



## **Greengate Power Corporation**

### **Blackspring Ridge Wind Project**

**March 9, 2011**



**The Alberta Utilities Commission**  
Decision 2011-085: Greengate Power Corporation  
Blackspring Ridge Wind Project  
Application No. 1604777  
Proceeding ID No. 190

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## **1 Introduction**

1. On February 5, 2009, Greengate Power Corporation (Greengate) filed Application No. 1604777 (the application) with the Alberta Utilities Commission (AUC or the Commission), pursuant to Section 11 of the *Hydro and Electric Energy Act*, for approval to construct and operate a 300-megawatt (MW) wind generation project to be known as Blackspring Ridge Wind Project (the power plant). The application was entered as Proceeding ID No. 190 in the AUC's electronic proceeding system. The proposed project would be located approximately 30 kilometres (km) north of the City of Lethbridge.

2. On January 26, 2010, Greengate informed the Commission of a possible change in wind turbine type. On October 15, 2010, Greengate amended its application, modifying the turbine type from GE 1.5 sle 1.5 MW turbines to Vestas V90 1.8 MW turbines. The new Vestas wind turbines have a rotor diameter of 90 metres (m), which is 13 m longer than that of the GE wind turbines. The hub height would remain 80 m above the ground. The Vestas turbines will be installed at the same locations as identified in the application for the GE wind turbines. However, in the amended application, Greengate has applied for 166 turbines instead of 200 turbines. With 166 wind turbines of higher generating capacity, the total installed generating capacity of the power plant remains 300 MW. A 34.5-kilovolt (kV) gathering system, consisting of overhead and underground power lines, is applied for as part of the power plant.

3. Section 11 of the *Hydro and Electric Energy Act* requires a person proposing to construct or operate a power plant to obtain an approval from the Commission.

4. In making a decision on the application submitted by Greengate, the Commission must consider:

- Whether the approval of the application is in the public interest having regard to the social and economic effects of the development and the effects of the development on the environment, in accordance with Section 17 of the *Alberta Utilities Commission Act*.
- Whether the application meets all the requirements of AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations* (AUC Rule 007).

## 2 Application

5. In its amended application, Greengate changed the power plant design as follows:

- The total number of wind turbines decreased from 200 to 166.
- The turbine type changed from GE 1.5 sle 1.5 MW turbines to Vestas V90 1.8 MW turbines.
- The 34.5-kV gathering system alignment was adjusted to accommodate the removed structures.

6. The amended application proposed the construction and operation of the amended power plant consisting of 166 wind turbines, each rated at 1.8 MW, for a total installed capacity of 300 MW.

7. The amended power plant would be located on privately-owned lands under wind energy easement agreements as described below:

- Sections 16, 18, 20, 21, 28, 29, 30, 31, 32 and 33, Township 13, Range 21, west of the Fourth Meridian.
- Sections 2, 3, 4, 6, 7, 8, 10, 11, 15, 17, 18, 19 and 20, Township 14, Range 21, west of the Fourth Meridian.
- Sections 8, 9, 10, 13, 15, 16, 17, 18, 19, 20, 21, 23, 25, 26, 27, 29, 32, 34, 35 and 36, Township 13, Range 22, west of the Fourth Meridian.
- Sections 1, 2, 3, 4, 8, 9, 10, 11, 12, 14, 16, 17, 22, 23, 24, 25, 26 and 27, Township 14, Range 22, west of the Fourth Meridian.

8. A 34.5-kV collector system, consisting of overhead and underground power lines, was proposed as part of the application for the purpose of collecting and transmitting electric power from each wind turbine to a substation. Greengate filed a separate application for the substation, which was registered as Application No. 1605207/Proceeding ID No. 247. Greengate provided a map of the location of the collector lines and cross-sectional drawings of locations where the collector lines would cross existing road allowances. With the exception of road crossings, the collector system would be located on privately-owned lands pursuant to the above-mentioned wind energy easement agreements.

9. In the future, additional electric facilities will be needed to connect the proposed substation to the Alberta Interconnected Electric System.

10. Greengate submitted that its participant involvement program (PIP) consisted of face to face meetings, telephone conversations, public open-house meetings, project information mailings, and status-update letters.

11. Greengate stated that its PIP for the power plant started November 6, 2007, with an introductory meeting and information session with Vulcan County administrators. A follow-up

meeting was held on February 14, 2008, and an information session with Vulcan County Council was held March 5, 2008.

