BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

David Boyd	Chair
J. Dennis O'Brien	Commissioner
Phyllis Reha	Commissioner
Thomas Pugh	Commissioner
Betsy Wergin	Commissioner

In the Matter of the Application of Glacial Ridge Wind, LLC, for a Large Wind Energy Conversion System Site Permit for the Glacial Ridge Wind Project in Pope County	ISSUE DATE: April 27, 2009 DOCKET NO: IP-6650/WS-07-1073 FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER ISSUING A LARGE WIND ENERGY CONVERSION SYSTEM SITE PERMIT TO GLACIAL RIDGE WIND, LLC, FOR THE UP TO 20 MW GLACIAL RIDGE WIND PROJECT

The above-entitled matter came before the Minnesota Public Utilities Commission (Commission) on April 23, 2009, acting on an application by Glacial Ridge Wind, LLC, for a Large Wind Energy Conversion System (LWECS) site permit to construct and operate a 20-Megawatt (MW) combined nameplate capacity LWECS and associated facilities located in Pope County, Minnesota.

STATEMENT OF ISSUE

Should Glacial Ridge Wind, LLC be granted a site permit under Minnesota Statutes Chapter 216F.04 to construct a 20-megawatt Large Wind Energy Conversion System in Sibley County?

Based upon the record and proceedings created in this proceeding, the Public Utilities Commission makes the following:

FINDINGS OF FACT

Background and Procedure

1. On August 10, 2007, Glacial Ridge Wind, LLC (Applicant) filed a site permit application for the Glacial Ridge Wind Project with the Commission for 20 megawatts of nameplate wind power generating capacity. On September 5, 2007, the Applicant filed an amended site permit application. (**Exhibits 1 and 3**).

2. Department of Commerce Office of Energy Security (OES) staff determined that the September 5, 2007, amended application complied with the application requirements of Minnesota Rules 7836.0500. In comments and recommendations to the Commission, dated August 29, 2008, OES Energy Facility Permitting (EFP) staff recommended that the Commission accept the application **(Exhibit 2)**.

3. On September 6, 2007, the Commission issued an order accepting the application for the Glacial Ridge Wind and associated facilities **(Exhibit 4)**.

4. OES EFP staff prepared a notice for the public information meeting to receive comments on the site permit application and the draft site permit. The published notice provided: a) location and date of the public information meeting; b) description of the proposed Project; c) deadline for public comments on the application and draft site permit; d) description of the Commission site permit review process, including procedure to request a contested case hearing; and e) identification of the public advisor. The notice was mailed to meets the requirements of Minnesota Rule 7836.0600, Subp. 2 and Minnesota Rule 7836.0900 to persons on the project list and local governments on September 18 and 19, 2007 **(Exhibits 6 and 7)**.

5. Published notice of the site permit application, the Commission's acceptance of the LWECS application and the public information meeting and opportunity to comment on the draft site permit appeared in the *Pope County Tribune* on September 17, 2007 **(Exhibit 5).** The notice published meets the requirements of Minnesota Rules 7836.0600, Subp. 2 and 7836.0900.

6. EFP staff published notice of the public information meeting and the availability of the draft site permit in the *EQB Monitor*, Volume 31, No. 20, September 24, 2008 **(Exhibit 8).** The published notice contained all of the information required by Minnesota Rules 7836.0900 subp. 1. Notice also appeared on the Commission's web site.

7. The DOC EFP staff held a public information meeting on October 2, 2007, in Glenwood , Minnesota, to receive comments on the site permit application and draft site permit. Approximately 20 people attended at the meeting. DOC EFP staff provided an overview of the permitting process and draft site permit and responded to questions about the permitting process. The Applicant provided an overview of the Project and responded to questions about the Project. Members of the public present at the meeting asked questions related to the impact to drain tile, construction and maintenance of access roads, impact of construction on public roads, the location of the water table, Project decommissioning, location of the project substation, noise, anticipated distance between homes and project components. There were also questions about Project financing and ownership, landowner agreements and compensation, and the anticipated amount and dispersion of tax revenue from the facility. Three comment letters were received by the close of the public comment period on October 24, 2007.

8. No requests for a Contested Case Hearing on the proposed Project were submitted to the Commission.

9. On January 24, 2008, Glacial Ridge Wind, LLC, filed a letter with the Commission describing changed circumstances and the necessity to consider utility scale wind turbine generators between 1.5 – 3.0 MW for the project. **(Exhibit 11)**

10. On March 30, 2009, Glacial Ridge Wind, LLC, filed a Supplemental Filing with the Commission regarding status of the proposed project. **(Exhibit 12)**

The Permittee

11. Glacial Ridge Wind, LLC, a limited-liability corporation based in Minnesota, will own the Project, including all equipment up to the grid interconnection at the new project substation.

12. The Applicant does not own any other wind facilities in Minnesota; however, several of its principals have developed or have ownership interests in other wind projects in Todd County, which were permitted by the county. The Applicant will sell the entire output of the Project.

Project Description

13. The Project Site is located in an area that is actively farmed, and the applicant anticipates that all turbines will be located in agricultural fields. The dominant crops at the Project site are corn and soybeans.

14. The Project site as proposed includes areas under the Applicants control in Sections 1, 11, 12, 13, 14, and 24 of Gilchrist Township and Sections 6 and 18 of Lake Johanna Township in Pope County.

15. The proposed Project will use up to 8 wind turbines, ranging in size from1.5 to 3 MW, and having a combined nominal nameplate capacity of no more than 20 MW. The turbines will have a hub height of approximately 262 – 328 feet (80 – 100 meters). The rotor consists of three blades mounted to a rotor hub. Depending upon the model selected, the rotor diameter of the turbines would be 80 – 100 meters (262 – 328) feet. The hub is attached to the nacelle, which houses the gearbox, generator, brake, cooling system, and other electrical and mechanical systems. The maximum overall height of the wind turbines, with a turbine blade fully extended, is approximately 490 feet above grade. The rotor speed will vary between 9.6 and 16.0 revolutions per minute.

16. Other components of the Project include a concrete and steel foundation for each tower, pad-mounted step-up transformer for each turbine, all-weather class 5 gravel roads, an underground electric energy collection system, a project substation, and one existing permanent meteorological tower. No operations and maintenance facility is planned for the Project.

17. Each turbine is interconnected primarily through an underground electrical collection system at 34.5 kV. Overhead collector lines, if used, would be 34.5 kV

conductor, mounted on wooden poles. The collector lines will feed into the Glacial Ridge Wind Substation (a new substation that is part of this project). The voltage will be stepped up from the 34.5 kV collection system to the transmission system level of 69 kV at the substation and then interconnect to Great River Energy's existing 69 kV transmission line adjacent to the project substation. Final electrical system design and interconnection details will be determined through discussions with the Midwest Independent System Operator (MISO) and Great River Energy.

18. A control panel that houses communication and electronic circuitry is placed in each tower. In addition, a step-up, pad-mounted transformer is necessary for each turbine to collect the power from the turbine and transfer it to a 34.5 kV collection system via underground cables.

19. All turbines and meteorological tower systems will be interconnected with fiber optic communication cables that will be installed underground. The communication cables will run back to a central host computer which will be at the operations and maintenance facility where a supervisory control and data acquisition (SCADA) system will be located. Signals from the current and potential transformers at each of the delivery points will also be fed to the central SCADA host computer. The SCADA system will be able to give status indications of the individual wind turbines and the substation and allow for remote control of the wind turbines locally or from a remote computer. This computerized SCADA network will provide detailed operating and performance information for each wind turbine. The Permittee will maintain a computer program and database for tracking each wind turbine's maintenance history and energy production.

20. The proposed wind turbine site layout in the site permit application shows where the proposed facilities, such as towers, roads and the underground electrical lines, could be located. These locations are subject to change. The Applicant estimates that the proposed facilities will result in the permanent disturbance of approximately 4 acres of land, primarily for roads and towers and the project substation. Roads are expected to be approximately 16 feet wide.

Wind Resource Considerations

21. The Applicants based their analysis of wind resources for the Project on a Wind Logics study and on data collected from a meteorological tower on the proposed site. Based on this analysis, average wind speed at the Project is estimated to be approximately 8.22 m/s (18.3 miles/hour) at 80 meters (262 feet).

22. The wind turbines are sited so as to have good exposure to winds from all directions, with emphasis on exposure to the prevailing south-southeast and south with strong winds also recorded from the north-northwest and northeast. The turbine spacing, according to the site permit application, maximizes use of the available wind and minimizes wake and array losses within the topographical context of the site. Turbines are spaced to minimize wake losses when the winds

are blowing parallel to the turbine rows; the layout incorporates a spacing of 3 RD in the non-prevailing wind directions and a 5 RD spacing in the prevailing wind directions. See site permit at III.E.5.

23. The Applicant anticipates an annual net energy production of approximately 63,000 megawatt hours, assuming a net capacity factor 36 percent.

