BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
Joseph K. Sullivan	Commissioner
John A. Tuma	Commissioner

Brian M. Meloy
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Minneapolis, MN 55402

SERVICE DATE: April 5, 2022

DOCKET NO. IP-70061/WS-19-394

In the Matter of Buffalo Ridge Wind, LLC's Request to Amend Site Permit for the Buffalo Ridge Wind Project in Lincoln and Pipestone County, Minnesota

The above entitled matter has been considered by the Commission and the following disposition made:

Approved the proposed Project modifications and site permit amendments as proposed by Buffalo Ridge Wind, LLC and Energy Environmental Review and Analysis's supplement.

This decision is issued by the Commission's consent calendar subcommittee, under a delegation of authority granted under Minn. Stat. § 216A.03, subd. 8 (a). Unless a party, a participant, or a Commissioner files an objection to this decision within ten days of receiving it, it will become the Order of the full Commission under Minn. Stat. § 216A.03, subd. 8 (b).

The Commission agrees with and adopts the recommendations of the Department of Commerce, which are attached and hereby incorporated into the Order. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Will Seuffert
Executive Secretary

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COMMERCE DEPARTMENT

March 8, 2022

Mr. Will Seuffert
Executive Secretary
Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101-2147

RE: In the Matter of Buffalo Ridge Wind, LLC's Request to Amend Site for the Buffalo Ridge Wind Project in Lincoln and Pipestone County, Minnesota

Docket No. IP-70061/WS-19-394

Mr. Seuffert:

Attached are comments and recommendations of Energy Environmental Review and Analysis ("EERA") staff in the above-mentioned matter.

Buffalo Ridge Wind, LLC ("BRW") requested an amendment to the site permit issued on January 5, 2021, pursuant to Minn. R. 7854.1300 to (1) update the turbine technology; (2) change the location of the collector substation; and (3) include a short 115 (kV) generation-tie line. The permit amendment request was primarily driven by the Permittee's desire to have the option of using a combination of turbine technologies that was not identified in the issued site permit, and a minor change in the substation and connecting tie-in line location.

Subsequent to their January 28, 2022, BRW has indicated in their February 22, 2022 filing that they intend to use the same turbine technology as identified in the site permit issued on January 5, 2021 but replace one of the primary turbine locations with an alternative turbine site location.

EERA's review addresses the topics on which the Commission requested comments. Specific recommendations are attached. EERA believes the requested change does not significantly change the impacts of the project and recommends that the Commission grant the amendment.

EERA is available to answer any questions the Commission may have.

Sincerely,

/s/ Larry B Hartman

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COMMERCE DEPARTMENT

BEFORE THE PUBLIC UTILITIES COMMISSION

ENERGY ENVIRONMENTAL REVIEW AND ANALYSIS
Comments and Recommendations

Buffalo Ridge Wind Project
Docket No. IP-70061/WS-19-394

Date: March 8, 2022

Staff: larry.hartman@state.mn.us | (651) 539-1839

Issues Addressed: EERA's comments and recommendations address topics open for comment in a Commission notice dated February 15, 2022, for the above captioned docket, which are:[1]

- Should the Commission amend the Buffalo Ridge wind site permit to change the type and layout of the turbines used?
- Are there any potential human and environmental impacts associated with the proposed amendment to the site permit?
- Are there methods to minimize, mitigate, or avoid the potential impacts associated with the proposed amendment?
- Are there other issues or concerns related to this matter?

Additional documents and information can be found on eDockets: https://www.edockets.state.mn.us/EFiling/search.jsp (19-394).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1530 (voice).

Introduction and Background

On January 5, 2021, the Minnesota Public Utilities Commission (Commission) issued an order granting a site permit to Buffalo Ridge Wind, LLC (BRW or Permittee) for the Buffalo Ridge Wind Project, a 109-megawatt (MW) wind facility in Lincoln and Pipestone Counties.[2]

[1] MPUC Notice of Comment Period on Site Permit Amendment, February 15, 2022. See Docket Id. No. 20222-182785-01.

[2] Commission Order and Site Permit issued to Buffalo Ridge Wind, January 5, 2021. See Docket Id. No. 20211-169557-01.

As BRW has continued to develop the Project, BRW determined that it needs to amend the Site Permit pursuant to Minn. R. 7854.1300 to: (1) update the turbine technology; (2) change the location of the collector substation; and (3) include a short 115 kilovolt (kV) generation-tie line (gen-tie line).

On January 28, 2022, the Permittee filed an application requesting an amendment of the original Site Permit to reflect proposed project modifications in an amended site permit.[3]

Turbine Technology

BRW proposes to use one of two turbine array options, referred to as Option A and Option B. For both options, all turbine site locations remain the same as permitted in the Site Permit, except that Primary Turbine Site 31 has been dropped, and Alternative Turbine Site 3 (Alt 3) will be used instead. BRW will still construct a total of 40 turbines. The remaining four alternate sites are included to provide flexibility in the event constructability issues are encountered.[4]

Draft tax reform will change the way Production Tax Credits are structured for wind projects. Therefore, Option A would be implemented if no tax reform is implemented, and Option B would be implemented if new tax reform is enacted in a form like that currently being considered in Congress. BRW would implement either Option A or B at the time of submitting the Site Plan required in Section 10.3 of the Site Permit:[5]

- **Option A:** The turbine technology would remain the same as permitted in the Site Permit, with the following changes: the proposed construction of 36 GE 2.82 MW WTGs and 4 GE 2.52 MW WTGs. If the alternative sites are used, the wind turbine technology will be the same: 36 GE 2.82 MW WTGs and 4 GE 2.52 MW WTGs. The total capacity under Option A will be up to 106 MW.

- **Option B:** The turbine technology would remain the same as permitted in the Site Permit for the proposed construction of the first 36 GE 2.82 MW WTGs, with a turbine technology change to 4 GE 2.32 MW WTGs for the last four wind turbines proposed for construction. If the alternative sites are used, the wind turbine technology will be the same: 36 GE 2.82 MW WTGs and 4 GE 2.32 MW WTGs. The total capacity under Option B will be up to 106 MW.

On February 22, 2022 BRW filed a letter indicating BRW has determined that it will move forward with Option A, which most closely aligns to the approval set forth in the Site Permit. As noted in the Amendment Request, under Option A, the turbine technology would remain the same as permitted in the Site Permit (i.e., 36 GE 2.82 MW WTGs and 4 GE 2.52 MW WTGs). Further, under Option A, the locations of the primary and alternative turbine sites have not changed. Instead, the site location for

[3]BRW Site Permit Amendment Application, January 28, 2022. See Docket Id. No's 20221-182147-01 (Text, 18 pages). Supporting Appendices: 20221-182147-01 (Maps), 20221-182147-03 (Maps), 20221-182147-04 and 20221-182147-05 (Noise Analysis), 20221-182147-06 and 20221-182147-07 (Shadow Flicker Analysis), and 20221-182147-08 (Decommissioning Plan and Substation Location and Gen-Tie Transmission Line). [hereinafter Site Permit Amendment].
[4]Application for Site Permit Amendment, at p. 2.
[5] Ibid., p. 2.

Turbine 31 has been replaced with alternative turbine site location Alt 3. [6] Based on this information EERA's review and comments will only address Option A.

Collection Substation Location Change and Generation-Tie Line

Section 2 of the Site Permit indicated that the project collector substation would connect to the existing Buffalo Ridge Substation via a 115 kV transmission jumper (less than 1,500 feet in length) that would cross existing transmission lines owned by Northern States Power Company (NSP). The proposed location of the project collection substation has now changed due to a change in site control of the substation land originally proposed. As such, the new location of the collector substation necessitates an approximately 1,370-foot-long 115 kV gen-tie line. [7]

Additional Supporting Materials

In support of their site permit amendment request BRW's application compares sections of their July 17, 2019 Site Permit Application to the proposed changes under each option to demonstrate that under either option BRW's proposed amendments are minor, would not result in significant change in the project's impacts to the human or natural environment, and in compliance with all applicable Site Permit conditions. [8]

BRW also updated all Attachments in its amendment application, as follows: [9]

> **Attachment A:** provides a complete set of updated project maps (See Docket Id. No's. 20221-182147-02, 20221-182147-03;
>
> **Attachments B & C:** provides details regarding the relationship of residences (receptors) to wind turbine locations and includes the results of a Pre-Construction Noise Analysis (See Docket Id. No's 20221-182147-04 and 20221-182147-05);
>
> **Attachment E:** provides the results of a Shadow Flicker Analysis (See Docket Id. No. 20221-182147-07;
>
> **Attachments G and H: (G)** A revised Decommissioning Plan, and Decommissioning Cost estimates that incorporates the gen-tie line and **(H)** A proposed typical pole structure for the gen-tie line, a figure showing the location of the current proposed collection substation and gen-tie line in relation to the previously proposed substation location, and a general arrangement plan, profile, and representative photographs of the collector substation are included (See Docket Id. No. 20221-182147-08).

