page 168, line 23.

project area and the degree of apprehension the project raised regarding water supplies.¹³⁰ Commission counsel questioned Capital Power on why it had declined to test B. Jackson's well despite committing to testing similar wells which it similarly did not believe could be impacted by construction and operation activities related to the project. In response, Capital Power simply re-iterated that there was nothing to suggest that its construction and operation facilities at the project could impact B. Jackson's well and that the requested testing would be insufficient to establish a causal link between the two.

247. The Commission understands that Capital Power has committed to working with landowners to implement mitigation should impacts to groundwater wells arise due to construction or operation. The Commission is of the view that conducting baseline testing before and after construction would assist with meeting this commitment, should it be necessary, by helping to identify the existence and extent of any damage to wells. Given that Capital Power has committed to testing other wells, the Commission does not consider that the addition of testing B. Jackson's well is unduly onerous. However, the Commission acknowledges the age and characteristics of B. Jackson's well and that not all changes to this well may be attributable to project construction. Nevertheless, the Commission imposes the following condition of approval:

- g. Capital Power shall test groundwater quality and level at all residential and stock wells within 500 metres of a wind turbine location. Testing shall also occur at Barry Jackson's well, located approximately 79 feet from Township Road 400. Testing will be conducted prior to the construction of the wind turbine foundation to establish baseline conditions, and then conducted one year after cessation of ground disturbance. Groundwater quality testing will analyze parameters listed in the Level C Diagnostic Groundwater Suite as described in *Water Quality Testing: Drinking Water* issued by Alberta Agriculture and Forestry. In the event there are impacts to groundwater wells due to construction and/or operations related to the project, Capital Power will work with impacted landowners to implement appropriate mitigation on a case-by-case basis.

4.2.3.5 Weeds and crop disease

248. Clubroot is a soil-borne crop disease known to be present within Paintearth County. In order to reduce or eliminate the spread of clubroot and other crop diseases, as well as weeds, Paintearth County Land Use Bylaw No. 698-21 requires that during the construction period all wind projects must meet the minimum standard of thoroughly cleaning all equipment that moves from field to field prior to entering a new field.¹³¹

249. Capital Power submitted that it discussed weed and soil disease prevention plans with a representative of Paintearth County, as well as with participating landowners, and that these discussions informed its commitments made during this proceeding regarding weed and crop disease management. Capital Power's mitigations for preventing the introduction and spread of weeds and crop diseases focus on preconstruction surveys, ensuring that equipment arriving to and entering the project area is in clean condition, the implementation of mitigation plans,

¹³⁰ Exhibit 22563-X0184, Transmittal Letter to FETAZES encl. Capital Power Generation Services Inc., PDF page 14, paragraph 48.

¹³¹ Exhibit 27691-X0148, Attachment #1 - Felzien Family Evidence Submission, PDF pages 33 to 34.

adherence to relevant legislation, regular land and equipment inspections, control techniques for weed eradication or spread prevention, and the use of seed mixes.¹³²

250. The PPA raised concerns about the inadequacy of Capital Power's weed and crop disease prevention plans. For example, the PPA submitted that the mitigations proposed by Capital Power did not meet the requirements in Paintearth County bylaws as Capital Power has proposed cleaning equipment when moving between areas owned by different landowners, rather than cleaning between fields. It also submitted that Capital Power's proposed standard of equipment cleanliness was not satisfactory as it only requires that equipment entering the project area be free from soils and vegetative debris, rather than requiring that the equipment be disinfected. In addition, PPA members expressed concerns that Capital Power's construction crews were not following the mitigation plans. To support his concerns, D. Felzien provided evidence of what he explained was equipment that had recently conducted geotechnical surveys near proposed turbine locations, and that did not appear to be clean and that was not cleaned between fields.¹³³

251. The PPA requested that the Commission require Capital Power to take necessary steps to prevent weeds and crop disease from being spread between fields, including cleanings all construction equipment entering the wind project area and between titled parcels, as well as following the Paintearth County bylaw's requirements. Additionally, the PPA requested that the Commission require Capital Power to hire a third-party environmental monitor.¹³⁴