Land Rights and Easement Agreements

24. In order to build a wind plant, a developer needs to secure site leases and easement option agreements to ensure access to the site for construction and operation of a proposed project, as well as areas sufficient to address required setbacks and turbine spacing. These lease or easement agreements also prohibit landowners from engaging in any activities that might interfere with the execution of the proposed project.

25. The Applicant has obtained lease and easement option agreements and/or rights to such agreements with affected landowners for land within the Project site boundary necessary for installation of the components of the wind farm. These rights and easements will be able to support the Project.

Written Comments and Letters Received

26. By the close of the comment period on October 24, 2007, three comment letters had been received on the proposed Glacial Ridge Wind Project (**Exhibit 9**).

27. On October 10, 2007, Thomas Talke submitted comments in opposition to the Project and on October 18, 2007, James and Fran Syerson submitted comments opposed to the proposed Project. Both the Syersons and Mr. Talke raise visual impacts and potential property values impacts and the reason for their opposition to the project. These issues are addressed in Findings 31, 33, 40-43, and 51-52 and in Permit Conditions III.E.3, III.E.4 and III.E.5 .

28. On October 15, 2007, the Lake Johanna Township Board commented in support of the Project.

29. On November 13, 2007, the U.S. Fish and Wildlife Service (FWS) submitted comments on the proposed Project. FWS's concern is primarily with the placement of one of the wind turbine generators near a federal waterfowl production area. FWS's comments are addressed at Findings 58 – 59 and 62 and in Permit Condition III.C.4 through III.C.6.

Site Criteria

30. Minnesota Rules Chapter 7836 apply to the siting of LWECS. The rules require applicants to provide a substantial amount of information to allow the Commission to determine the potential environmental and human impacts of the proposed Project and whether the Project is compatible with environmental

preservation, sustainable development, and the efficient use of resources. The following analysis addresses the relevant criteria that are to be applied to a LWECS project.

Human Settlement, Public Health and Safety

31. The site is located in an agricultural area, with generally low population density. The project area is zoned as agricultural in Pope County. The site permit conditions (III. C.2 and 3) specify conditions for setbacks from residences and roads. The proposed wind turbine layout exceeds those requirements, minimizing the impact of the proposed LWECS on human settlement, public health and safety. The proposed Project is not expected to affect any water wells (used, unused or unsealed) or any rural water system that services the area.

32. There will be no displacement of existing residences or structures in siting the wind turbines and associated facilities.

33. The Project will comply with the Federal Aviation Administration (FAA) requirements with respect to lighting. See site permit conditions III.E.2 and 4.

34. The Applicant will provide security during construction and operation of the Project, including any appropriate fencing, warning signs, and locks on equipment and facilities. The Applicant will also provide landowners and interested persons with safety information about the Project and its facilities. See site permit condition III.B.15.

35. In winter months ice may accumulate on the wind turbine blades when the turbines are stopped or operating very slowly. Furthermore, the anemometer may ice up at the same time, causing the turbine to shut down during any icing event. As weather conditions change, any ice will normally drop off the blades in relatively small pieces before the turbines resume operation. This is due to flexing of the blades and the blades' smooth surface. Although turbine icing is an infrequent event, it remains important that the turbines are not sited in areas where regular human activity is expected below the turbines or in the immediate proximity during the winter months. There is no regular human activity expected near the turbines during winter months.

36. Each turbine will be clearly labeled to identify each unit and a map of the site with the labeling system will be provided to local authorities as part of the fire protection plan. The Permittee will also file turbine locations with appropriate local 911 services. See permit conditions III.B.15, 16 and 17.

Noise

37. Wind turbines generate noise. The Permittee is required to meet the Minnesota Noise Standards applicable to residential receivers. The Minnesota Noise Standards are enforced by the Minnesota Pollution Control Agency (MPCA) and are found in Minnesota Rule 7030.0040. See site permit condition III.E.3.

38. The site permit requires that wind turbine generators are sited at least 500 feet from occupied dwellings and at a sufficient distance from residential receivers to ensure the Project meets the requirements of the Noise Standards in Minnesota Rules Chapter 7030. See site permit condition III.C.2.

39. Final wind turbine placement will take into account the locations of residential receivers during the micrositing process to ensure compliance with Minnesota Noise Standards. At the request of the Commission, the Permittee shall provide the Commission with results of noise modeling for the final wind turbine layout. See site permit conditions III.E.3 and III.F.2.

Visual Values

40. The visual impacts resulting from wind projects are highly subjective; some people find them to be an attractive addition to the visual landscape, others do not. There are no other wind developments within 20 miles of the Project.

41. The placement of up to 8 wind turbines for the Project will affect the appearance of the project area. The turbine towers and rotor blades will be prominent features on the landscape. The turbines will be visible from Winthrop and from many of the rural residences within and near the project area. The project will also be visible to passing motorists on local, county and state highways.

42. Several mitigation measures will be taken to minimize visual impact. All site permits issued by the Commission require the use of tubular towers; therefore, the turbine towers will be uniform in appearance. The use of underground electrical collectors and feeders will reduce the Project's visual impact.

43. Turbines will be lit with synchronized flashing red lights at night to comply with FAA requirements. No daytime lighting will be required.

Recreational Resources

44. Recreational opportunities in the area include hunting, snowmobiling, biking and wildlife viewing. The Bruce Hitman Heron Rookery Scientific and Natural Area (SNA) is located approximately 1.5 miles east of the Project. The Skarpnes Wildlife Management Area (WMA), is located about one half mile from the Project. Hunting is permitted in designated state Minnesota Department of Natural Resources unless otherwise posted. There are no state or national forests near the project.

45. Recreational activities will not be significantly impacted by the Project. Turbines will not be located in WMAs or in any local parks. Turbine operations are not expected to affect the natural areas in any material way and no adverse impact on wildlife management areas or practices is expected.

Infrastructure

46. The Project is expected to have a minimal effect on the existing infrastructure. The proposed Project will use underground cables for the collector lines. Placement of collector and feeder lines is addressed in the site permit at III.E.7 and 8.

47. The Project will require the use of public roads to deliver construction supplies and materials to the work site. Site permit condition III.B.8(a) addresses this topic. The Site Permit, at III.C.3 requires a minimum setback of 250 feet from the edge of the nearest public road right-of-way. Construction of the Project requires the construction of approximately three miles of access roads that will be located at the project site. The access roads will be approximately 16 feet in width and covered with class 5 gravel, or a similar material. The site permit at III.B. 8 (b) addresses this topic. The access roads will be used to deliver construction supplies and materials to each turbine site. During operation and maintenance of the wind plant, operation and maintenance crews will use access roads to inspect and service wind turbines. Periodic grading or other methods will be used as necessary to maintain road integrity. The Permittee may do this work or contract it out.

48. If access roads must be installed across streams or drainage ways, the Permittee in consultation with the Minnesota Department of Natural Resources (DNR) will design, shape and locate the road so as not to alter the original water flow or drainage patterns. Any work required below the ordinary high water line, such as road crossings or culvert installation, will require a permit from the DNR. This is addressed in permit condition III.B.8(b).

49. The Project will not affect water supplies, railroads, telecommunication facilities, and radio reception. The presence or operation of the wind plant could potentially impact the quality of television reception in the area. Previous work on television reception issues indicates that in some cases new antennas or relocation of existing antennas can restore television signal strength reception. The Permit, at III.D.3, requires the Permittee to address the concerns of residents in the area of the project site before and after the Project construction to document and mitigate any television reception impacts that might occur.

50. Construction, operation, and maintenance of the proposed wind plant will comply with all federal, state and local permit requirements. This is addressed in permit condition III.K.7.

Community Benefits

51. The Project will provide local tax revenues from a production tax on the wind turbines. No significant adverse impact on public services is expected. Wear and tear on roads will occur as a result of the transport of heavy equipment and other materials. The site permit addresses road damages at III.B.8.(a) and (b). Landowners will also receive easement payments from the Permittee.

Effects on Land-Based Economies

52. The proposed Project does not affect any forestry or mineral extraction operations. The proposed Project is located in an agricultural area and will permanently remove of up to 4 acres from agricultural production. Mitigation measures for agricultural land are addressed in the site permit at III.B.2, 3, 4, 5, 6, 7, 8.(b) and (c), 9, and 12.

Archaeological and Historical Resources

53. A records review of the Minnesota Archaeological Inventory and Historic Structures Inventory did not locate any historic structures, historic sites, National Register of Historic Places (NRHP) properties or archaeological sites within the project site. However, the Lake Johanna Historical Society owns a log cabin that was moved over from the Fort Lake Johanna site which was located approximately 2 miles south of its current location. The site permit at III. D.2 requires the Permittee to consult with the Minnesota Historical Society.