12. A general mail out, consisting of general project information, was distributed to 207 stakeholders within two kilometres of the project area on June 10, 2008. Greengate held a public open house on June 24, 2008, in Carmangay, Alberta. The open house was advertised in the Vulcan Advocate on June 11 and 18, 2008, and in the Lethbridge Herald on June 7, 14, and 21, 2008. The open house presented information on the project description, environmental programs, visual simulations, and noise comparisons. A total of 56 members of the public attended the open house.

13. Project update letters were mailed to stakeholders and interested parties on September 10, 2008, providing an updated status of the project and updated locations of the wind turbines. A project specific information package was also delivered to all landowners, residents and occupants within 2000 m of the project area. As well, stakeholders within 800 m of the project area were contacted by telephone, face-to-face, or both.

14. Greengate provided a summary of the concerns received through its PIP and the response Greengate provided to each party. The questions and concerns identified by stakeholders included visual impacts, noise impacts, affects on wildlife, environmental affects, land value and affects on existing land use. Greengate indicated that one stakeholder had an existing concern related to land value.

15. Greengate indicated that FortisAlberta Inc. (Fortis) had concerns with the project related to impacts on planning for new power distribution infrastructure in the area where the power plant would be. Greengate modified the project to limit the use of any public road allowances to crossings only. Fortis subsequently withdrew its objection to the project on June 29, 2009.

16. Greengate consulted with First Nations near the project area. A Traditional Land Use Assessment provided by the Kainaiwa Nation confirmed that there were three sections of land within the project area which contained Blackfoot traditional archaeological features. The features included burial grounds, effigies, tipi rings and cairns. Greengate agreed to remove wind turbines from these sections of land in order to resolve the issue raised by the Kainaiwa Nation.

17. Greengate submitted that the project is entirely located on privately-owned land in Vulcan County. Vulcan County granted conditional municipal development approval of the power plant. The conditions of the approval are:

- a. Compliance with all setback requirements.
- b. Compliance with all Energy Resources Conservation Board requirements.
- c. All towers shall have non-reflective matte finish in a light or neutral colour tone.
- d. No tower or blade shall have lettering or advertising upon them except for the manufacturer's identification number or symbol.
- e. All towers, blades and nacelles shall be of new construction.

- f. All new approaches shall be applied for in accordance with Vulcan County's current approach requirements.
- g. Greengate identified the haul roads to be used at the time of construction.

18. Greengate contracted Helimax Energy Inc. (Helimax) to perform a noise impact assessment (NIA) for the power plant as it was originally proposed. That NIA was dated February 2, 2009. An updated NIA was conducted by Helimax, and dated October 4, 2010, for the amended power plant. The predicted sound level of the proposed power plant was found to be in compliance with permissible sound levels at all receptors in accordance with AUC Rule 012: *Noise Control* (AUC Rule 012).

19. An environmental overview report (EOR) was prepared in February 2009 by Jacques Whitford AXYS Ltd. for the power plant as it was originally proposed. Greengate submitted that an amendment to the EOR was not required for the amended power plant as no new lands were affected by the amendment. The EOR outlined the existing vegetation and wildlife conditions in the project area, identified project vegetation and project-wildlife interactions, potential effects of the interactions and measures that would be implemented by Greengate to mitigate the effects. The EOR identified 18 wind turbines located on native prairie and seven wind turbines within 30 m of a mapped wetland boundary. No rare plants were found in the project area. Active raptor nests were observed and the turbine siting was adjusted to include setbacks of 500 m from the nests.

20. The EOR stated that potential vegetation issues from the power plant would be restricted to reduction or loss of native prairies, wetland community diversity, rare plant species, species diversity, and the introduction and spread of weeds. Mitigation measures for these issues were recommended in the EOR.

21. The effects of construction and the introduction of weeds on native prairie habitats could be mitigated by utilizing existing roads when possible and assuring equipment is cleaned of mud and debris prior to entering native prairie sites. The EOR contained recommendations to Greengate that any effects to wetlands from the power plant should be compensated following Alberta Environment guidelines and direct effects from connector lines, construction and service roads should be minimized to avoid wetlands as much as feasible. While no rare plants were found, rare plant surveys should be done prior to construction for towers occurring within 30 m of a wetland. Effects on species diversity were unlikely as the area has been substantially converted to agricultural cropland.