The attachments, as identified, show 39 primary turbines and 5 alternative turbines because Turbine 31 was dropped; however, as discussed above, the Project will construct a total of 40 turbines as alternative site turbine location Alt 3 will be used. The Pre-construction Sound and Shadow Flicker Analyses were conducted for all 44 turbines (primary and alternate site locations) that are currently

[6] See eDockets (1-394), Document Id. No. 20222-183049-01.
[7] Application for Site Permit Amendment, at p. 3.
[8] Application for Site Permit Amendment, at p. 3.
[9] Application for Site Permit Amendment, at p. 3.

proposed (Option A) to provide conservative results supporting the construction of any of the alternative site locations if a primary is dropped due to constructability issues.[10]

BRW has also proposed specific language to sections within the site permit and requested specific amendments to applicable permit language to reflect the proposed project modifications.

EERA Staff Analysis and Comments

The Permittee has coordinated with EERA staff to ensure that necessary documentation has been provided in their request to amend the Commission issued site permit, and to make sure all relevant issues and permit conditions have been addressed.

Staff's analysis and comments on the permittee's site permit amendment request application and supporting filings reviewed in the order presented and by site permit section and supporting documentation (Attachments A through H referenced above) as necessary.

Proposed Project Design Modifications

Project Rated Capacity

The Site Permit was issued for a rated capacity of up to approximately 108.9 MN for the Project. The proposed rated capacity of the Project will now be 106 MW.[11] The amened site permit will need to be modified from ~~108.9~~ to 106 MW all locations where referenced in the permit.

Turbine Sites

The Site Permit was issued for a total of 40 primary turbine locations and 5 alternative turbine locations comprising 36 primary and 3 alternative GE 2.82 MW turbines and 4 primary and 2 alternative GE 2.52 MW turbines. The locations of the primary and alternative turbine sites have not changed and will be the same as shown in **Attachment A**, **Map 2: Project Area and Facilities (**20221-182147-02**)**, with the understanding that the primary site location for Turbine 31 has been dropped and replaced with alternative turbine site location Alt 3. Therefore, 4 alternative turbine site locations remain from the original 5 permitted under the issued Site Permit. A summary of the turbine technology approved in the Site Permit and proposed under Option A is provided in the following table:[12]

Wind Turbine Technology

Turbine Type	Number and Turbine Type in Site Permit (Primary/Alternative)	Option A (Primary/Alternative)
GE 2.82 MW Turbine	36/3	36/3
GE 2.52 MW Turbine	4/2	4/1

[10]Application for Site Permit Amendment, at pp. 3-4.
[11]Application for Site Permit Amendment, at p. 4.
[12]Application for Site Permit Amendment, at p. 4.

GE 2.32 MW Turbine	0/0	0/0
TOTAL	40/5	40/4

Wind Rights

As a general update, approximately 99% of land control agreements necessary for construction and operation of the Project are in place. The remaining agreements will be in place prior to submittal of a Site Plan.[13]

Description of Project Setbacks and Layout Restrictions

The issued Site Permit allows for the use of 36 GE 2.82 MW turbines and 4 GE 2.52 MW turbines. BRW now proposes to use 36 GE 2.82 MW turbines and 4 GE 2.52 MW turbines (Option A). All turbines will be set back at least 3 RD in non-prevailing wind directions and 5 RD in prevailing wind directions from properties not participating in the Project. Based on the dimensions of the turbines associated with the Site Permit Amendment, the GE 2.82 MW turbines will be set back at least 1,252 feet (381.6 meters) (3 RD) in non-prevailing wind directions from properties not participating in the Project and at least 2,087 feet (636 meters) (5 RD) in prevailing wind directions from properties not participating in the Project. The GE 2.52 MW turbines have will be set back at least 1,147 feet (349.5 meters) (3 RD) in non-prevailing wind directions from properties not participating in the Project and at least 1,911 feet (582.5 meters) (5 RD) in prevailing wind directions from properties not participating in the Project.[14]

Attachment A (20221-182147-02), **Map 3: Turbine Layout and Constraints** illustrates the revised layout and applicable setbacks.

The turbine layout and constraint maps demonstrate permit compliance with site permit condition 4 Setbacks and Site Layout Restrictions and includes: the wind access buffer (4.1), residences (4.2), noise (4.3), roads (4.4), public lands (4.5), wetlands (4.6), native prairie (4.7) and sand and gravel operations (4.8).

EERA's review of setback and site layout restrictions finds that BRW is following the setback and layout requirements of the site permit and that no site permit setback modifications are required.

Description of Turbines and Towers

BRW noted that a minor change is needed to Section 4.9 of the Site Permit to correct the description of the GE 2.52 WTG to include the following design features: 116.5-meter (382-foot) RD and a 90-meter (295-foot) hub height. As written, Section 4.9 used the design features for the GE 2.82 for the GE 2.52, and BRW proposes this minor change be made in the amended Site Permit.[15] This request is addressed in the section titled "Site Permit Requested Changes".

The proposed turbine models are the same as those permitted in the issued Site Permit. Characteristics of the GE 2.82 MW and GE 2.52 MW turbine models are detailed in the following table.[16]

[13] Application for Site Permit Amendment, at p. 4.
[14] Application for Site Permit Amendment, at p. 4.
[15] Application for Site Permit Amendment, at pp. 5-6.
[16] Application for Site Permit Amendment, at p. 5-6.

Wind Turbine Characteristics*

Design Features	GE 2.82 MW Turbine (Proposed for Option A)	GE 2.52 MW Turbine (Proposed for Option A)
Nameplate Capacity	2.82 MW	2.52 MW
Hub Height	89 meters (292 feet)	90 meters (295 feet)
Rotor Swept Area	12,704 meters^2 (136,745 square feet)	10,660 meters^2 (114,743 square feet)
Total Height (ground to fully extended blade tip)	152.1 meters (499 feet)	148.3 meters (487 feet)
Rotor Diameter	127.2 meters (417 feet)	116.5 meters (382 feet)
Cut in Wind Speed	3 meters per second (m/s) (6.8 miles per hour (mph))	3 m/s (6.8 mph)
IEC Wind Class	7.85 m/s (17.6 mph)	7.0 m/s (15.7 mph)
Cut-Out Wind Speed	30 m/s (66.8 mph) in 600 second time interval	32 m/s (71.6 mph) in 600 second time interval
Rotor Speed	7.4–15.7 revolutions per minute (RPM)	7.4–15.7 RPM
Tip Speed	85.1–89.1 m/s (190.4–199.3 mph)	81.7–85.4 m/s (182.8–191.0 mph)
Sound at Turbine	95.2–108.5 dBA	93.5–106.0 dBA
Power Regulation	Blade pitch controls power; controls included for zero voltage ride through (ZVRT) and enhanced reactive power (0.9 power factor)	Blade pitch controls power; controls included for ZVRT and enhanced reactive power (0.9 power factor)
Generation	2.82 MW per turbine	2.52 MW per turbine
Tower	Multi-coated, conical tubular steel with safety ladder to the nacelle; rest platforms each section	Multi-coated, conical tubular steel with safety ladder to the nacelle; rest platforms each section
Supervisory Control and Data Acquisition (SCADA)	Each turbine equipped with SCADA controller hardware, software, and database storage capability	Each turbine equipped with SCADA controller hardware, software, and database storage capability
Federal Aviation Administration (FAA) Lighting	Yes, per FAA permitting	Yes, per FAA permitting

Foundation	Per manufacturer specifications—spread foot or pier foundation, as appropriate	Per manufacturer specifications—spread foot or pier foundation, as appropriate.