54. The site permit at III.D.2 requires that construction workers be trained about the need to avoid cultural properties, identification of cultural properties, and procedures to follow if undocumented cultural properties are found during construction. If any archaeological sites, including gravesites, are found during the Phase I survey, their integrity and significance should be addressed in terms of the site's potential eligibility for placement on the NRHP. If such sites are found to be eligible for the NRHP, appropriate mitigative measures will need to be developed in consultation with the Minnesota State Historic Preservation Officer, the State Archaeologist, and consulting American Indian communities. The site permit also requires the Permittee to stop work and notify the Minnesota Historical Society and Commission if any unrecorded cultural resources are found during construction.

Air and Water Emissions

55. No harmful air or water emissions are expected from the construction and operation of the LWECS.

Animals and Wildlife

56. A review of the Minnesota Natural Heritage Database maintained by the DNR shows the bird types located in the area as well as endangered native plants. The DNR expressed concern about potential negative impacts on a native plant in Section 11 near a previously proposed turbine site. The Applicant has moved that turbine location to avoid any negative impacts. (Exhibit 1).

57. Based upon the review of the Minnesota Natural Heritage Database, the location of the project in a cultivated agricultural area, and previously permitted LWECS projects, neither construction nor operation of the proposed project is expected to significantly impact wildlife.

58. FWS concerns centers on Turbine 8, which is proposed to be located near the Nelson Waterfowl Production Area, as depicted on the Site Permit preliminary layout map. The Applicant will continue to work with FWS to minimize impacts on this area and has identified alternative turbine locations on the preliminary layout map that can be used should the current location of Turbine 8 be found unacceptable.

59. Mitigation measures are also prescribed in the site permit and include but are not limited to: a) a pre-construction inventory of existing biological resources, native prairie, state listed and threatened species and wetlands in the project area will be prepared (Permit Condition III.D.1); b) turbines and associated facilities will not be constructed in wildlife management areas, recreation and state and scientific natural areas (Permit Condition III.C.4); c) landowner approval will be negotiated prior to any removal of trees during construction (Permit Condition III.B.11); d) sound water and soil conservation practices will be implemented during construction and operation of the Project to protect topsoil and adjacent resources and to minimize soil erosion. This also applies to any work in proximity to watercourses (Permit Condition III.B.9).

Vegetation

60. The Permit, at III.B.11 requires landowner approval be obtained prior to any removal of trees during construction. Removal of groves of trees or shelterbelts will be minimized. Disturbance of native prairie will be avoided. If native prairie cannot be avoided, the Permit at III.C.6 provides for preparation of a prairie protection and management plan.

Soils

61. Construction of the wind turbines and access roads increases the potential for erosion during construction and converts approximately 15 acres prime farmland to industrial use. The site permit at III.B.9 requires a soil erosion and sediment control plan. The Project will also require a NPDES/SDS Permit from the MPCA.

Surface Water and Wetlands

62. No turbines, towers or associated facilities shall be placed in public waters wetlands, as defined in Minnesota Statutes 103G.005, subp. 15a. Access roads may be constructed across public waters and electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to DNR,

FWS and/or U.S. Army Corps of Engineers permits and approvals. See permit conditions III.B.8(b) and III.C.5.

Future Development and Expansion

63. While large-scale projects have occurred elsewhere (California and Iowa), little systematic study of the cumulative impact has occurred. Research on the total impact of many different projects in one area has not occurred. OES EFP staff continues to monitor for cumulative impacts and issues related to wind energy development.

64. The Commission anticipates more site permit applications under Minnesota Statutes 216F.04 (a). The Commission is responsible for siting of LWECS "in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources." Minnesota Statutes 216F.03.

65. Minnesota Statutes 216E.03, subd. 7, requires consideration of design options that might minimize adverse environmental impacts. By using larger turbines, fewer turbines are required, reducing siting needs for turbines and related facilities. Turbines must also be designed to minimize noise and aesthetic impacts. Buffers between strings of turbines are designed to protect the turbines' production potential. The site permit also provides for adequate buffers between adjacent properties and wind generation projects to protect production potential of the adjacent areas. See site permit at III.C.1.

66. The location and spacing of the turbines are critical to the issues of orderly development and the efficient use of wind resources. Turbines are likely to be located in the best winds, and the spacing dictates, among other factors, how much land area the project occupies. There is strong public support for orderly development of wind energy in Minnesota.

67. One efficiency issue is the loss of wind in the wake of turbines. When wind is converted to rotational energy by the blades of a wind turbine, energy is extracted from the wind. Consequently, the wind flow behind the turbine is not as fast and is more turbulent than the free-flowing wind. This condition persists for some distance behind the turbine as normal wind flow is gradually restored. If a turbine is spaced too close downwind of another, it produces less energy and is less cost-effective. This is the wake loss effect. If the spacing is too far, wind resources are wasted and the projects' footprint on the land is unnecessarily large.

68. For this Project, turbine spacing maximizes use of the available wind resources and minimizes wake and array losses within the topographical context of the site. Site topography and wind resources did not lead to a layout involving long strips of turbines running parallel to each other and perpendicular to the prevailing wind. Instead, the site uses shorter strings. The objective was to capture the most net energy possible from the best available wind resource. The Applicant arrived at an average turbine spacing of approximately 3 RD in the non-prevailing wind directions and 5 RD in the prevailing wind directions in their preliminary layout.

Given the prevalence of southerly and northeasterly winds at this site, the spacing between turbines is greatest in the north-south direction for the proposed project.

Maintenance

69. Maintenance of the turbines will be on a scheduled, rotating basis. Additional unscheduled maintenance will be conducted on an as-needed basis. Maintenance on the interconnection points will be coordinated with Great River Energy. The Permittee will contract with the turbine manufacturer to provide service and maintenance for the project at least through the warranty period. Upon the expiration of the warranty period, the Permittee may perform maintenance in-house, or may contract for service and maintenance.

Decommissioning and Restoration

70. Decommissioning and site restoration activities will include (1) removal of all turbines and towers; (2) removal of all pad mounted transformers; (3) removal of all above-ground distribution facilities; (4) removal of foundations to a depth of four feet below grade, unless otherwise agreed to by the landowner; and (5) removal of surface road material and restoration of the roads and turbine sites to previous conditions to the extent feasible, consistent with the landowner's desires. See site permit at III.G.2.

71. Permittee will be responsible for all costs to decommission the Project and associated facilities and will begin decommissioning the facility within 8 months from the time the facility ceases to operate. Decommissioning will be completed within 18 months from the time the facility ceases to operate. See site permit at III.G.1 and 2.

72. The Applicant estimates the net decommissioning cost (estimated cost of dismantling and removal less the salvage value) for the Project at approximately $50,000 per turbine in current dollars.

73. The Permit requires the Permittee to submit a Decommissioning Plan to the Commission that describes how the Permittee will ensure that the resources are available to pay for decommissioning the project at the appropriate time. See site permit at III.G.1. The Permittee proposes to establish a separate Decommissioning Fund Balance as a regular expense item within the Project's cash flow to allow for potential decommissioning expenses to be pre-funded.

Site Permit Conditions

74. All of the conditions contained in the site permit were established as part of the site permit proceedings of other wind turbine projects permitted by the Environmental Quality Board and the Public Utilities Commission. Comments received concerning the requirements and conditions in the draft site permit distributed for comment on September 7, 2007 have been evaluated and addressed

as appropriate. Minor changes that provide for clarifications of the draft site permit conditions have been made.

75. The site permit contains conditions that apply to site preparation, construction, cleanup, restoration, operation, maintenance, abandonment, decommissioning and all other aspects of the Project.

Based on the Findings of Fact, the Commission makes the following:

CONCLUSIONS OF LAW

1. Any of the foregoing Findings more properly designated as Conclusions of Law are hereby adopted as such.

2. The Minnesota Public Utilities Commission has jurisdiction under Minnesota Statutes section 216F.04 over the site permit applied for by Glacial Ridge Wind, LLC.

3. The Glacial Ridge Wind, LLC, application for a site permit was properly filed and noticed as required by Minnesota Statutes 216F.04 and Minnesota Rules 7836.0600 subp. 2 and 7836.0900 subp. 2.

4. The Minnesota Public Utilities Commission has afforded all interested persons an opportunity to participate in the development of the site permit and has complied with all applicable procedural requirements of Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7836.

5. The Minnesota Public Utilities Commission has jurisdiction under Minnesota Statutes 216F.04 over the site permit applied for by Glacial Ridge Wind, LLC.

6. The proposed Glacial Ridge Wind Project 20-megawatt LWECS project will not create significant human or environmental impacts and is compatible with environmental preservation, sustainable development, and the efficient use of resources.

7. The Minnesota Public Utilities Commission has the authority under Minnesota Statute 216F and Minnesota Rules Chapter 7839 to establish conditions in site permits relating to site layout and construction and operation and maintenance of an LWECS. The conditions contained in the site permit issued to Glacial Ridge Wind, LLC, are appropriate and necessary and within the Minnesota Public Utilities Commission's authority.