252. The Commission has determined that the PPA's requests are reasonable and therefore imposes the following condition of approval:

- h. Capital Power shall implement a clubroot mitigation protocol in accordance with Paintearth County's land use bylaws, which require appropriate cleaning between quarter sections. Capital Power shall retain an experienced third-party environmental monitor responsible for mitigation verification, record keeping, and the establishment of the appropriate frequency of monitoring (as needed) to ensure mitigations are being employed and followed at appropriate times. The third-party environmental monitor shall have the authority to halt construction if mitigation measures are not being implemented.

253. The Commission expects that Capital Power will still uphold other commitments and mitigations that relate to the prevention of clubroot and weed introduction and spread.

4.2.3.6 Reclamation

254. The PPA raised concerns regarding whether sufficient funds would be available at the project end of life to cover the cost of decommissioning and reclamation. The PPA acknowledged that reclamation had been considered by the Commission in the original proceeding, but submitted that the issue remained within scope of the amendment proceeding because, among other reasons, the turbine foundations would be larger as a result of the amendment and therefore costlier to reclaim.

255. Capital Power confirmed that the project owner will, and is required to, obtain a reclamation certificate from AEPA at the end of the project's life.¹³⁵ Capital Power estimated a

¹³² Exhibit 27691-X0207, Appendix E_WSP Reply Evidence_Environment, PDF pages 14 to 16.

¹³³ Exhibit 27691-X0148, Attachment #1 - Felzien Family Evidence Submission, PDF pages 34 to 36.

¹³⁴ Transcript, Volume 5, page 1102, lines 9 to 22.

¹³⁵ Transcript, Volume 1, page 173, lines 5 to 12.

remaining reclamation cost of \$2.23 million (\$2.022 million USD) after factoring in salvage value,¹³⁶ and stated that its corporate accounting practices will provide for funds to be available to cover this cost. Capital Power also submitted a Conceptual Conservation and Reclamation Plan, and committed to conducting pre-disturbance site assessments, interim monitoring site assessments, and surveys required to obtain a reclamation certificate in accordance with the *Conservation and Reclamation Directive for Renewable Energy Operations* or as required by any other applicable laws and regulations in effect in Alberta at the time of decommissioning.¹³⁷

256. The Commission is satisfied that these commitments reasonably address end-of-life environmental concerns for the project.

4.3 Goldeye 620S Substation

257. Capital Power applied to move the location of the approved Goldeye 620S Substation from the northeast quarter of Section 35, Township 39, Range 15, west of the Fourth Meridian, to the southwest quarter of Section 12, Township 40, Range 15, west of the Fourth Meridian. Capital Power stated that the substation was relocated due to a revised interconnection configuration, which would reduce the length of the transmission line required to connect the project by approximately two kilometres. No change to the previously approved equipment was sought.

258. The PPA generally included the substation as part of other concerns advanced about the project, though specific reference was made to the substation in relation to fire breaks (addressed above in Section 4.2.2.4) and proximity to the Copelands. The PPA also raised concerns about the prospect of contaminants such as petroleum lubricants being released from project, including the substation, and ending up in waterways. However, apart from raising this concern, the issue was not pursued by the PPA and no evidence was produced to support this concern.

259. The Commission has reviewed the application for the amended substation and has determined that the new location is acceptable. The concerns raised by interveners in relation to the substation were not substantiated. Further, the environmental mitigation that Capital Power has committed to in its environmental evaluation includes spill prevention, containment, regrading at the substation, and response measures to avoid any dispersal of harmful substances onto the ground or into waterbodies.¹³⁸

260. The application to construct and operate the transmission line necessary to connect the project has not been brought before the Commission and is not under consideration in this proceeding. The Commission will consider the proposed transmission connection when such an application is filed. However, the Commission recognizes a general benefit in minimizing the transmission development necessary to connect the project to the electrical grid.

¹³⁶ Exhibit 27691-X0009, Halkirk 2 Power Project Amendment Application, PDF page 25.