*Source: GE manufacturer specifications

Collector Substation and Interconnection & Transmission and Project Substation

BRW executed a provisional generation interconnection agreement with the Midcontinent Independent System Operator, Inc. in September 2021. For Option A, BRW proposes to construct an approximately 1,370-foot-long 115 kV gen-tie line to connect the BRW collector substation to the existing Buffalo Ridge Substation owned by NSP, which is the point of interconnection. **See Map 2, Attachment A: Project Area and Facilities** (20221-182147-02) and **Attachment H: Detail of Proposed Substation and Generation Tie Line** (20221-182147-08). **Attachment H** also includes a general arrangement plan, profiles, and a representative photograph for the collector substation. Up to four steel poles will be constructed to support the overhead gen-tie with an average span between structures ranging from 400 to 550 feet. The gen-tie line design will use dead-end type structures ranging from 100 to 120 feet above the ground surface. A proposed typical transmission pole structure is shown in **Attachment H**. The proposed 115 kV gen-tie line will be designed to meet all applicable local and state codes, the North American Electric Reliability Corporation Reliability Standards, and the National Electric Safety Code.[17]

Noise

The sound analysis for the Application included a total of 45 project-related wind turbines (40 primary + 5 alternatives), of which 6 were proposed to be GE 2.52 wind turbines and 39 were proposed to be GE 2.82 wind turbines. Select GE 2.82 wind turbines (Turbines 8, 17, 19, 20, 21, 29, 33, 36, 38, and Alt 5) were proposed to run under a noise reduced operation (NRO). All wind turbines are proposed to have low-noise trailing edge (LNTE) blades. The Pre-construction Sound Analyses for Option A show 40 primary turbine site locations and 4 alternative turbine site locations, with the understanding that primary site location Turbine 31 has been dropped and alterative site location Alt 3 will replace Turbine 31. The Pre-construction Sound Analyses was conducted for all 44 turbines (primary and alternate turbine locations) that are currently proposed. As discussed below, the Sound Analyses demonstrates that the proposed project changes do not materially impact the results previously reviewed by the Commission.[18]

The sound analysis for Option A (Attachment B 20221-182147-04) and Attachment C 20221-182147-05) includes a total of 44 project-related wind turbines of which 39 are proposed to be GE 2.82 wind turbines and 5 are proposed to be GE 2.52 wind turbines.

In the sound analysis conducted for the Application, the highest predicted worst-case Project Only L_{50} sound level at a modeling receptor was 47 A-weighted decibels (dBA), which occurred at 19 participating

[17] Application for Site Permit Amendment, at p. 6.
[18] Application for Site Permit Amendment, at p. 7.

receptors. The highest modeled Project Only L_{50} sound level at a non-participating receptor was 45 dBA (receptors 154, 83, and 16).[19]

The sound analysis conducted for Option A (**Attachment C**; **Maps 7, 8a, 9a, 10a, 11a, 12a, and 12b.1** in **Attachment A:** 20221-182147-03) determined that the highest predicted worst-case Project Only L_{50} sound level at a modeling receptor is 47 dBA and is modeled to occur at 12 participating receptors (receptors 138, 141, 85, 841, 93, 92, 89, 46, 71, 55, 151, and 91). The highest modeled Project Only L_{50} sound level at a non-participating receptor is 45 dBA (at receptor 154). The highest modeled L_{50} sound level from the Project + non-Project (i.e., Ruthton Wind Turbines and Lake Benton Wind II) scenario is 52 dBA and is modeled to occur at one participating location (receptor 44). Receptor 44 is less than 600 feet from a Ruthton wind turbine. As shown in Table D-3 of the sound analysis report (**Attachment C:** 20221-182147-05), the Ruthton Only sound level at receptor 44 is 51 dBA. The Project Only sound level at this receptor is 39 dBA, shown in Table D-2A of the sound analysis report. The Project contributes to the modeled Project + Ruthton + Lake Benton Wind II sound level at this receptor by no more than 1 dBA, which is an imperceptible change in the sound level. The second highest modeled L_{50} sound level from the Project + Ruthton + Lake Benton Wind II scenario is 48 dBA and is modeled to occur at non-participating receptor 42.[20]

BRW has designed the Project to meet the Minnesota Pollution Control Agency (MPCA) state noise standards and to minimize the sound levels due to the wind turbines at the homes in the community as much as possible, while also meeting the other project design constraints, including the 3 RD/5 RD setbacks previously described, and other regulatory requirements.

Compliance with MPCA noise standards will be accomplished, in part, by equipping all turbine blades with LNTE, employing NRO at select turbine locations as detailed above, and including a 1,400-foot setback from residences in BRW's design. Also, consistent with the 3 RD by 5 RD large wind energy conversion system setback requirement, GE 2.82 MW turbines will be set back at least 1,252 feet (381.6 meters) (3 RD) in non-prevailing wind directions from properties not participating in the Project and at least 2,087 feet (636 meters) (5 RD) in prevailing wind directions from properties not participating in the Project. The GE 2.52 MW (Option A) turbines will be set back at least 1,147 feet (349.5 meters) (3 RD) in non-prevailing wind directions from properties not participating in the Project and at least 1,911 feet (582.5 meters) (5 RD) in prevailing wind directions from properties not participating in the Project.[21]

Regarding anticipated compliance with Section 4.3-Noise, EERA staff notes that the amendment request indicates that "total projected sound levels from the project as currently designed are expected to be below both the state nighttime limit of 50 dBA (L50) and the daytime limit of 60 dBA" (emphasis added).

EERA staff understands the Minnesota Rules 7030 standards to be standards for total sound (project + existing levels). EERA has reviewed updated analysis provided by the Permittee in the context of the

[19] Application for Site Permit Amendment, at p. 7.
[20] Application for Site Permit Amendment, at p. 8.
[21] Application for Site Permit Amendment, at pp. 8-9.

total standard and has concluded that the project, plus the background sound level of 47 dBA or less is expected to comply with the nighttime limit.

EERA anticipates working with the Permittee as they take the measures required under the permit to verify compliance with the Minnesota Rule 7030 standards.

Visual Impacts

Changes in visual impacts are immaterial under Option A. The following table has been updated to reflect Option A technology.

Rotor Diameter and Number of Turbines (Option A)

Turbine Model	Hub Height (meters/feet)	Rotor Diameter (meters/feet)	Rotor Tip Height (meters/feet)	Ground Clearance (meters/feet)	Number of Turbines	Number of Alternative Turbines
GE 2.52 MW	90/295	116.5/382.2	148.3/487	32/105	4	1
GE 2.82 MW	89/292	127.2/417.3	152.1/499	25/82	36	3

The addition of the proposed gen-tie line would alter the visual appearance within the vicinity of the gen-tie by adding additional vertical and horizontal artificial structures to the existing landscape. The gen-tie will not create a new feature type within the landscape as multiple existing overhead lines are present at the existing Buffalo Ridge Substation.[22]

Shadow Flicker

The analysis for the Application indicated that the modeled worst-case annual shadow flicker duration ranged between 0 hours, 0 minutes and 124 hours, 30 minutes per year, which occurred at participating receptor 841. The maximum modeled worst-case annual flicker at a nonparticipating receptor (receptor 154) was 83 hours, 0 minutes.[23]

The shadow flicker analysis for the Application indicated that the maximum predicted expected annual shadow flicker duration was 42 hours, 11 minutes per year, which occurred at participating receptor 841. The maximum predicted, expected annual flicker at a non-participating receptor (receptor 154) is 28 hours, 51 minutes.[24]

The Application analysis also indicated that 295 receptors were predicted to experience no annual shadow flicker, 67 locations were predicted to experience less than 10 hours per year of shadow flicker, 40 locations were expected to have between 10 and 30 hours of shadow flicker per year, and 9 locations were expected to have more than 30 hours of shadow flicker per year. None of the receptors expected to have more than 30 hours of shadow flicker per year were non-participating receptors. As discussed herein, the Shadow Flicker the Shadow Flicker Analysis for Option A was conducted for all 44 turbines

[22]Application for Site Permit Amendment, at p. 10.
[23]Application for Site Permit Amendment, at p. 11.
[24]Application for Site Permit Amendment, at p. 11.