Based on the foregoing Findings of Fact and Conclusions contained herein and the entire record of this proceeding, the Commission hereby issues the following:

ORDER

The Minnesota Public Utilities Commission hereby issues a site permit to Glacial Ridge Wind, LLC for a Large Wind Energy Conversion System of up to 20 megawatts in Pope County, Minnesota. The site permit issued by the Commission authorizes Glacial Ridge Wind, LLC to construct and operate the proposed Large Wind Energy Conversion System in accordance with the conditions contained in the site permit and in compliance with the requirements of Minnesota Statutes 216F.04 and Minnesota Rules Chapter 7836.

BY ORDER OF THE COMMISSION

Burl W. Haar,
Executive Secretary

(S E A L)

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EXHIBIT LIST: PUC Docket NO.: IP-6650/WS-07-1073

EXHIBIT NO.	DATE	DESCRIPTION	e-DOCKET LOCATION
1.	8/10/2007	Glacial Ridge Wind, LLC's application for a LWECS site Permit for the Glacial Ridge Wind Project	4749449
2.	8/29/2007	DOC EFP Comments & Recommendations to the PUC on acceptance of the Glacial Ridge Wind, LLC's LWECS Site Permit Application.	4760647
3.	9/5/2007	Amended Glacial Ridge Wind, LLC's application for a LWECS site Permit for the Glacial Ridge Wind Project	4768617
4.	9/6/2007	PUC Order accepting Glacial Ridge Wind, LLC's Amended LWECS Site Permit Application and Issuing Draft Site Permit	4763198
5.	9/17/2007	Affidavit of Publication: Notice of PUC's acceptance of the LWECS application and public information meeting in *Pope County Tribune.*	5513939
6.	9/18/2007	Notice of Application sent to state agencies	4780788
7.	9/19/2007	Affidavit of Service: Notice of PUC's acceptance of the LWECS application and public information meeting	4776384
8.	9/24/2007	Notice of Public Information Meeting published in *EQB Monitor*	4776384
9.	10/18/2007	Public Comments	5513941
10.	11/13/2007	Comments of the U.S. Fish and Wildlife Service	4832524
11.	1/24/2008	Applicant letter describing changed circumstances	4919341
12.	3/30/2009	Applicant Supplemental Filing	5843261

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

SITE PERMIT FOR CONSTRUCTION OF A LARGE WIND ENERGY CONVERSION SYSTEM IN

POPE COUNTY, MINNESOTA

ISSUED TO GLACIAL RIDGE WIND, LLC

DOCKET NO. IP-6650/WS-07-1073

In accordance with Minnesota Statutes Section 216F.04 and Minnesota Rules Chapter 7836 this Site Permit is hereby issued to:

GLACIAL RIDGE WIND, LLC

Glacial Ridge Wind, LLC, is authorized to construct and operate up to a 20-Megawatt Large Wind Energy Conversion System on the site identified in this Site Permit and in compliance with the conditions contained in this Permit.

This Permit shall expire on: May 1, 2039

Approved and adopted this 27th day of April, 2009
BY ORDER OF THE COMMISSION

Burl W. Haar,
Executive Secretary

(S E A L)

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TABLE OF CONTENTS

I. SITE PERMIT

This Site Permit for a Large Wind Energy Conversion System authorizes Glacial Ridge Wind, LLC (herein after, "Permittee") to construct up to a 20-Megawatt (MW) Large Wind Energy Conversion System (LWECS) and associated facilities known as the Glacial Ridge Wind Project (herein after, "Project") in Pope County, on a site located in Glichrist and Lake Johanna Townships in accordance with the conditions contained in this Permit. The site boundary is shown on the map attached.

II. PROJECT DESCRIPTION

The up to 20-MW LWECS authorized to be constructed by this Site Permit will be owned and operated by Glacial Ridge Wind, LLC. The Project will consist of 1.5 to 3.0 MW capacity wind turbines with a combined nominal nameplate capacity of no more than 20 MW. Turbines are interconnected by communication and electrical power collection facilities within the wind farm. Energy from the Project will be delivered to the grid at the Glacial Ridge Wind project substation, located in Section 12 of Lake Johanna Township in Pope County. Associated facilities will include one permanent meteorological tower and wind turbine access roads.

III. CONDITIONS

The following conditions shall apply to site preparation, construction, cleanup, restoration, operation, maintenance, abandonment, decommissioning and all other phases of the LWECS. The Public Utilities Commission (Commission) preserves all available remedies for violation of any of these Permit conditions, including revocation or modification of the Permit.

A. GENERAL CONSTRUCTION CONDITIONS

1. SITE PLAN

Prior to commencing construction, the Permittee shall submit to the Commission a site plan for all turbines, roads, electrical equipment, collector and feeder lines and other associated facilities to be constructed and engineering drawings for site preparation, construction of the facilities, and a plan for restoration of the site due to construction. The Permittee may submit a site plan and engineering drawings for only a portion of the LWECS if the Permittee is prepared to commence construction on certain parts of the Project before completing the site plan and engineering drawings for other parts of the LWECS. In the event that previously unidentified environmental conditions are discovered during construction which by law or pursuant to conditions outlined in this Permit would preclude the use of that site as a turbine site, the Permittee shall have the right to move or relocate turbine sites. The Permittee shall notify the Commission of any turbines that are to be relocated before the turbine is constructed on the new site.

2. FIELD REPRESENTATIVE

Prior to the start of construction and continuously throughout construction and site restoration, the Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this Permit. This person (or a designee) shall be accessible by telephone during normal business hours. This person's address, phone

number and emergency phone number shall be provided to the Commission, who may make the number available to local residents and officials and other interested persons. The Permittee may change the field representative by notification to the Commission.

3. PRECONSTRUCTION MEETING

Prior to the start of any construction, the Permittee shall conduct a preconstruction meeting with the person designated by the Commission to coordinate field monitoring of construction activities.

4. NOTICE OF PERMIT CONDITIONS

The Permittee shall inform all employees, contractors, and other persons involved in the construction and ongoing operation of the LWECS of the terms and conditions of this Permit.

B. MITIGATION MEASURES

1. SITE CLEARANCE

The Permittee shall disturb or clear the site only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the LWECS.

2. TOPSOIL PROTECTION

The Permittee shall implement measures to protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with the affected landowner.

3. SOIL COMPACTION

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the Project's life and shall confine compaction to as small an area as practicable.

4. LIVESTOCK PROTECTION

The Permittee shall take precautions to protect livestock during all phases of the Project's life.

5. FENCES

The Permittee shall promptly replace or repair all fences and gates removed or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner. When the Permittee installs a gate where electric fences are present, the Permittee shall provide for continuity in the electric fence circuit.

6. DRAINAGE TILES

The Permittee shall take into account the location of drainage tiles during project layout and construction. The Permittee shall promptly repair or replace all drainage tiles broken or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner.

7. EQUIPMENT STORAGE

The Permittee shall not locate temporary equipment staging areas for site construction and restoration on cultivated land unless otherwise negotiated with the affected landowner. Temporary staging areas shall not be located in wetlands or native prairie.

8. ROADS

(a) Public Roads

Prior to commencement of construction, the Permittee shall identify all state, county or township roads that will be used for the LWECS Project and shall notify the Commission and the state, county or township governing body having jurisdiction over the roads to determine if the governmental body needs to inspect the roads prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the LWECS. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assembled nacelles and all other heavy components to and from the turbine sites.

The Permittee shall, prior to the use of such roads, make satisfactory arrangements with the appropriate state, county or township governmental body having jurisdiction over roads to be used for construction of the LWECS for maintenance and repair of roads that will be subject to extra wear and tear due to transportation of equipment and LWECS components. The Permittee shall notify the Commission of such arrangements upon request of the Commission.

(b) Turbine Access Roads

The Permittee shall construct the smallest number of turbine access roads it can. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class 5 gravel or similar material. Access roads shall not be constructed across streams and drainage ways without required permits and approvals from the Minnesota Department of Natural Resources (DNR), United States Fish and Wildlife Service (FWS) and/or United States Army Corps of Engineers (USACE). When access roads are constructed across streams and drainage ways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed. Access roads shall also be constructed in accordance with all necessary township, county or state road requirements and permits.

(c) Private Roads

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner.

9. SOIL EROSION AND SEDIMENT CONTROL

The Permittee shall develop a Soil Erosion and Sediment Control Plan prior to construction and submit the Plan to the Commission. This Plan may be the same as the Storm Water Pollution Prevention Plan (SWPPP) submitted to the Minnesota Pollution Control Agency (MPCA) as part of the National Pollutant Discharge Elimination System (NPDES) permit application. The goal of the Soil Erosion and Sediment Control Plan is to minimize soil erosion, to re-vegetate non-cropland and range areas disturbed by

construction with wildlife conservation species, and wherever possible, to plant appropriate native species in cooperation with landowners.

The Soil Erosion and Sediment Control Plan shall address what types of erosion control measures will be implemented during each Project phase, and shall at a minimum identify plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive re-vegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary Project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, and stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material. Erosion and sedimentation control measures shall be installed prior to construction and maintained throughout the Project's life.

10. CLEANUP

The Permittee shall remove all waste and scrap that is the product of construction, operation, restoration and maintenance from the site and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.