¹³⁷ Exhibit 27691-X0012, Attachment J - Conceptual Conservation and Reclamation Plan, PDF pages 5, 6, 12, and 15.

¹³⁸ Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 76; Exhibit 27691-X0005.01, Attachment H - Environmental Evaluation, PDF page 232.

5 Conclusion

261. The Commission explained the legislative scheme in place for the consideration and approval of power plants in Alberta in Section 3 of this decision. In this conclusion, the Commission summarizes its findings made above, and applies the legislative scheme in light of those findings. In doing so, the Commission weighs the benefits of the project against its negative impacts. The Commission has considered the incremental impacts of the amended project as compared to the original project, and any impacts to aerodrome use and aviation safety resulting from the proposed amended project in performing this weighing.

262. In accordance with Section 17 of the *Alberta Utilities Commission Act*, in addition to any other matters it may or must consider, the Commission must give consideration to whether approval of the project is in the public interest having regard to its social and economic effects and effects on the environment. The Commission considers that the public interest will be largely met if an application complies with existing regulatory standards, and the project's public benefits outweigh its negative impacts, including those experienced by more discrete members of the public.

263. The Commission finds that the applications meet the informational and other requirements set out in Rule 007. The Commission also finds that Capital Power's participant involvement program meets the regulatory requirements of Rule 007. Further, the Commission is satisfied that noise from the project is likely to meet the requirements of Rule 012, and that conditions are in place to ensure compliance with Rule 012.

264. The Commission has found that some of the concerns discussed in Section 4 are not associated with incremental adverse impacts. In particular, the amendments to the project will not increase certain environmental impacts, such as those on wildlife and wetlands, and overall visual impacts. However, in relation to other concerns, the Commission found that there may be incremental adverse impacts associated with the amendment applications. The Commission must therefore weigh those adverse impacts against the project's public benefits, in order to determine whether the project is in the public interest.

265. Based on Capital Power's commitments and mitigations, and the conditions imposed by the Commission, the Commission is satisfied that some of the incremental adverse impacts can be mitigated to an acceptable degree. This includes incremental impacts related to aerial spraying, shadow flicker, and certain construction traffic impacts.

266. With respect to the amended project's impacts on aviation safety and aerodrome use, for the reasons expressed in Section 4.1, the Commission determined that turbines T24 and T25 must be removed as potential turbine locations, and imposed a condition to address outstanding and unresolved concerns about the safety of approving turbines T10, T18, and T27. The Commission acknowledges these measures will not entirely mitigate the amended project's impacts to aerodrome use, and in particular, that use of the Maier aerodrome will be constrained. The Commission has considered this in weighing the adverse impacts and benefits of the amended project.

267. Capital Power submitted that the project would have the broad benefit of generating emission-free electricity, and would also provide significant benefits not only to Albertans generally, but also to the residents of Paintearth County through local tax revenue (estimated at

\$56 million over the approximately 30-year-life of the project), support for local community programs, increased economic activity for local suppliers and businesses, and job opportunities for local contractors throughout the life cycle of the project. The project is estimated to create 200 construction jobs over a 12-to-14-month period.

268. The Commission recognizes that there is no universal definition of what comprises the public interest and that the interests of individual members of the public will not necessarily be aligned or mutually achievable. The Commission also recognizes that, in some cases, the benefits and negative impacts of a project will not be evenly allocated across various stakeholder groups. The Commission has taken this into consideration in balancing the costs and benefits as a whole, and assessing whether the larger public interest favours the approval of this project.

269. Another consideration is the Commission's expectation that Capital Power will abide by the conditions of approval, as well as the other commitments and mitigations Capital Power has confirmed on the record of this proceeding.¹³⁹ The Commission also notes that there are a number of existing conditions from approvals 25047-D02-2020¹⁴⁰ and 22563-D02-2018¹⁴¹ that are not explicitly discussed in this decision. These conditions will be carried over in the new approval for the project, except insofar as they are no longer relevant to the amended layout or no longer reflect current regulatory standards.