(primaries and alternates) that are currently proposed. The analyses for Options A used RDs of 127.2 m for GE 2.82 MW turbines and 116.5 m for GE 2.52 MW, based on specifications from the manufacturer, instead of the previously modeled 127.0 m and 116.0 m RD's. This resulted in minor changes to the results detailed below. [25]

The analysis for Option A (**Maps 15a** and **16a** in **Attachment A:** 20221-182147-03;) indicates that the worst-case annual shadow flicker duration increases to 125 hours, 12 minutes and is at participating receptor 841. The maximum modeled worst-case annual flicker at a non-participating receptor (receptor 154) is 83 hours, 15 minutes, which is a 15-minute increase from the 83 hours, 0 minutes at nonparticipating receptor 154 indicated during the proceeding. [26]

The maximum predicted expected annual shadow flicker duration for Option A is now 42 hours and 26 minutes (at participating receptor 841). This is an increase of 15 minutes compared to the analysis for the Application. The maximum predicted expected annual flicker at a nonparticipating receptor (receptor 154) is 28 hours, 56 minutes, which is a 5-minute increase from the 28 hours, 51 minutes at the same non-participating receptor (receptor 154) indicated during the proceeding. [27]

The revised model for this Site Permit Amendment indicates that for Option A, 295 receptors are predicted to experience no annual shadow flicker, 70 locations are predicted to experience less than 10 hours per year of shadow flicker, 38 locations are expected to have between 10 and 30 hours of shadow flicker per year, and 8 locations are expected to have more than 30 hours of shadow flicker per year. None of the receptors expected to have more than 30 hours of shadow flicker per year were non-participating receptors. [28]

Summaries of the modeling results for Option A are presented in the following tables and (**Attachment E:** 20221-182147-07) provides the complete revised shadow flicker study and results for Option A. [29]

Predicted Shadow Flicker Impacts at Participating Receptors

Statistic	Application Duration (Hrs: mins/yr)	Option A Duration (Hrs: mins/yr)
Maximum Shadow Flicker — Worst Case	124:30	125:12
Maximum Shadow Flicker — Expected Case	42:11	42:26

Predicted Shadow Flicker Impacts at Non-Participating Receptors

Statistic	Application Duration (Hrs: mins/yr)	Option A Duration (Hrs: mins/yr)
Maximum Shadow Flicker — Worst Case	83:00	83:15

[25] Application for Site Permit Amendment, at p. 11.
[26] Application for Site Permit Amendment, at p. 11.
[27] Application for Site Permit Amendment, at p. 11.
[28] Application for Site Permit Amendment, at p. 11.
[29] Application for Site Permit Amendment, at p. 12.

Maximum Shadow Flicker — Expected Case	28:51	28:56

Public Health and Safety

Electromagnetic Fields

The proposed gen-tie line's associated electromagnetic field (EF) is calculated to be no greater than 5.0 kV/m at 1 meter above the ground within the project right-of-way (ROW). Existing transmission lines that parallel the Project are not included as part of this calculation. The fields generated by those lines will be determined during detailed engineering and through communications with transmission line owners. The proposed short 115 kV gen-tie line's EF will not exceed 8.0 kV/m within the ROW. There is no federal standard for gen-tie line or transmission line EFs. The Commission, however, has historically imposed a maximum EF limit of 8 kV/m measured at 1 meter above the ground.[30]

The standard was designed to prevent serious hazards from shocks when touching large objects parked under alternating current transmission lines of 500 kV or greater.

Magnetic Fields

The gen-tie line's magnetic field (MF) will not exceed 500 milligauss (mG) within the ROW.
There is no Minnesota or federal standard on MFs. The Institute of Electrical and Electronic Engineers C95.6 standard provides the following guidance regarding low frequency (60 hertz) MF: The fields should not exceed 904 mG within or at the edge of the ROW. The peak MF value is calculated at a height of 1 meter above the ground.[31]

Land-Based Economies

The Application indicated that the primary impact to agricultural land from the Project was the reduction of crop production on a total of approximately 35.9 acres (14.5 hectares) of farmland.

Under Option A, BRW anticipates a slight increase in permanent impacts to farmland due to the addition of the 115 kV gen-tie line. However, a decrease of 3.8 acres (1.5 hectares) of permanent impacts to farmland is anticipated due to the moving and reduction of the proposed footprint of the substation (see **Attachment H**). The following table summarizes the anticipated change in permanent impacts to farmland from the relocation of the project substation and the addition of the gen-tie line for the revised Project from what was presented in the Application.[32]

Summary of Changes in Farmland Impacts

Prime Farmland Type	Substation (acres/hectares)	Gen-Tie (acres/hectares)
All Areas Prime Farmland	(3.5) / (1.4)	<0.01 / <0.01
Prime Farmland if Drained	(0.3) / (0.1)	0
Farmland of Statewide Importance	0	0

[30] *In the Matter of the Route Permit Application for a 345 kV Transmission Line from Brookings County, Docket No. ET-2/TL-08-1471*, Order Granting Route Permit (adopting Finding 194 of ALJ) (September 14, 2010).
[31] Application for Site Permit Amendment, at p. 12.
[32] Application for Site Permit Amendment, at p. 14.

Prime Farmland if Protected from Flooding or Not Frequently Flooded during Growing Season	0	0
Not Prime Farmland	0	0
Prime Farmland if Irrigated	0	0
TOTAL	(3.8) / (1.5)	<0.01 / <0.01

Note: Parentheses indicate a reduction in impacts.

Wildlife Resources

The gen-tie will be constructed in accordance with Avian and Power Line Interaction Committee guidelines.[33]

Native Prairie

On March 7, 2022, BRW filed an updated "Prairie Protection Plan".[34] This plan noted that BRW has proactively designed the Project to avoid impacts to areas of native prairie and restored prairie. As a result, any areas of potential ground disturbance have avoided all mapped native prairie – resulting in no impacts to native prairie. All Project infrastructure (i.e., turbines, access roads, collection line, temporary laydown yard, MET towers have been sited to avoid native prairie (see **Figure 2** and **Figure 3**).[35]

Potential impacts to native prairie will be avoided through project siting, signage and partitioning, and training. Signage and partitioning (such as avoidance fencing or roping) will be used to mark native prairie located within 20 feet of the construction easement (see **Figure 3**). Areas of native prairie located adjacent to the construction easement or within the extent of drawings will be illustrated on construction plans prior to construction activities. Signage, along with partitioning, will be used where necessary to demark native prairie. Signage and partitioning will be clearly visible and will be used prior to, during, and following construction, as needed.[36]

EERA believes the "*Prairie Protection Plan*" filed on March 7, 2022, complies with (Section 4.7 Native Prairie) of the site permit.

Energy Projections

Under Option A, the annual net capacity factor is expected to be approximately 47% to 54%. The projected average annual output is approximately 450,000 to 460,000 MWh.[37]

Decommissioning and Restoration

The revised decommissioning plan (dated, January 27, 2022) now includes decommissioning of the proposed gen-tie line (See Attachment G at: 20221-182147-08).[38]

[33] Application for Site Permit Amendment, at p. 15.
[34] Prairie Protection Plan, March 4, 2022. See Document Id. No's. 20223-183519-01 and 20223-183519-02.
[35] Ibid.
[36] Ibid.
[37] Application for Site Permit Amendment, at p. 16.
[38] Application for Site Permit Amendment, at p. 16.

EERA staff has reviewed this revised decommissioning and find that it addresses all aspect of project decommissioning and includes a proposed five-year revision update schedule.

Site Permit Requested Changes

Due to Project modifications detailed above, BRW is proposing the following changes to the text of the impacted Site Permit Sections (additions in underline and deletions in strikethrough). EERA has also proposed a change to Section 4.9.

Section 1 – Site Permit

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to Buffalo Ridge Wind, LLC (Permittee) pursuant to Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854. This permit authorizes the Permittee to construct and operate the Buffalo Ridge Wind Project, an up to ~~108.7~~ 106-megawatt (MW) nameplate capacity Large Wind Energy Conversion System (LWECS) and associated facilities in Lincoln and Pipestone County, Minnesota. The LWECS and associated facilities shall be built within the site identified in this permit and as identified in the attached site maps, hereby incorporated into this document. [39]

Section 2 – Project Description

The project is comprised of a total of ~~45~~ 44 wind turbine~~s~~ sites (40 proposed wind turbines sites, plus ~~five~~ four alternate sites) for a capacity of up to ~~108.7~~ 106 MW. A maximum of 40 turbines are proposed for construction. As proposed, ~~the project will use 36 GE 2.82 MW wind turbine generators (WTGs) and four GE 2.52 MW WTGs.~~ the project will use 36 GE 2.82 MW wind turbine generators (WTGs) and ~~either~~ four GE 2.52 MW WTGs ~~or four GE 2.32 MW WTGs~~. ~~Five~~ Four alternate sites are included to provide flexibility in the event constructability issues are encountered.