11. TREE REMOVAL

The Permittee shall minimize the removal of trees and the Permittee shall not remove groves of trees or shelter belts without notification to the Commission and the approval of the affected landowner.

12. RESTORATION

The Permittee shall, as soon as practical following construction of each turbine, considering the weather and preferences of the landowner, restore the area affected by any LWECS activities to the condition that existed immediately before construction began, to the extent possible. The time period may be no longer than eight months after completion of construction of the turbine. Restoration shall be compatible with the safe operation, maintenance, and inspection of the LWECS.

13. HAZARDOUS WASTE

The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of hazardous wastes generated during any phase of the Project's life.

14. APPLICATION OF HERBICIDES

The Permittee shall restrict herbicide use to those herbicides and methods of application approved by the Minnesota Department of Agriculture and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. The Permittee shall contact the landowner or his designee to obtain approval for the use of herbicide prior to any application on their property. The landowner may request that there be no application of herbicides on any part of the site within the landowner's

property. All herbicides shall be applied in a safe and cautious manner so as to not damage crops, orchards, tree farms, or gardens. The Permittee shall also, at least ten days prior to the application, notify beekeepers with an active apiary within one mile of the proposed application site of the day the company intends to apply herbicide so that precautionary measures may be taken by the beekeeper.

15. PUBLIC SAFETY

The Permittee shall provide educational materials to landowners within the site boundaries and, upon request, to interested persons, about the Project and any restrictions or dangers associated with the LWECS Project. The Permittee shall also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access. The Permittee shall submit the location of all "underground facilities," as defined in Minnesota Statute 216D.01, Subdivision 11, to Gopher State One Call.

16. FIRE PROTECTION

The Permittee shall prepare a fire protection and medical emergency plan in consultation with the fire department having jurisdiction over the area prior to LWECS construction. The Permittee shall submit a copy of the plan to the Commission upon request. The Permittee shall also register the LWECS with the local governments' emergency 911 services.

17. TOWER IDENTIFICATION

All turbine towers shall be marked with a visible identification number.

C. SETBACKS

1. WIND ACCESS BUFFER

Wind turbine towers shall not be placed less than 5 rotor diameters (RD) on the prevailing wind directions and 3 RD on the non-prevailing wind directions from the perimeter of the lands where the Permittee does not hold the wind rights, without the approval of the Commission.

2. RESIDENCES

Wind turbine towers shall not be located closer than 500 feet from the nearest occupied dwelling, or the distance required to comply with the noise standards established by the MPCA at paragraph III.E.3, whichever is greater.

3. ROADS

Wind turbine towers shall not be located closer than 250 feet from the edge of the nearest public road right-of-way.

4. WILDLIFE MANAGEMENT AREAS

Wind turbines and associated facilities including foundations, access roads, underground cable, and transformers, shall not be located in Waterfowl Protection Areas, State Wildlife Management Areas or Scientific and Natural Areas or in county parks.

5. WETLANDS

Wind turbines and associated facilities including foundations, access roads, underground cable and transformers, shall not be placed in public waters wetlands, as defined in Minnesota Statutes section 103G.005, subp. 15a. However, electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to DNR, FWS and/or USACE permits and approvals.

6. NATIVE PRAIRIE

Upon request of the Commission, the Permittee shall, with the advice of the DNR and any others selected by the Permittee, prepare a prairie protection and management plan and submit it to the Commission and DNR Commissioner 60 days prior to the start of Project construction. The plan shall address steps to be taken to identify native prairie within the Project area, measure to avoid impacts to native prairie, and measures to mitigate for impacts if unavoidable. Wind turbines and all associated facilities, including foundations, access roads, underground cable and transformers, shall not be placed in native prairie unless addressed in the prairie protection and management plan. Unavoidable impacts to native prairie shall be mitigated by restoration or management of other native prairie areas that are in degraded condition, or by conveyance of conservation easements, or by other means agreed to by the Permittee and Commission.

7. SAND AND GRAVEL OPERATIONS

Wind turbines and all associated facilities, including foundations, access roads, underground cable, and transformers shall not be located within active sand and gravel operations, unless otherwise negotiated with the owner of the sand and gravel operation.

D. PRECONSTRUCTION SURVEYS

1. BIOLOGICAL PRESERVATION SURVEY

The Permittee, in consultation with DNR and other interested parties, shall conduct a pre-construction inventory of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas within the site and assess the presence of state- or federally-listed or threatened species. The results of the survey shall be submitted to the Commission and DNR prior to the commencement of construction.

2. ARCHAEOLOGICAL RESOURCES

The Permittee shall work with the State Historic Preservation Office (SHPO) at the Minnesota Historical Society (MHS) and the State Archaeologist during the detailed site plan development to determined whether an archaeological survey is recommended for any part of the proposed Project. The Permittee will contract with a qualified archaeologist to complete such surveys, and will submit the results to the Commission, the SHPO and the State Archaeologist. The SHPO and the State Archaeologist will make recommendations for the treatment of any significant archaeological sites which are identified Any issues in the implementation of these recommendations will be resolved by the Commission in consultation with the SHPO and the State Archaeologist. In

addition, the shall mark and preserve any previously unrecorded archaeological sites that are found during construction and shall promptly notify the SHPO, the State Archaeologist, and the Commission of such discovery. The Permittee shall not excavate at such locations until so authorized by the Commission in consultation with the SHPO and the State Archaeologist.

If human remains are encountered during construction, the Permittee shall immediately halt construction at that location and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit or license is involved or required, the Permittee shall notify the MHS as soon as possible in the planning process to coordinate section 106 (36 C.F.R 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If any archaeological sites are found during construction, the Permittee shall immediately stop work at the site and shall mark and preserve the site and notify the Commission and the MHS about the discovery. The Commission and the MHS shall have three working days from the time the agency is notified to conduct an inspection of the site if either agency shall choose to do so. On the fourth day after notification, the Permittee may begin work on the site unless the MHS has directed that work shall cease. In such event, work shall not continue until the MHS determines that construction can proceed.

3. ELECTROMAGNETIC INTERFERENCE

Prior to the start of construction, the Permittee shall submit a plan to the Commission for conducting an assessment of television signal reception and microwave signal patterns in the Project area prior to commencement of construction of the Project. The assessment shall be designed to provide data that can be used in the future to determine whether the turbines and associated facilities are the cause of disruption or interference of television reception or microwave patterns in the event residents should complain about such disruption or interference after the turbines are placed in operation. The assessment shall be completed prior to operation of the turbines. The Permittee shall be responsible for alleviating any disruption or interference of these services caused by the turbines or any associated facilities.

The Permittee shall not operate the LWECS and associated facilities so as to cause microwave, television, radio, telecommunications or navigation interference contrary to Federal Communications Commission (FCC) regulations or other law. In the event the LWECS and its associated facilities or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem.

E. SITE LAYOUT RESTRICTIONS

1. WIND TURBINE TOWERS

Structures for wind turbines shall be self-supporting tubular towers. The towers shall not be more than 328 feet (100 meters) above grade at hub height.

2. METEOROLOGICAL TOWERS

Permanent towers up to 100 feet high for meteorological equipment shall be free standing. Temporary meteorological towers, which are those that will be removed no more than one year after the Project's in-service date, and all meteorological towers over 100 feet high may be guyed if the landowner has given written permission and the guys are properly marked with safety shields.

New temporary and permanent meteorological towers shall not be placed less than 250 feet from the edge of the nearest public road right-of-way and from the boundary of the Permittee's site control, or in compliance with the county ordinance regulating meteorological towers in the county the tower is built, whichever is more restrictive. Meteorological towers shall be placed on lands the Permittee holds the wind or other development rights.

Meteorological towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the meteorological towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

3. NOISE

The wind turbine towers shall be placed such that the Permittee shall comply with noise standards established as of the date of this permit by the MPCA at all times at all appropriate locations. Turbines shall be moved or modified or removed from service if necessary to comply with this condition. The Permittee or its contractor may install and operate turbines, as close as the minimum setback required in this Permit but in all cases shall comply with MPCA standards. The Permittee shall be required to comply with this condition with respect to all homes or other receptors in place as of the time of construction, but not with respect to such receptors built after erection of the towers.

4. FEDERAL AVIATION ADMINISTRATION

Towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

5. TURBINE SPACING

The turbine towers shall be constructed within the site boundaries as shown in the attached map. The turbine towers shall be spaced no closer than 3 RD in the non-prevailing wind directions and 5 RD on the prevailing wind directions. If required during final micro siting of the turbine towers to account for topographic conditions, up to 20

percent of the towers may be sited closer than the above spacing but the Permittee shall minimize the need to site the turbine towers closer.

6. FOOTPRINT MINIMIZATION

The Permittee shall design and construct the LWECS so as to minimize the amount of land that is impacted by the LWECS. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers and monitoring systems shall, to the greatest extent feasible, be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner.