22. The EOR identified potential wildlife issues from the power plant including impacts on migratory birds in native vegetation areas, the presence of active raptor nests, amphibian habitat in wetlands, increase in water fowl near Keho Lake and Travers Reservoir, the presence of Swainson's Hawks in the area, which are attracted to the grasshopper population, and migrating bats. Setbacks from wetlands were established and turbines near raptor nests were adjusted to allow for a setback of 500 m. The EOR stated that prior to wind turbine construction, each location would be surveyed again for any wildlife habitat features in the Alberta Sustainable Resource Development (ASRD) timing and setback guidelines. If habitat features are found that have setback restrictions, potential wind turbine adjustments will be discussed with ASRD. Greengate has incorporated the recommendations in the EOR into the design of the project and siting of the wind turbines.



23. ASRD originally had concerns with the seven wind turbines located within 30 m of mapped wetlands. Upon further investigation, it was determined that these lands were incorrectly identified and were, in fact, pastures and cultivated fields. ASRD provided sign-off on the power plant on June 2, 2009, and indicated that there were no further requirements for mitigation in the project area. The ASRD provided a further sign-off for the amended power plant on September 20, 2010. The ASRD sign-off indicated that Greengate adopted ASRD's mitigation plan which included:

- Maintaining a buffer of 100 m from any permanent water body for all new roads, tower or other structures constructed for the project.
- Maintaining a buffer of 30 m from any ephemeral wetland for all roads, towers or other structures constructed for the project.

24. Greengate contacted Alberta Culture and Community Spirit (ACCS) and submitted a Historical Resources Overview for clearance approval, per the requirements of AUC Rule 007. ACCS recommended that a Historical Resources Impact Assessment be conducted by Greengate. Greengate conducted a Historical Resources Impact Assessment, which was sent to ACCS on February 3, 2009.

25. Greengate submitted the following approvals or letters from other agencies in regard to the power plant:

- Transport Canada approval
- NAV Canada non-objection letter
- Vulcan County development permit

### **3 Application review process**

26. On March 12, 2009, the Commission issued Information Request #1 to Greengate. Greengate responded on March 20, 2009, with additional information related to public consultation details, plant site drawings, NIA, load flow diagrams and turbine technical data.

27. On March 31, 2009, Fortis submitted a statement of intent to participate, citing concerns with the collector system placed on public road allowances. Fortis stated that the collector system, as applied for, would interfere with its distribution planning for new infrastructure in the area. Fortis withdrew its concerns on June 29, 2009, after Greengate modified its collector system to be located on private lands.

28. On April 2, 2009, the Commission issued Information Request #2 to Greengate to address environmental concerns with ASRD guidelines, primarily with regard to wetlands. Greengate submitted its responses on May 6, 2009. Upon further investigation, it was determined that the lands in question had been incorrectly identified as wetlands. This error was corrected.

29. On May 8, 2009, the Commission issued Information Request #3 to Greengate. Greengate responded on May 14, 22, and 28, 2009, with information on the siting of the collector system and wind turbines. Sign-off from ASRD was received on June 2, 2009.
30. On June 16, 2009, the Commission issued Information Request #4 to Greengate requesting NIA and pipeline crossings information. Greengate responded to this information request on June 16 and June 25, 2009. Greengate provided contact for the various pipeline companies who would be affected by the project so that these companies could be added to the distribution list for the project.
31. On June 25, 2009, the Commission issued Information Request #5 to Greengate requesting further information on the distance from all turbines to various water bodies. Greengate responded to these questions on July 10, 2009, and provided the requested information.
32. On August 4, 2009, the Commission issued Information Request #6 to Greengate. The Commission had concerns with the NIA as it indicated no major energy facilities were within the project area. The Penn West Carmangay Oil Battery was located during a site survey within the project area. The Commission requested cumulative noise assessments with any additional energy facilities in the area. In its response regarding NIA questions, Greengate indicated that there are no major energy facilities in the project area and provided clarification on modeling details. Greengate provided additional clarification on the distance from wind turbines to the closest water body. Greengate provided a revised NIA on January 5, 2010, addressing the presence of the energy facility. The revised NIA indicated that the wind farm was within noise guidelines.
33. Information Request #7 was issued on September 22, 2009, requesting clarification on the location of wind turbine 78. Greengate provided responses to all outstanding requests on January 5, 2010.
34. On January 26, 2010, Greengate indicated that it may request amendments to utilize a different model of wind turbine. The application was put on hold until Greengate determined whether it required an amendment to its application.
35. Greengate filed an amendment application on October 15, 2010. The amendment changed the turbine type from GE 1.5 sle 1.5 MW turbines to Vestas V90 1.8 MW turbines, resulting in the removal of 34 wind turbines to maintain the total nameplate capacity of 300 MW. The remaining turbines would remain in the original locations. Greengate indicated the new power plant layout would decrease visual and environmental impacts due to the decrease in the number of turbines, and the fact that the new turbines were quieter, resulting in reduced noise levels. Additional consultation was conducted only with stakeholders affected by the removed turbines. Greengate provided the Commission with revised sign-off and approvals of the amended power plant from NAV Canada, Transport Canada and Vulcan County. A revised NIA was provided by Greengate and the amended power plant was found to be in compliance with permissible sound levels at all receptors in accordance with AUC Rule 012.
36. Information Request #8 was sent to Greengate on December 8, 2010, seeking clarification of the project area boundary, ASRD sign-off and sound levels of the receptors without ambient sound levels. Greengate provided all responses on December 9 and 15, 2010.