The turbines at hub height will be 292 feet (89 meters) for the GE 2.82 MW WTGs, 295 feet (90 meters) for the GE 2.52 MW WTGs~~, or 262 feet (80 meters) for the GE 2.32 MW WTGs~~. The rotor diameter for the turbines is 417 feet (127.2 meters) for the GE 2.82 MW WTGs or 382 feet (116.5 meters) for ~~both~~ the GE 2.52 ~~and 2.32~~ MW WTGs. The project collector substation will connect to the existing Buffalo Ridge Substation via a 115 kV gen-tie line (less than 1,500 feet in length) that will cross existing transmission lines owned by Northern States Power Company. The Project will also include installation of one permanent meteorological (MET) tower. All of the turbines will utilize low-noise trailing edge (LNTE) serrations on the turbine blades to reduce sound impacts. LNTE serrations will be the same color as the turbine blades and cover approximately 20–30 percent of the trailing edge of the outboard blade length. [40]

Section 2.1 – Associated Facilities

Associated facilities include the following: an approximately 1,370-foot-long 115 kV generation tie line, underground collection and feeder lines (approximately 30 miles of 34.5 kV collector lines), temporary

[39] Application for Site Permit Amendment, at p. 17.
[40] Application for Site Permit Amendment, at p. 17.

access roadways up to 45 feet in width for crane movement and equipment delivery, permanent all-weather gravel access roads 16 feet in width (approximately 20 miles), one MET tower, temporary staging/laydown construction area (15 acres), turbine construction area for each turbine (approximately five acres), an operation and maintenance (O&M) facility (two acres), and an aircraft detection lighting system.[41]

Section 4.9 Wind Turbine Towers

As written, Section 4.9 of the site permit used the design features for the GE 2.82 for the GE 2.52, and BRW proposes this minor change be made in the amended Site Permit. EERA has incorporated this change in the following table. EERA is also proposing site permit amendment language to section 4.9 and this change is highlighted in red as shown below. This change is proposed to incorporate current project information.

Structures for wind turbines shall be self-supporting tubular towers. The towers may be up to ~~292 feet (89 meters)~~ 295 feet (90 meters) above grade measured at hub height.[42] The wind turbine specifications in the table below were provided in the Permittee's ~~July 17, 2019, site permit application and revised August 12, 2019, site permit application~~ January 28, site permit amendment application.

Replace the existing table in Section 4.9 with the following:

Design Features	GE 2.82 MW Turbine (Option A)	GE 2.52 MW Turbine (Option A)
Generating Capacity	2.82 MW	2.52 MW
Total Height (ground to fully extended blade tip)	152.1 meters (499 feet)	148.3 meters (487 feet)
Hub Height	89 meters (292 feet)	90 meters (295 feet)
Rotor Diameter	127.2 meters (417 feet)	116.5 meters (382 feet)

EERA Recommendations

EERA has reviewed the Permittee's filings, analysis of anticipated impacts associated with the now proposed turbine technology (Option A), project layout, collector substation relocation, generation-tie line location and site permit language modifications proposed for the Buffalo Ridge Project in the counties of Lincoln and Pipestone.

[41] Application for Site Permit Amendment, at pp. 17-18.
[42] Application for Site Permit Amendment, at p. 18.

EERA has determined that the information and attachments provided in BRW's site permit amendment application filed on January 28, 2022 is sufficient to provide the Commission with an understanding of the human and environmental impacts and tradeoffs associated with all proposed Project modifications.

EERA also believes the Permittee's impact analysis establishes that the Project modifications are compatible with the standards and best practices identified as conditions of the original order and permit granted by the Commission on January 5, 2021. The proposed Project modifications and site permit amendments are minor and will not result in changes in the impacts to the human or natural environment identified in the original site permit application.

EERA believes compliance with permit conditions and minimization of impacts can be achieved through the existing compliance filing requirements included in the permit and does not see a need for additional or different permit conditions or compliance filings.

ERRA recommends Commission approval of the proposed Project modifications and site permit amendments as proposed by BRW and ERRA's supplement.

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

SITE PERMIT FOR A
LARGE WIND ENERGY CONVERSION SYSTEM

IN
LINCOLN AND PIPESTONE COUNTIES

ISSUED TO
BUFFALO RIDGE WIND, LLC

PUC DOCKET NO. IP-7006/WS-19-394

In accordance with the requirements of Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854 this site permit is hereby issued to:

BUFFALO RIDGE WIND, LLC

The Permittee is authorized by this site permit to construct and operate a Large Wind Energy Conversion System of up to 106 megawatts (MW) consisting of up to 40 turbines. The Large Wind Energy Conversion System and associated facilities shall be built within the site identified in this permit and as portrayed on the site maps and in compliance with the conditions specified in this permit.

This site permit shall expire thirty (30) years from the date of this approval.

Approved and adopted this 5th day of April, 2022

BY ORDER OF THE COMMISSION

Will Seuffert,
Executive Secretary

To request this document in another format such as large print or audio, call 651.296.0406 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

Contents

ATTACHMENTS

Attachment 1 – Complaint Handling Procedures for Permitted Energy Facilities

Attachment 2 – Compliance Filing Procedure for Permitted Energy Facilities

Attachment 3 – Site Maps

1 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to Buffalo Ridge Wind, LLC (Permittee) pursuant to Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854. This permit authorizes the Permittee to construct and operate the Buffalo Ridge Wind Project, an up to 106 megawatt (MW) nameplate capacity Large Wind Energy Conversion System (LWECS) and associated facilities in Lincoln and Pipestone County, Minnesota. The LWECS and associated facilities shall be built within the site identified in this permit and as identified in the attached site maps, hereby incorporated into this document.

1.1 Preemption

Pursuant to Minn. Stat. § 216F.07, this permit shall be the sole site approval required for the location, construction, and operation 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.

2 PROJECT DESCRIPTION

The project is comprised of a total of 44 wind turbines sites (40 proposed wind turbines sites, plus four alternate sites) for a capacity of up to 106 MW. A maximum of 40 turbines are proposed for construction. As proposed, the project will use 36 GE 2.82 MW wind turbine generators (WTGs) and four GE 2.52 MW WTGs. Four alternate sites are included to provide flexibility in the event constructability issues are encountered.

The turbines at hub height will be 292 feet (89 meters) for the GE 2.82 MW WTGs and 295 feet (90 meters) for the GE 2.52 MW WTGs. The rotor diameter for the turbines is 417 feet (127.2 meters) for the GE 2.82 MW WTGs and 382 feet (116.5 meters) for the GE 2.52 MW WTGs. The project collector substation will connect to the existing Buffalo Ridge Substation via a 115 kV transmission jumper (less than 1,500 feet in length) that will cross existing transmission lines owned by Northern States Power Company. The Project will also include installation of one permanent meteorological (MET) tower. All of the turbines will utilize low-noise trailing edge (LNTE) serrations on the turbine blades to reduce sound impacts. LNTE serrations will be the same color as the turbine blades and cover approximately 20-30 percent of the trailing edge of the outboard blade length.

2.1 Associated Facilities

Associated facilities include the following: an approximately 1,370-foot-long 115 kV generation-

tie line, underground collection and feeder lines (approximately 30 miles of 34.5 kV collector lines), temporary access roadways up to 45 feet in width for crane movement and equipment delivery, permanent all-weather gravel access roads 16 feet in width (approximately 20 miles,) one MET tower, temporary staging/laydown construction area (15 acres), turbine construction area for each turbine (approximately five acres), an operation and maintenance (O&M) facility (two acres), and an aircraft detection lighting system.

2.2 Project Location

The project is located in southern Lincoln County and northern Pipestone County between the cities of Lake Benton on the west and Tyler on the east. The project is bounded by Highway 14 on the north, Highway 23 on the east, and Highway 75 on the west. The project is located in the following:

County	Township Name	Township	Range	Sections
Lincoln	Lake Benton	109	45	10, 11, 13-16, 20-23, 26-29, 32-36
Lincoln	Hope	109	44	31
Pipestone	Fountain Prairie	108	45	3

3 DESIGNATED SITE

The site designated by the Commission for the Buffalo Ridge Wind Project is the site depicted on the site maps attached to this permit. The project area encompasses approximately 17,610 acres. Upon completion, the project will occupy no more than 60 acres of land converted to wind turbines and associated facilities approved by this permit. Within the project boundary, the LWECS and associated facilities shall be located on lands for which the Permittee has obtained wind rights.

3.1 Turbine Layout

The preliminary wind turbine and associated facility layouts are shown on the site maps attached to this permit. The preliminary layout represents the approximate location of wind turbines and associated facilities within the project boundary and identifies a layout that seeks to minimize the overall potential human and environmental impacts of the project, which were evaluated in the permitting process.

The final layout depicting the location of each wind turbine and associated facility shall be located within the project boundary. The project boundary serves to provide the Permittee with the flexibility to make minor adjustments to the preliminary layout to accommodate requests by landowners, local government units, federal and state agency requirements, and unforeseen conditions encountered during the detailed engineering and design process. Any modification to the location of a wind turbine and associated facility depicted in the preliminary layout shall be done in such a manner to have comparable overall human and environmental impacts and shall be specifically identified in the site plan pursuant to Section 10.3.