7. ELECTRICAL CABLES

The Permittee shall place electrical lines, known as collectors, and communication cables underground when located on private property. Collectors and cables shall also be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner. This paragraph does not apply to feeder lines.

8. FEEDER LINES

The Permittee shall place overhead or underground 34.5 kV electric lines, known as feeders, within public rights-of-way or on private land immediately adjacent to public rights-of-way if a public right-of-way exists, except as necessary to avoid or minimize human, agricultural, or environmental impacts. A change in feeder line locations may be made as long as feeders remain on public rights-of-way and approval has been obtained from the governmental unit responsible for the affected right-of-way. When placing feeders on private property, the Permittee shall place the feeder in accordance with easements negotiated with the affected landowners. In all cases, the Permittee shall avoid routing feeder lines in locations which may interfere with agricultural operations. Not withstanding any of the requirements in paragraph III.D. to conduct surveys before any construction can commence, the Permittee may begin immediately upon issuance of this permit to construct the 34.5 kV feeder lines that will be required as part of this Project. The Permittee shall submit the site plan and engineering drawings required under paragraph III.A.1. for the feeder lines before commencing construction. Any guy wires on the structures for feeder lines shall be marked with safety shields.

The Permittee must fulfill, comply with, and satisfy all Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards applicable to this Project, including but not limited to IEEE 776, IEEE 519, and IEEE 367, provided the telephone service provider(s) have complied with any obligations imposed on it pursuant to these standards. Upon request by the Commission, the Permittee shall report to the Commission on compliance with these standards.

F. STUDIES

1. WAKE LOSS STUDIES

The Permittee shall provide the Commission with the site plan required by paragraph III.A.1., the preconstruction micro siting analysis leading to the final tower locations and

an estimate of total Project wake losses. The Permittee shall provide to the Commission any operational wake loss studies conducted on this Project.

2. NOISE

On request of the Commission, the Permittee shall submit a proposal to the Commission for the conduct of a noise study. Upon the approval of the Commission the Permittee shall carry out the study. The study shall be designed to determine the noise levels at various distances from the turbines at various wind directions and speeds.

G. DECOMMISSIONING/RESTORATION/ABANDONMENT

1. DECOMMISSIONING PLAN

Prior to commencement of construction, the Permittee shall submit to the Commission a Decommissioning Plan describing the manner in which the Permittee anticipates decommissioning the Project in accordance with the requirements of Minnesota Rules part 7836.0500, subp.13. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

2. SITE RESTORATION

Upon expiration of this Permit, or upon earlier termination of operation of the LWECS, the Permittee shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables, foundations, buildings and ancillary equipment to a depth of four feet. To the extent possible the Permittee shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or for no removal shall be recorded with the county and shall show the locations of all such foundations. All such agreements between the Permittee and the affected landowner shall be submitted to the Commission prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within 18 months after expiration.

3. ABANDONED TURBINES

The Permittee shall advise the Commission of any turbines that are abandoned prior to termination of operation of the LWECS. The Commission may require the Permittee to decommission any abandoned turbine.

H. REPORTING

1. PROJECT ENERGY PRODUCTION

The Permittee shall, by July 15 of each year, report to the Commission on the monthly energy production of the Project and the average monthly wind speed collected at one

permanent meteorological tower selected by the Commission during the preceding year or partial year of operation. The report shall include copies of any project production reports filed with the Midwest Independent System Operator (MISO), Midwest Area Power Pool (MAPP), the Federal Energy Regulatory Commission (FERC), or any other public regulatory agency. The Permittee shall describe the operational status and availability of the Project and any major outages, major repairs, or turbine performance improvements occurring in the previous year.

2. WIND RESOURCE USE

Beginning the first full quarter following the commercial operation of the wind farm, the Permittee shall file a quarterly report (due January 15, April 15, July 15, and October 15) with the Commission with the following average hourly data for each hour of commercial operation in printed format or electronic format capable of computerized analysis as specified by the Commission. That data entails:

(a) The power output of each turbine;

(b) The wind speed and direction measured at all monitored heights at any temporary and permanent meteorological towers, connected to the SCADA system, owned or operated by the Permittee, in or within three miles of the Project site boundary; and

(c) Temperature and any other meteorological parameters recorded at one permanent meteorological tower selected by the Commission.

After two years of commercial operation, the Commission may reduce or eliminate the requirements of this condition. The provisions of paragraph III.K.5. shall apply to the Commission's review of this data.

3. EXTRAORDINARY EVENTS

Within 24 hours of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to: fires, tower collapse, thrown blade, collector or feeder line failure, injured LWECS worker or private person, kills of migratory, threatened or endangered species, or discovery of more than five dead birds or bats of any variety on site. In the event of avian mortality the DNR shall also be notified within 24 hours. The Permittee shall, within 30 days of the occurrence, submit a report to the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

4. COMPLAINTS

Prior to the start of construction, the Permittee shall submit to the Commission the company's procedures to be used to receive and respond to complaints. The Permittee shall report to the Commission all complaints received concerning any part of the LWECS in accordance with the procedures provided in the Complaint Procedures attached to this Permit.

I. FINAL CONSTRUCTION

1. AS-BUILT PLANS AND SPECIFICATIONS

Within 60 days after completion of construction, the Permittee shall submit to the Commission a copy of the as-built plans and specifications. The Permittee must also submit this data in a geographic information system (GIS) compatible format so that the Commission can place it into the Land Management Information Center's geographic date clearinghouse located in the Office of Geographic and Demographic Analysis.

2. FINAL BOUNDARIES

After completion of construction, the Commission may determine a need to adjust the final boundaries of the site required for this Project. If done, this Permit may be modified, after notice and opportunity for public hearing, to represent the actual site required by the Permittee to operate the Project authorized by this Permit.

3. EXPANSION OF SITE BOUNDARIES

No expansion of the site boundaries described in this Permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundaries of the site for the LWECS. The Commission will respond to the requested change in accordance with applicable statutes and rules.

J. AUTHORITY TO CONSTRUCT LWECS

1. WIND RIGHTS.

The Permittee shall advise the Commission of the obtaining of exclusive wind rights within the boundaries of the LWECS authorized by this Permit within 30 days of receiving such wind rights. The Permittee shall submit documentation of such exclusive wind rights if requested by the Commission.

2. OTHER PERMIT APPLICATIONS.

Nothing in this Permit shall be construed to preclude any other person from seeking a site permit to construct a large wind energy conversion system in any area within the boundaries of the Project covered by this Permit if the Permittee does not hold exclusive wind rights for such areas.

3. PREEMPTION OF OTHER LAWS

Pursuant to Minnesota Statute section 216F.07, this Site Permit shall be the only site approval required for the location of this Project, and this Permit shall supersede and preempt all zoning, building, and land use rules, regulations, and ordinances adopted by regional, county, local, and special purpose governments. Nothing in this Permit shall release the Permittee from any obligation imposed by law that is not superseded or preempted by law.

4. POWER PURCHASE AGREEMENT

This Permit does not authorize construction of the Project until the Permittee has obtained a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project. In the event the Permittee does not obtain a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project within two years of the issuance of this Permit, the Permittee must advise the Commission of the reason for not having such power purchase agreement or enforceable mechanism. In such event, the Commission may determine whether this Permit should be amended or revoked. No amendment or revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Statute 216F.05 and Minnesota Rule 7836.1300.

K. MISCELLANEOUS

1. PERIODIC REVIEW

The Commission shall initiate a review of this Permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the Commission, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of the Permit. No modification may be made except in accordance with applicable statutes and rules.

2. FAILURE TO COMMENCE CONSTRUCTION

If the Permittee has not completed the pre-construction surveys required in paragraph III.D., and commenced construction of the LWECS within two years of the issuance of this Permit, the Permittee must advise the Commission of the reason construction has not commenced. In such event, the Commission may determine whether this Permit should be revoked. No revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Statute section 216F.05 and Minnesota Rule 7836.1300.

3. MODIFICATION OF CONDITIONS

After notice and opportunity for hearing, this Permit may be modified or amended for cause including but not limited to the following:

(a) Violation of any condition in this Permit;

(b) Endangerment of human health or the environment by operation of the facility: or

(c) Existence of other grounds established by rule.

4. REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may take action to suspend or revoke this Permit upon the grounds that:

(a) A false statement was knowingly made in the application or in accompanying statements or studies required of the applicant, and a true statement would have warranted a change in the Commission's findings;

(b) There has been a failure to comply with material conditions of this Permit, or there has been a failure to maintain health and safety standards; or

(c) There has been a material violation of a provision of an applicable statute or rule or an order of the Commission.

In the event the Commission shall determine that it is appropriate to consider revocation or suspension of this Permit, the Commission shall proceed in accordance with the requirements of Minnesota Statute section 216F.05 to determine the appropriate action. Upon a finding of any of the above, the Commission may require the Permittee to undertake corrective measures in lieu of having the Permit suspended or revoked.