37. On January 10, 2011, the Commission issued a notice of application to interested persons, residents and landowners within two kilometres of the amended power plant. The notice was published in the *Vulcan Advocate* and *Lethbridge Herald*. The deadline for filing submissions to the Commission expired on January 31, 2011, with no submissions of statements of intention to participate.

#### 4 Findings

38. In considering the amended application, the Commission reviewed the *Hydro and Electric Energy Act*, the pertinent provisions of which are as follows: subsections 2(a), 2(b), 2(c), 11, and 19(1). Additionally, the Commission considered Section 17 of the *Alberta Utilities Commission Act* which states:

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

39. The Commission also considered its AUC Rule 007. The Commission finds that Greengate has complied with the application requirements as set out in AUC Rule 007.

40. In Decision [2001-111](#),<sup>1</sup> the Commission's predecessor, the Alberta Energy and Utilities Board described, in the following passage, how it considers the public interest in relation to an application for a power plant:

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

41. The Commission is of the view that this approach to assessing whether a proposed project is in the public interest is consistent with the purpose and intent of the statutory scheme. Further, the Commission considers that this approach provides an effective framework for the assessment of large projects that are the subject of multiple jurisdictions and require multiple approvals or authorizations.

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<sup>1</sup> Decision 2001-111: EPCOR Generation Inc. and EPCOR Power Development Corporation 490-MW Coal-Fired Power Plant, Application No. 2001173, December 21, 2001.

42. The Commission considers that Greengate's public consultation complies with notification and consultation requirements outlined in AUC Rule 007 and that Greengate's PIP was adequate given the nature and scope of the project.

43. In making its decision, the Commission considered that ASRD had reviewed the proposed power plant and is satisfied with the proposed location, proposed mitigation strategies and post-construction mitigation program as reflected in ASRD's sign-off letters.

44. The Commission considers that ASRD's positive assessment of the project's location, proposed mitigation strategies, and post-construction monitoring program is evidence that approval of the proposed project will not result in adverse environmental effects. Based on the EOR and the ASRD sign-off letter the Commission considers that the potential impacts on the environment of the proposed project have been addressed and will be sufficiently mitigated.

45. The Commission notes that, in the event that results from post-construction environmental impact monitoring differ significantly from the information presented in the application and upon which ASRD provided its sign-off, the Commission may consider whether it is necessary to review Greengate's approval pursuant to Section 41 of the *Hydro and Electric Energy Act*. The purpose of such a review would be to address any unanticipated impacts on wildlife or cumulative impacts resulting from the project.

46. The Commission notes that the maximum nighttime sound level at the nearest residence in the study area (receptor ID no. 21 in the revised NIA) is predicted to be 39.5 decibels dBA Leq, which is below permissible sound level of 40 dBA Leq set out in AUC Rule 012. Because of the narrow margin predicted for complying with the noise control standards, the Commission directs Greengate to conduct a post-construction comprehensive noise study for receptor ID no. 21 under representative conditions to verify and ensure that the facility complies with the requirements of AUC Rule 012.

47. For the foregoing reasons, and subject to the conditions and directions herein, the Commission considers that the approval of Greengate's Blackspring Ridge Wind Project is in the public interest.

## 5 Decision

48. Pursuant to Sections 11 of the *Hydro and Electric Energy Act*, and subject to the conditions and directions contained in this decision, the Commission approves the Blackspring Ridge Wind Project and grants Greengate Power Corporation the approval set out in Appendix 1 – Power Plant – Approval No. U2011-98 – March 9, 2011 (Appendix 1 will be distributed separately).

Dated on March 9, 2011.

### The Alberta Utilities Commission

*(original signed by)*

Carolyn Dahl-Rees  
Vice-Chair

*(original signed by)*

Moin A. Yahya  
Commission Member

*(original signed by)*

Neil Jamieson  
Commission Member



**Appendix 1 – Proceeding participants**

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