4 SETBACKS AND SITE LAYOUT RESTRICTIONS

4.1 Wind Access Buffer

Wind turbine towers shall not be placed less than five rotor diameters on the prevailing wind directions and three rotor diameters on the non-prevailing wind directions from the perimeter of the property where the Permittee does not hold the wind rights, without the approval of the Commission. This section does not apply to public roads and trails.

4.2 Residences

Wind turbine towers shall not be located closer than 1,000 feet from all residences or the distance required to comply with the noise standards pursuant to Minn. R. 7030.0040, established by the Minnesota Pollution Control Agency (MPCA), whichever is greater.

4.3 Noise

The wind turbine towers shall be placed such that the Permittee shall, at all times, comply with noise standards established by the MPCA as of the date of this permit and at all appropriate locations. The noise standards are found in Minnesota Rules Chapter 7030. Turbine operation shall be modified, or turbines shall be removed from service if necessary to comply with these noise standards. 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 noise 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 construction of the towers.

4.4 Roads

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

4.5 Public Lands

Wind turbines and associated facilities including foundations, access roads, underground cable, and transformers, shall not be located in publicly-owned lands that have been designated for recreational or conservation purposes, including, but not limited to, Waterfowl Production Areas, State Wildlife Management Areas, Scientific and Natural Areas or county parks, except in the event that the public entity owning those lands enters into a land lease and easement with the Permittee. Wind turbine towers shall also comply with the setbacks of Section 4.1.

4.6 Wetlands

Wind turbines and associated facilities including foundations, access roads, underground cable and transformers, shall not be placed in public waters wetlands, as shown on the public water inventory maps prescribed by Minnesota Statutes Chapter 103G, except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources (DNR) and the United States Army Corps of Engineers (USACE), and local units of government as implementers of the Minnesota Wetlands Conservation Act.

4.7 Native Prairie

Wind turbines and associated facilities including foundations, access roads, collector and feeder lines, underground cable, and transformers shall not be placed in native prairie, as defined in Minn. Stat. § 84.02, subd. 5, unless addressed in a prairie protection and management plan and shall not be located in areas enrolled in the Native Prairie Bank Program. Construction activities, as defined in Minn. Stat. § 216E.01, shall not impact native prairie unless addressed in a Prairie Protection and Management Plan.

The Permittee shall prepare a Prairie Protection and Management Plan in consultation with the DNR if native prairie, as defined in Minn. Stat. § 84.02, subd. 5, is identified within the site boundaries. The Permittee shall file the plan 30 days prior to submitting the site plan required by Section 10.3 of this permit. The plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, the DNR, and the Commission.

4.8 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 landowner.

4.9 Wind Turbine Towers

Structures for wind turbines shall be self-supporting tubular towers. The towers may be up to 292 feet (89 meters) above grade measured at hub height. The wind turbine specifications in the table below were provided in the Permittee's July 17, 2019, site permit application and revised August 12, 2019, site permit application.

Design Feature	GE 2.82 WTG	GE 2.52 WTG
Generating Capacity	2.82 MW	2.52 MW
Total Height (ground to fully extended blade tip)	152.1 meters (499 feet)	148.3 meters (487 feet)
Hub Height	89 meters (292 feet)	90 meters (295 feet)
Rotor Diameter	127.2 meters (417 feet)	116.5 meters (382 feet)

4.10 Turbine Spacing

The turbine towers shall be constructed within the site boundary as shown on the site maps. The turbine towers shall be spaced no closer than three rotor diameters in the non-prevailing wind directions and five rotor diameters on the prevailing wind directions. If required, 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.

4.11 Meteorological Towers

Permanent towers for meteorological equipment shall be free standing. 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 property

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.

4.12 Aviation

The Permittee shall not place wind turbines or associated facilities in a location that could create an obstruction to navigable airspace of private and public airports (as defined in Minn. R. 8800.0100, subp. 24(a) and 24(b)) in Minnesota, adjacent states, or provinces. The Permittee shall apply the minimum obstruction clearance for private airports pursuant to Minn. R. 8800.1900, subp. 5. Setbacks or other limitations shall be followed in accordance with the Minnesota Department of Transportation (MnDOT), Department of Aviation, and the FAA. The Permittee shall notify owners of all known airports within six miles of the project of the project's anticipated construction start date at least 14 days prior to the pre-construction meeting.

4.13 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.

5 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the LWECS and associated facilities over the life of this permit.

5.1 Permit Distribution

Within 30 days of permit issuance, the Permittee shall send a copy of the permit and the complaint procedures to any regional development commission, county auditor and environmental office, and city and township clerk in which any part of the site is located.

Within 30 days of permit issuance, the Permittee shall provide all affected landowners with a

copy of this permit and the complaint procedures. In no case shall the landowner receive this site permit and complaint procedures less than five days prior to the start of construction on their property. An affected landowner is any landowner or designee that is within or adjacent to the permitted site.

5.2 Access to Property

The Permittee shall contact landowners prior to entering private property or conducting maintenance within the project site unless otherwise negotiated with the affected landowner.

5.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the July 17, 2019, site permit application and subsequent revisions (August 9, 2019; February 21, 2020; and June 5, 2020) and the record of the proceedings unless this permit establishes a different requirement in which case this permit shall prevail.

5.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during construction of the project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative 14 days prior to the pre-construction meeting. The Permittee shall provide the field representative's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons.

5.3.2 Site Manager

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this permit during the commercial operation and decommissioning phases of the project. This person shall be accessible by telephone or other means during normal business hours for the life of this permit.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the site manager 14 days prior to the pre-operation meeting for the facility. The Permittee shall provide the site manager's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to the pre-operation meeting for the facility. The Permittee may change the site manager at any time upon notice to the Commission, affected landowners, local government units and other interested persons.

5.3.3 Employee Training and Education of Permit Terms and Conditions

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

5.3.4 Public Services and Public Utilities

During construction, the Permittee shall minimize any disruption to public services and public utilities. To the extent disruptions to public services or public utilities occur these will be temporary, and the Permittee will restore service promptly. Where any impacts to utilities have the potential to occur the Permittee will work with both landowners and local agencies to determine the most appropriate mitigation measures if not already considered as part of this permit.

5.3.5 Topsoil Protection

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

5.3.6 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. Soil decompaction measures shall be utilized on all lands utilized for project construction and travelled on by cranes, heavy equipment, and heavy trucks; even when soil compaction minimization measures are used.

5.3.7 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices

recommended by the MPCA Construction Stormwater Program. If construction of the facility disturbs more than one acre of land, or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit from the MPCA that provides for the development of a Stormwater Pollution Prevention Plan (SWPPP) that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the facilities shall be returned to pre-construction conditions.

5.3.8 Wetlands and Water Resources

Construction in wetland areas shall occur during frozen ground conditions to minimize impacts, to the extent feasible. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. Soil excavated from the wetlands and riparian areas shall be contained and managed in accordance with all applicable wetland permits. Wetlands and riparian areas shall be accessed using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts.

Wetland and water resource areas disturbed by construction activities shall be restored to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. All requirements of the U.S. Army Corps of Engineers, Minnesota Department of Natural Resources, Minnesota Board of Water and Soil Resources and local units of government shall be met.

5.3.9 Vegetation Removal

The Permittee shall disturb or clear vegetation on the project site only to the extent necessary to assure suitable access for construction, and for safe operation and maintenance of the project. The Permittee shall minimize the number of trees removed in selecting the site layout specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and other vegetation, to the extent that such actions do not violate sound engineering principles.

5.3.10 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture (MDA), DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner or designee to obtain approval for the use of pesticide at least 14 days prior to any application on their property. The landowner may request that there be no application of pesticides on any part of the site within the landowner's property. The Permittee shall provide notice of pesticide application to affected landowners and known beekeepers operating apiaries within three miles of the project site at least 14 days prior to such application.

5.3.11 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by project construction activities. The Permittee shall develop an Invasive Species Prevention Plan to prevent the introduction and spread of invasive species on lands disturbed by project construction activities and file with the Commission 14 days prior to the pre-construction meeting.

5.3.12 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil, the Permittee shall select site appropriate seed certified to be free of noxious weeds. The Permittee shall consult with landowners on the selection and use of seed for replanting. To the extent possible, the Permittee shall use native seed mixes.

5.3.13 Public Roads

At least 14 days prior to the pre-construction meeting, the Permittee shall identify all state, county, or township roads that will be used for the 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 project.

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 (approved permits, written authorizations, road use agreements, development agreements, etc.) with the appropriate state, county, or township governmental body having jurisdiction over roads to be used for construction of the project, for maintenance and repair of roads that may be subject to increased impacts due to transportation of equipment and project components. The Permittee shall notify the Commission of such arrangements upon request.