270. Overall, for the reasons outlined in this decision, and subject to the removal of turbines T24 and T25 as potential turbine locations and compliance with the conditions in Appendix C, the Commission finds that Capital Power has satisfied the requirements of Rule 007 and Rule 012, and that the negative impacts of the project can be mitigated to an acceptable degree and are outweighed by the benefits of the project.

271. The Commission is satisfied that approval of the project is consistent with the purposes of both the *Hydro and Electric Energy Act* and the *Electric Utilities Act* in that it will result in the safe, economic, orderly and efficient development of a new generation facility that will contribute to an efficient electricity market based on fair and open competition.

272. For the reasons discussed, the Commission finds that the approval of the project, with the exception of turbines T24 and T25, is in the public interest.

¹³⁹ A list of all commitments undertaken by Capital Power in this proceeding and in previous proceedings related to the Halkirk 2 Wind Power Project can be viewed at Exhibit 27691-X0262.

¹⁴⁰ Power Plant Approval 25047-D02-2020, Proceeding 25047, Application 25047-A001, March 5, 2020.

¹⁴¹ Power Plant Approval 22563-D02-2018, Proceeding 22563, Application 22563-A001, April 11, 2018.

6 Decision

273. Pursuant to sections 11 and 19 of the *Hydro and Electric Energy Act*, the Commission approves Application 27691-A001 and grants Capital Power Generation Services Inc. the approval set out in Appendix 1 – Power Plant Approval 27691-D02-2023 to amend, construct and operate the Halkirk 2 Wind Power Project.

274. Pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, the Commission approves Application 27691-A002 and grants Capital Power Generation Services Inc. the approval set out in Appendix 2 – Substation Permit and Licence 27691-D03-2023 to amend, construct and operate Goldeye 620S Substation.

275. The appendixes will be distributed separately.

Dated on July 27, 2023.

Alberta Utilities Commission

(original signed by)

Vera Slawinski
Panel Chair

(original signed by)

Renée Marx
Commission Member

(original signed by)

John McCarthy
Acting Commission Member

Appendix A – Proceeding participants

Name of organization (abbreviation) Company name of counsel or representative
Capital Power Generation Services Inc. Gavin Fitch Michael Barbero
Gerard and Donna Fetaz Michael Niven Sirisha Valupadas
Paintearth Protection Association (PPA) Daryl Bennett
Doreen Brown Carmen Felzien
Doreen Blumhagen

Alberta Utilities Commission Commission panel Vera Slawinski, Panel Chair Renée Marx, Commission Member John McCarthy, Commission Member Commission staff Meghan Anderson (Commission counsel) Alyssa Marshall (Commission counsel) Victor Choy Kloria Wen Glenn Harasym Joan Yu
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Appendix B – Oral hearing – registered appearances

Name of organization (abbreviation) Name of counsel or representative	Witnesses
Capital Power Generation Services Inc. Gavin Fitch, McLennan Ross LLP, counsel Michael Barbero, McLennan Ross LLP, counsel	Wilhelm Danek Joal Gardener Christopher Ollson Robert Telford Charles Cormier Corey De La Mare Andrew Faszler Nathan Schmidt
Gerard and Donna Fetaz Michael Niven, Carscallen LLP, counsel Sirisha Valupadas, Carscallen LLP, counsel	Glenn Grenier
Paintearth Protection Association (PPA) Daryl Bennett, representative	Steve Maier Dwayne Felzien Barry Jackson Carol Morel Brian Perreault Bob Copeland Pam Copeland Doug Potter Lynne Potter Gerald Borgel Brenda Anderson
Doreen Brown Carmen Felzien	

Appendix C – Summary of Commission conditions of approval

This section is intended to provide a summary of all conditions of approval specified in the decision for the convenience of readers. Conditions that require subsequent filings with the Commission will be tracked as directions in the AUC's eFiling System. In the event of any difference between the directions and conditions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

The following are conditions of Decision 27691-D01-2023 that require subsequent filings with the Commission and will be included as conditions of Power Plant Approval 27691-D02-2023:

- a. Once Capital Power has finalized its equipment selection and turbine locations for the Halkirk 2 Wind Power Project, it must file a final project update to the Commission to confirm that the project has stayed within the final project update specified allowances for wind power plants. The final project update must be filed at least 90 days prior to the start of construction. Should Capital Power wish to proceed with turbines T10, T18, and T27, it must provide evidence demonstrating that any potential downwind turbulence caused by these turbines does not constitute a hazard for aircraft, or that the hazard posed by such downwind turbulence can be adequately mitigated. Evidence filed should consider both the characteristics of downwind turbulence (i.e., distance, direction, favourable and unfavourable conditions) and the effects of turbulence on the operation of aircraft.
- c. Capital Power shall conduct a post-construction comprehensive sound level (CSL) survey, including an evaluation of low frequency noise, at receptors R015, R027, R036, R046, and R081. The post-construction CSL survey must be conducted under representative conditions and in accordance with Rule 012: *Noise Control*. Within one year after the project commences operations, Capital Power shall file a report with the Commission presenting measurements and summarizing the results of the post-construction CSL survey.
- d. Capital Power shall, at the time it submits the final project update, confirm the number of hours of shadow flicker that receptors R007 and R034 are predicted to experience in a year.
- e. Capital Power shall file a report with the Commission detailing any complaints or concerns it receives from local landowners regarding shadow flicker from the project during its first year of operation, as well as Capital Power's response to the complaints or concerns. If Capital Power implements mitigation to reduce shadow flicker impacts, the report shall detail the mitigation measures and associated landowners' feedback regarding the mitigation. Capital Power shall file this report no later than 13 months after the project becomes operational.
- f. Capital Power shall submit an annual post-construction monitoring survey report, to Alberta Environment and Protected Areas (AEPA) and the Commission no later than January 31 of the year following the mortality monitoring period, and on or before the same date every subsequent year for which AEPA requires surveys pursuant to subsection 3(3) of Rule 033: *Post-approval Monitoring Requirements for Wind and Solar Power Plants* and Section 4.0 of the Post-Construction Survey Protocols for Wind and Solar Energy Projects.

The following are conditions of Decision 27691-D01-2023 that do not or may require a subsequent filing with the Commission:

- b. Capital Power shall implement a turbine shut-off protocol to be followed when it receives a request at least 24 hours in advance of impacted aerial spraying operations. The protocol will include: (i) the direct phone number for the site supervisor and the remote operations control centre; (ii) a process to identify which localized turbines should be paused; (iii) a confirmation of dates, times and duration for planned aerial spraying activities; (iv) a process to ensure the site is safe and secure for spraying to occur; and (v) a process to ensure that Capital Power is notified when spraying is completed. Capital Power shall update the protocol as needed, and provide a copy of the protocol and any updates to all persons who expressed concerns about aerial spraying at any point during its consultation for this proceeding, and any landowners or tenants who express concerns about impacts to aerial spraying as a result of the project in the future.
- g. Capital Power shall test groundwater quality and level at all residential and stock wells within 500 metres of a wind turbine location. Testing shall also occur at Barry Jackson's well, located approximately 79 feet from Township Road 400. Testing will be conducted prior to the construction of the wind turbine foundation to establish baseline conditions, and then conducted one year after cessation of ground disturbance. Groundwater quality testing will analyze parameters listed in the Level C Diagnostic Groundwater Suite as described in *Water Quality Testing: Drinking Water* issued by Alberta Agriculture and Forestry. In the event there are impacts to groundwater wells due to construction and/or operations related to the project, Capital Power will work with impacted landowners to implement appropriate mitigation on a case-by-case basis.
- h. Capital Power shall implement a clubroot mitigation protocol in accordance with Paintearth County's land use bylaws, which require appropriate cleaning between quarter sections. Capital Power shall retain an experienced third-party environmental monitor responsible for mitigation verification, record keeping, and the establishment of the appropriate frequency of monitoring (as needed) to ensure mitigations are being employed and followed at appropriate times. The third-party environmental monitor shall have the authority to halt construction if mitigation measures are not being implemented.