5. PROPRIETARY INFORMATION

Certain information required to be submitted to the Commission under this Permit, including energy production and wake loss data, may constitute trade secret information or other type of proprietary information under the Data Practices Act or other law and is not to be made available by the Commission. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

6. TRANSFER OF PERMIT

The Permittee may not transfer this Permit without the approval of the Commission. If the Permittee desires to transfer this Permit, the holder shall advise the Commission in writing of such desire. The Permittee shall provide the Commission with such information about the transfer as the Commission requires to reach a decision. The Commission may impose additional conditions on any new Permittee as part of the approval of the transfer.

7. OTHER PERMITS

The Permittee shall be responsible for acquiring any other federal, state, or local permits or authorizations that may be required to construct and operate a LWECS within the authorized site. The Permittee shall submit a copy of such permits and authorizations to the Commission upon request.

8. SITE MANAGER

The Permittee shall designate a site manager who shall be the contact person for the Commission to contact with questions about the LWECS. The Permittee shall provide the Commission with the name, address, and phone numbers of the Project's site manager prior to placing any turbine into operation. This information shall be maintained current by informing the Commission of any changes, as they become effective.

9. NOTICE TO LOCAL RESIDENTS

The Permittee shall, within ten working days of receipt of this Permit, send a copy of the Permit to the office of the auditor of each county in which the site is located and to the clerk of each city and township within the site boundaries. If applicable, the Permittee shall also, within 10 working days of issuance, send a copy of this Permit to each regional development commission, local fire district, soil and water conservation district, watershed district, and watershed management district office with jurisdiction in the county where the site is located. Within 30 days of issuance of this Permit, the Permittee shall send a copy of the Permit to each affected landowner within the site. In no case shall the affected landowner receive the site permit less than five days prior to the start of construction on their property.

10. RIGHT OF ENTRY

The Permittee shall allow representatives of the Commission to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

(a) To enter upon the facilities easement of the site property for the purpose of obtaining information, examining records, and conducting surveys or investigations;

(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations;

(c) To sample and monitor upon the facilities easement of the property; and

(d) To examine and copy any documents pertaining to compliance with the conditions of this Permit.

11. MORE STRINGENT RULES

The Commission's issuance of this Site Permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

12. PERMIT COMPLIANCE MEETING

Prior to the start of commercial operation, the Permittee shall conduct a permit compliance meeting with the person designated by the PUC to coordinate permit compliance activities.

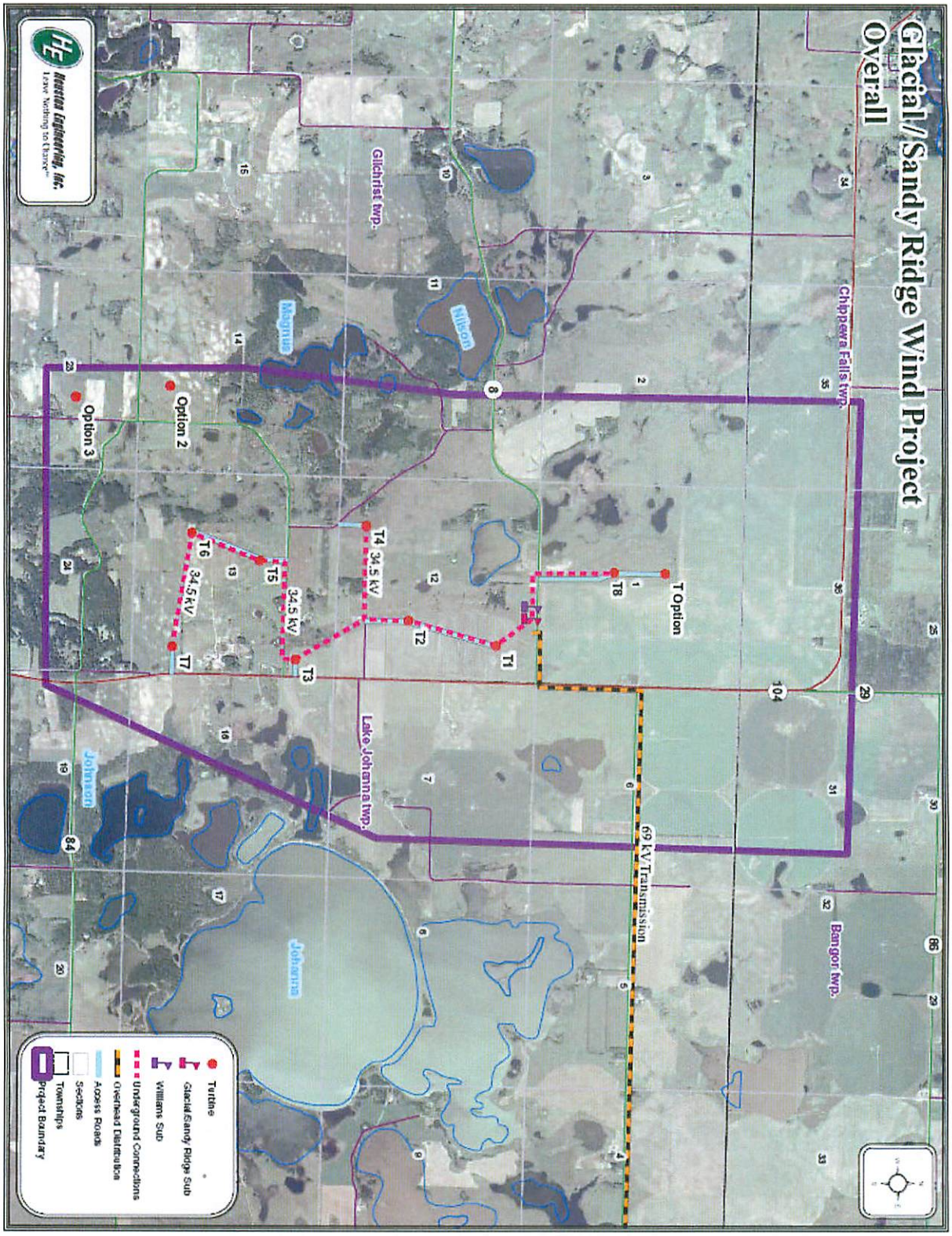
L. EXPIRATION DATE

This Permit shall expire on May 1, 2039.

M. SPECIAL CONDITIONS

Special conditions shall take precedence over any of the other conditions of this Permit if there should be a conflict between the two. No special conditions have been identified.

SITE BOUNDARY MAP



ATTACHMENT 1

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES
FOR
LARGE WIND ENERGY CONVERSION SYSTEMS

A. Purpose:

To establish a uniform and timely method of reporting complaints received by the Permittee (Glacial Ridge Wind, LLC) concerning Permit conditions for site preparation, construction, cleanup and restoration, operation and resolution of such complaints.

B. Scope:

This document describes Complaint reporting procedures and frequency.

C. Applicability:

The procedures shall be used for all complaints received by the Permittee.

D. Definitions:

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other LWECS and associated facilities site permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written Complaint alleging a violation of a specific Site Permit condition that, if substantiated, could result in Permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A Complaint which, despite the good faith efforts of the permittee and a person(s), remains to both or one of the parties unresolved or unsatisfactorily resolved.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

E. Complaint Documentation and Processing:

1. The Permittee shall document all Complaints by maintaining a record of all applicable information concerning the Complaint, including the following:

a. Name of complainant, address, phone number, and e-mail address.
b. Precise property description or parcel number.
c. Name of Permittee representative receiving Complaint and date of receipt.
d. Nature of Complaint and the applicable Site Permit conditions(s).
e. Activities undertaken to resolve the Complaint.
f. Final disposition of the Complaint.

2. The Permittee shall designate an individual to summarize Complaints for substantial
to the Commission. This person's name, phone number and e-mail address shall accompany all complaint submittals.

3. A Person presenting the Complaint should to the extent possible, include the following information in their communications:

a. Name, address, phone number, and e-mail address.
b. Date
c. Tract or parcel
d. Whether the complaint relates to (1) a Site Permit matter, (2) a LWECS and associated facility issue, or (3) a compliance issue.

F. Reporting Requirements:

The Permittee shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to Wind Permit Compliance, 1-800-657-3794, or by e-mail to: DOC.energypermitcompliance@state.mn.us, or. Voice messages are acceptable.

Monthly Reports: By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be Filed to Dr. Burl W. Haar, Executive Secretary, Commission using the Minnesota Department of Commerce eDocket system (see eFiling instructions attached to this permit).

If no Complaints were received during the preceding month, the permittee shall submit (eFile) a summary indicating that no complaints were received.

G. Complaints Received by the Commission or OES

Complaints received directly by the Commission from aggrieved persons regarding

site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the Permittee.

H. Commission Process for Unresolved Complaints:

Initial Screening: Commission staff shall perform an initial evaluation of unresolved Complaints submitted to the Commission. Complaints raising substantial LWECS Site Permit issues shall be processed and resolved by the Commission. Staff shall notify Permittee and appropriate person(s) if it determines that the Complaint is a Substantial Complaint. With respect to such Complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the Staff notification. Staff shall present Briefing Papers to the Commission, which shall resolve the Complaint within twenty days of submission of the Briefing Papers.