5.3.14 Turbine Access Roads

The Permittee shall construct the least number of turbine access roads necessary to safely and efficiently operate the project and satisfy landowner requests. 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 ditches without required permits and approvals. When access roads are constructed across streams, drainage ways, or drainage ditches, the access roads shall be designed and constructed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed. Any access roads that are constructed across streams or drainage ditches shall be designed and constructed in a manner that maintains existing fish passage. Access roads that are constructed across grassed waterways, which provide drainage for surface waters that are ephemeral in nature, are not required to maintain or provide fish passage. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

5.3.15 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.

5.3.16 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to identified archaeological and historic resources when constructing the facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office (SHPO) and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible,

mitigation must include an effort to minimize project impacts on the resource consistent with SHPO and State Archaeologist requirements.

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

5.3.17 Interference

At least 14 days prior to the pre-construction meeting, the Permittee shall submit to the Commission an assessment of television and radio signal reception, microwave signal patterns, and telecommunications in the project area. 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 or radio reception, microwave patterns, or telecommunications in the event residents should complain about such disruption or interference after the turbines are placed in operation. 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 project so as to cause microwave, television, radio, telecommunications, or navigation interference in violation of Federal Communications Commission (FCC) regulations or other law. In the event the project or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem.

5.3.18 Livestock Protection

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

5.3.19 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.

5.3.20 Drainage Tiles

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

5.3.21 Equipment Storage

The Permittee shall not locate temporary equipment staging areas on lands under its control unless negotiated with affected landowner. Temporary equipment staging areas shall not be located in wetlands or native prairie as defined in Sections 4.6 and 4.7.

5.3.22 Restoration

The Permittee shall, as soon as practical following construction of each turbine, restore the areas affected by construction to the condition that existed immediately before construction began, to the extent possible. The time period to complete restoration may be no longer than 12 months after the completion of construction, unless otherwise negotiated with the affected landowner. Restoration shall be compatible with the safe operation, maintenance and inspection of the project. Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities.

5.3.23 Cleanup

All waste and scrap that is the product of construction shall be removed from the site and all premises on which construction activities were conducted and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

5.3.24 Pollution and Hazardous Waste

All appropriate precautions to protect against pollution of the environment shall be taken by the Permittee. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all wastes generated during construction, site restoration, and operation of the facility.

5.3.25 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during

construction.

5.3.26 Public Safety

The Permittee shall provide educational materials to landowners adjacent to the site and, upon request, to interested persons about the project and any restrictions or dangers associated with the 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 Minn. Stat. § 216D.01, subd. 11, to Gopher State One Call following the completion of construction at the site.

5.3.27 Tower Identification

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

5.3.28 Federal Aviation Administration Lighting

Towers shall be marked as required by the 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.

The Permittee shall install and employ an FAA-approved lighting mitigation system. Such a system shall use aircraft detection (aircraft detection lighting system, ADLS), dimming (light intensity dimming solution, LIDS) or other FAA-approved mitigation method. The Permittee shall describe the lighting mitigation system used for the project in its site plan.

5.4 Communication Cables

The Permittee shall place all communication and supervisory control and data acquisition cables underground and within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner.

5.5 Electrical Collector and Feeder Lines

Collector lines that carry electrical power from each individual transformer associated with a wind turbine to an internal project interconnection point shall be buried underground. Collector lines shall be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner.

Feeder lines that carry power from an internal project interconnection point to the project

substation or interconnection point on the electrical grid may be overhead or underground. Feeder line locations shall be negotiated with the affected landowner. Any overhead or underground feeder lines that parallel public roads shall be placed within the public rights-of-way or on private land immediately adjacent to public roads. If overhead feeder lines are located within public rights-of-way, the Permittee shall obtain approval from the governmental unit responsible for the affected right-of-way.

Collector and feeder line locations shall be located in such a manner as to minimize interference with agricultural operations including, but not limited to, existing drainage patterns, drain tile, future tiling plans, and ditches. Safety shields shall be placed on all guy wires associated with overhead feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines in the site plan pursuant to Section 10.3.

5.6 Other Requirements

5.6.1 Safety Codes and Design Requirements

The LWECS and associated facilities shall be designed to meet or exceed all relevant local and state codes, Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards, the National Electric Safety Code (NESC), and North American Electric Reliability Corporation (NERC) requirements. The Permittee shall report to the Commission on compliance with these standards upon request.

5.6.2 Other Permits and Regulations

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations. A list of the permits known to be required for the project is included in the Permitte's site permit applications. At least 14 days prior to the pre-construction meeting, the Permittee shall submit a filing with a detailed status update of all permits, authorizations, and approvals that have been applied for specific to the project. The detailed status update shall include the permitting agency or authority, the name of the permit, authorization, or approval being sought, contact person and contact information for the permitting agency or authority, brief description of why the permit, authorization, or approval is needed, application submittal date, and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such, prior to commencing project construction. The

Permittee shall provide a copy of any such permits, authorizations, and approvals upon Commission request.

The Permittee shall comply with all terms and conditions of permits or licenses issued by the counties, cities, and municipalities affected by the project that do not conflict with or are not preempted by federal or state permits and regulations.

6 SPECIAL CONDITIONS

Special conditions shall take precedence over other conditions of this permit should there be a conflict.

6.1 Leslie Wigton Property

The Permittee shall work with Mr. Leslie Wigton of Lake Benton, Minn. to locate and/or relocate the proposed underground collection cables in such a manner that shall: 1) avoid the potential for interference on the existing drain tiles or proposed modifications or additions to future drain tiles that Mr. Wigton can provide prior to construction; and 2) avoid harm or damage to lands and grasses established and maintained for wildlife. The Permittee shall file documentation describing how harm or damage to existing or proposed drain tiles and lands and grasses established for wildlife will be avoided or describe any agreement reached by the Permittee and Mr. Wigton. This documentation shall be filed at least two weeks prior to the pre-construction meeting.

6.2 Soil and Water Conservation District (SWCD) and Landowner Review of Plans

The Permittee shall provide the local SWCD and participating landowners with the opportunity to review and comment on detailed access road, and all other infrastructure plans and designs in order to minimize the potential to pond and/or divert water creating gully erosion or the potential to cause damage or failure to existing conservation practices, such as terrace(s), sediment control basin(s), or diversion(s) prior to finalization and installation. The Permittee shall file documentation demonstrating compliance with this permit condition at least two weeks prior to the pre-construction meeting.

7 SURVEYS AND REPORTING

7.1 Biological and Natural Resource Inventories

The Permittee, in consultation with the Commission and the DNR, shall design and conduct pre-

construction desktop and field inventories of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas within the project site and assess the presence of state- or federally-listed or threatened species. The results of the inventories shall be filed with the Commission at least 30 days prior to the pre-construction meeting to confirm compliance of conditions in this permit. The Permittee shall file with the Commission, any biological surveys or studies conducted on this project, including those not required under this permit.

7.2 Shadow Flicker

At least 14 days prior to the pre-construction meeting, the Permittee shall provide data on shadow flicker for each residence of non-participating landowners and participating landowners within and outside of the project boundary potentially subject to turbine shadow flicker exposure. Information shall include the results of modeling used, assumptions made, and the anticipated levels of exposure from turbine shadow flicker for each residence. The Permittee shall provide documentation on its efforts to avoid, minimize and mitigate shadow flicker exposure. The results of any modeling shall be filed with the Commission at least 14 days prior to the pre-construction meeting to confirm compliance with conditions of this permit.

The Permittee shall provide a discussion detailing the communications with all the landowners with expected shadow flicker of more than 30 hours per year regarding possible mitigations and the complaint process. The results of these communications shall be filed with the Commssion at least 14 days prior to the pre-construction meeting to confirm compliance.

7.3 Wake Loss Studies

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the pre-construction micro-siting analysis leading to the final tower locations and an estimate of total project wake losses. As part of the annual report on project energy production required under Section 10.8 of the permit the Permittee shall file with the Commission any operational wake loss studies conducted on this project during the calendar year preceding the report.

7.4 Noise Studies

The Permittee shall file a proposed methodology for the conduct of a post-construction noise study at least 14 days prior to the pre-construction meeting. The Permittee shall

develop the post-construction noise study methodology in consultation with the Department of Commerce. The study must incorporate the Department of Commerce Noise Study Protocol to determine the operating LWECS noise levels at different frequencies and at various distances from the turbines at various wind directions and speeds. The Permittee must conduct the post- construction noise study and file with the Commission the completed post-construction noise study within 18 months of commencing commercial operation.