I. Permittee Contacts for Complaints:

Mailing Address: Complaints filed by mail shall be sent to:

ATTN: Glacial Ridge Wind, LLC
PlainStates Energy
27451 S. Hwy 34
Barnesville, MN 56514

Tel: 701-232-4948

Email Address: ljihle@rrt.net

ATTACHMENT 2

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE
FOR PERMITTED ENERGY FACILITIES

1. Purpose

To establish a uniform and timely method of submitting information required by Commission energy facility permits.

2. Scope and Applicability

This procedure encompasses all compliance filings required by permit.

3. Definitions

Compliance Filing – A sending (filing) of information to the Commission, where the information is required by a Commission site or route permit.

4. Responsibilities

A) The permittee shall eFile all compliance filings with Dr. Burl Haar, Executive Secretary, Commission, through the Department of Commerce (DOC) eDocket system. The system is located on the DOC website: https://www.edockets.state.mn.us/EFiling/home.jsp

General instructions are provided on the website. Permittees must register on the website to eFile documents.

B) All filings must have a cover sheet that includes:
1) Date
2) Name of submitter / permittee
3) Type of Permit (Site or Route)
4) Project Location
5) Project Docket Number
6) Permit Section Under Which the Filing is Made
7) Short Description of the Filing

C) Filings that are graphic intensive (e.g., maps, plan and profile) must, in addition to being eFiled, be submitted as paper copies and on CD. Copies and CDs should be sent to: 1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN, 55101-2147, and 2) Department of Commerce, Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN, 55101-2198. Additionally, the Commission may request a paper copy of any eFiled document.

ATTACHMENT 3

PERMIT COMPLIANCE FILINGS[1]

PERMITTEE: Glacial Ridge Wind, LLC
PERMIT TYPE: LWECS Site Permit
PROJECT LOCATION: Pope County
Commission DOCKET NUMBER: IP-6650/WS-07-1073

Filing Number	Condition	Description	Due Date	Notes
1	A.1.	Site Plan	Prior to starting construction	
2	A.2.	Field Representative	Prior to and throughout construction	
3	B.8.	Roads	Identify access roads and obtain road damage agreements before starting construction	
4	B.9.	Soil Erosion and Sediment Control Plan	NDPES Stormwater Runoff Control Permit	
5	B.15	Educational Materials	Submit Upon Request	
6	B.16	Fire Protection Plan	Submit Upon Request. Must Register in 911 Program	
7	C.6.	Native Prairie Protection Plan	60 days prior to the start of construction, if required	

8	D.1.	Biological Survey	Pre-construction Meeting	
9	D.2	Archaeological Resources	Pre-construction Meeting and as Recommended by the State Historic Preservation Office	
10	D.3.	Electromagnetic Interference	Pre-construction Meeting	

11	F.1	Wake Loss	Include with site plan or operation studies if performed	
12	F.2	Noise Study	Upon Request	
13	G.1.	Decommissioning Study	Part of Application	
14	H.1	Project Energy Production	Due 7/15 each year or quarterly	
15	H.2	Wind Resource Use	Within 3 months after Operation or SCADA Access	
16	I.1.	As Builts	Within 60 days of Completions of Construction	
17	J.1.	Wind Rights	Within 30 days of Acquiring. Upon Request.	
18	K.2.	Failure to Start Construction	Within 2 years of Permit Issuance	

19	K.8	Site Manager	Prior to Operation	
20	Complaints	Report	Due Each Month or within 24 hours	

1 This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. However, it is not a substitute for the permit; the language of the permit controls.

STATE OF MINNESOTA)
)SS
COUNTY OF RAMSEY)

AFFIDAVIT OF SERVICE

I, Robin Benson, being first duly sworn, deposes and says:

That on the 27th day of April, 2009 she served the attached

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER ISSUING A LARGE WIND ENERGY CONVERSION SYSTEM SITE PERMIT TO GLACIAL RIDGE WIND, LLC FOR THE UP TO 20 MW GLACIAL RIDGE WIND PROJECT.

MNPUC Docket Number: IP-6650/WS-07-1073

XX	By depositing in the United States Mail at the City of St. Paul, a true and correct copy thereof, properly enveloped with postage prepaid
XX	By personal service
XX	By inter-office mail

to all persons at the addresses indicated below or on the attached list:

Tricia DeBleeckere
Docketing - OES
Julia Anderson - OAG
John Lindell- OAG

Robin Benson

Subscribed and sworn to before me,

a notary public, this 27 day of

April, 2009

Veronica J. Slager
Notary Public

VERONICA J. SLAGER
NOTARY PUBLIC-MINNESOTA
MY COMMISSION EXPIRES
JANUARY 31, 2010

10:
MN PUC

Burl W. Haar
MN Public Utilities Commission
Suite 350
121 7th Place East
St. Paul MN 55101-2147

20:
Dept. of Commerce

Sharon Ferguson
MN Department Of Commerce
Suite 500
85 7th Place East
St. Paul MN 55101-2198

30:
Inter-Office Mail

Julia Anderson
MN Office Of The Attorney General
1400 BRM Tower
445 Minnesota Street
St. Paul MN 55101-2131

John Lindell
OAG-RUD
900 BRM Tower
445 Minnesota Street
St. Paul MN 55101-2130

40:
Regular Postal Mail

John M. Ihle
Glacial Ridge Wind Project LLC
27451 S Hwy 34
Barnesville MN 56514

Glacial Ridge 07-1015

Sweney Sweney
Minnesota Office of Pipeline Safety
444 Cedar Street
Suite 147
St. Paul, MN 55101

Smith Smith
MN DOC
Energy Information Center
85 7Th Place East
Suite 500
St. Paul, MN 55101

Johnsonand Johnson
SEH Inc.
3535 Vadnais Center Drive
Saint Paul, MN 55110

Kotch Kotch
Minnesota Department of Transportation
395 John Ireland Blvd
Mailstop 678
St. Paul, MN 55155

Dalager Dalager
400 First Ave North
Suite 535
Minneapolis, MN 55401

Meloy Meloy
Leonard, Street and Deinard
150 South 5th Street
Suite 2300
Minneapolis, MN 55402

Bertrand Bertrand
Leonard, Street and Deinard
150 South 5th Street
Suite 2300
Minneapolis, MN 55402

Heyer Heyer
Midtown Phillips Neighborhood
Association Inc.
2426 13th Ave. S.
Minneapolis, MN 55404

Nelson Nelson
The Green Institute
2801 21st Ave S
Minneapolis, MN 55407

Gerber Gerber
Clean Water Action Alliance
308 E Hennepin Ave
Minneapolis, MN 55414

Fairchild Fairchild
U.S. Fish and Wildlife Service
4101 E 80th St
Bloomington, MN 55425

Paulson Paulson
7301 Ohms Lane
Suite 325
Edina, MN 55439

Moeller Moeller
Minnesota Power
30 West Superior Street
Duluth, MN 55812

Peterson Peterson
Local Union 160
846 48th Avenue NW
Rochester, MN 55901

Thomssen Thomssen
2338 100th Ave
Lake Benton, MN 56149

Bouta Bouta
Upper Minnesota Valley Regional
Development Commission
323 West Schleiman Avenue
Appleton, MN 56208

Wagner Wagner
38695 County Road 2
Hancock, MN 56244

Reese Reese
26566 375th Avenue
Hancock, MN 56244

Falk Falk
1170 Hwy 9 NE
Murdock, MN 56271

Kennedy Kennedy
Box 114
Spicer, MN 56288

Sievers Sievers
2502 Glacier Avenue
Alexandria, MN 56308

Halls Halls
31420 - 150th Avenue
Brooten, MN 56316

Halls Halls
30391 Street Hwy 104
Brooten, MN 56316

Chaffins Chaffins
14 1st Avenue South East
Glenwood, MN 56334

Sievers Sievers
Box 6669 County Road 8
Glenwood, MN 56334

Jenning Jenning
22887 County Road 10
Glenwood, MN 56334

Peters Peters
960 East MN Avenue
Glenwood, MN 56334

Dorn Dorn
19354 Halwood Road
Glenwood, MN 56334

Jacobson Jacobson
32035 225th Avenue
Glenwood, MN 56334

Talle Talle
17553 295th Street
Glenwood, MN 56334

30955 190th Avenue
Glenwood, MN 56334

Ihle Ihle
Bear Creek Wind Partners
27451 S. Highway 34
Barnesville, MN 56514

Hurley Hurley
West Central Initiative
1000 Western Ave.
Fergus Falls, MN 56537

Buesseler Buesseler
DNR
2115 Birchmont Beach Rd. NE
Bemidji, MN 56601

Lawrence Lawrence
Planning Zoning
130 E Minnesota Avenue
Glenwood, MN 56716

Schrader Schrader
Ariztar Development LLC.
4616 East Pebble Ridge Road
Paradise Valley, AZ 85253