The Permittee shall provide a discussion detailing the communications with the residents at receptor 44 regarding possible noise mitigations and the complaint process. The results of these communications shall be filed with the Commssion at least 14 days prior to the pre-construction meeting to confirm compliance.

7.5 Avian and Bat Protection

7.5.1 Operational Phase Fatality Monitoring

The Permittee shall utilize a qualified third party to conduct a minimum of two full years of avian and bat fatality monitoring following the commencement of the operational phase of the project. Monitoring activities and results will be coordinated directly with MN DNR, USFWS, and the Commission. Detailed monitoring protocols, agency coordination, and any avoidance and minimization measures will be detailed in the project's ABPP.

7.5.2 Avian and Bat Protection Plan

The Permittee shall comply with the provisions of the most recently filed and accepted version of the Avian and Bat Protection Plan (ABPP). The initial version of the ABPP submitted for this project as part of the July 17, 2019, site permit application, and all necessary revisions that occur during the permit issuance process will be incorporated into a permit version. The permit version of the ABPP must be filed with the Commission 14 days before the pre-construction meeting, and revision must include any updates associated with the final construction plans and site plans.

The ABPP must address steps to be taken to identify and mitigate impacts to avian and bat species during the construction phase and the operation phase of the project. The ABPP shall also include formal and incidental post-construction fatality monitoring, training, wildlife handling, documentation (e.g., photographs), and reporting protocols for each phase of the project.

The Permittee shall, by the 15th of March following each complete or partial calendar year of operation, file with the Commission an annual report detailing findings of its annual audit of ABPP practices. The annual report shall include summarized and raw data of bird and bat fatalities and injuries and shall include bird and bat fatality estimates for the project using agreed upon estimators from the prior calendar year. The annual report shall also identify any deficiencies or recommended changes in the operation of the project or in the ABPP to reduce avian and bat fatalities and shall provide a schedule for implementing the corrective or modified actions. The Permittee shall provide a copy of the report to the Department of Commerce – Energy Environmental Review and Analysis, Minnesota Department of Natural Resources and to the U.S. Fish and Wildlife Service (FWS) at the time of filing with the Commission.

7.5.3 Quarterly Incident Reports

The Permittee shall submit quarterly avian and bat reports to the Commission. Quarterly reports are due by the 15th of January, April, July, and October commencing the day following commercial operation and terminating upon the expiration of this permit. Each report shall identify any dead or injured avian and bat species, location of find by turbine number, and date of find for the reporting period in accordance with the reporting protocols. If a dead or injured avian or bat species is found, the report shall describe the potential cause of the occurrence (if known) and the steps taken to address future occurrences. The Permittee shall provide a copy of the report to the DNR and to the FWS at the time of filing with the Commission.

7.5.4 Immediate Incident Reports

The Permittee shall notify the Commission, Department of Commerce Energy Environmental Review and Analysis staff (EERA), the FWS, and the DNR within 24 hours of the discovery of any of the following:

(a) five or more dead or injured birds or bats, at an individual turbine location, within a five day reporting period;

(b) twenty or more dead or injured birds or bats, across the entire facility, within a five day reporting period;

(c) one or more dead or injured state threatened, endangered, or species of special concern;

(d) one or more dead or injured federally listed species, including species proposed for listing; or

(e) one or more dead or injured bald or golden eagle(s).

In the event that one of the five discoveries listed above should be made, the Permittee must file with the Commission within seven days, a compliance report identifying the details of what was discovered, the turbine where the discovery was made, a detailed log of agencies and individuals contacted, and current plans being undertaken to address the issue.

7.5.5 Turbine Operational Curtailment

The Permittee shall operate all facility turbines so that all turbines are locked or feathered up to the manufacturer's standard cut-in speed from one-half hour before sunset to one-half hour after sunrise of the following day from April 1 to October 31 of each year of operation. All operating turbines at the facility must be equipped with operational software that is capable of allowing for adjustment of turbine cut-in speeds.

8 AUTHORITY TO CONSTRUCT LWECS

8.1 Wind Rights

At least 14 days prior to the pre-construction meeting, the Permittee shall demonstrate that it has obtained the wind rights and any other rights necessary to construct and operate the project within the boundaries authorized by this permit. Nothing in this permit shall be construed to preclude any other person from seeking a permit to construct a 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.

8.2 Power Purchase Agreement

In the event the Permittee does not have a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the project at the time this permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for purchase of the power. 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 commitment. 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 Minn. R. 7854.1300.

8.3 Failure to Commence Construction

If the Permittee has not completed the pre-construction surveys required under this permit and commenced construction of the project 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 shall make a determination as to whether this permit should be amended or revoked. No revocation of this permit may be undertaken except in accordance with applicable statutes and rules, including Minn. R. 7854.1300.

9 COMPLAINT PROCEDURES

Fourteen (14) days prior to the pre-construction meeting, the Permittee shall submit to the Commission the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this permit.

Upon request, the Permittee shall assist the Commission with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

10 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this permit is a failure to comply with the conditions of this permit. Compliance filings must be electronically filed with the Commission.

10.1 Pre-Construction Meeting

Prior to the start of any construction, the Permittee shall participate in a pre-construction meeting with the Department of Commerce and Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the construction start date.

10.2 Pre-Operation Meeting

At least 14 days prior to commercial operation of the facility, the Permittee shall participate in a

pre-operation meeting with the Department of Commerce and Commission staff to coordinate field monitoring of operation activities for the project. Within 14 days following the pre-operation meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees.

10.3 Site Plan

At least 14 days prior to the pre-construction meeting, the Permittee shall provide the Commission, the Department of Commerce, the Lincoln County Environmental Office, and the Lincoln County Department of Public Works with a site plan that includes specifications and drawings for site preparation and grading; specifications and locations of all turbines and other structures to be constructed including all electrical equipment, collector and feeder lines, pollution control equipment, fencing, roads, and other associated facilities; and procedures for cleanup and restoration. The documentation shall include maps depicting the site boundary and layout in relation to that approved by this permit. The Permittee shall document, through GIS mapping, compliance with the setbacks and site layout restrictions required by this permit, including compliance with the noise standards pursuant to Minnesota Rules Chapter 7030. At the same time, the Permittee shall notify affected landowners and city and town clerks that the site plan is on file with the Commission and the Lincoln County Environmental Office and the Lincoln County Department of Public Works. The Permittee may submit a site plan and engineering drawings for only a portion of the project if the Permittee intends to commence construction on certain parts of the project before completing the site plan and engineering drawings for other parts of the project.

The Permittee may not commence construction until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intends to make any significant changes to its site plan or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission, the Department of Commerce, the Lincoln County Environmental Office and the Lincoln County Department of Public Works, city and town clerks, and the affected landowners at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

In the event that previously unidentified human and environmental conditions are discovered during construction that 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 site. Under these circumstances, the Permittee shall notify the Commission, the Department of Commerce, the MPCA, the DNR, the Lincoln County Department of

Environmental Services and the Lincoln County Department of Public Works, city and town clerks, and the affected landowners of any turbines that are to be relocated, and provide the previously unidentified environmental conditions and how the movement of the turbine mitigates the human and environmental impact at least five days before implementing the changes. No changes shall be made that would be in violation of any terms of this permit.

10.4 Status Reports

The Permittee shall file status reports with the Commission on progress regarding site construction. The Permittee need not report more frequently than monthly. Reports shall begin with the commencement of site construction and continue until completion of restoration. Reports shall describe construction activities and progress and activities undertaken in compliance with this permit. Reports shall include text and photographs.

10.5 Labor Statistic Reporting

The Permittee shall file quarterly reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the project. The reports shall (a) detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers, and (b) provide an account of: (i) the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7; (ii) the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the project; and (iii) the total gross hours worked or total full-time equivalent workers. Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

10.6 In-Service Date

At least three days before the facility is to be placed into service, the Permittee shall notify the Commission of the date on which the facility will be placed into service and the date on which construction was completed.

10.7 As-Builts

Within 90 days after completion of construction, the Permittee shall submit copies of all final as-built plans and specifications developed during the project.

10.8 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (e.g., ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the LWECS.

10.9 Project Energy Production

The Permittee shall, by February 1st following each complete or partial year of project operation, file a report with the Commission on the monthly energy production of the project including:

(a) the installed nameplate capacity of the permitted project;

(b) the total monthly energy generated by the project in MW hours;

(c) the monthly capacity factor of the project;

(d) yearly energy production and capacity factor for the project;

(e) the operational status of the project and any major outages, major repairs, or turbine performance improvements occurring in the previous year; and

(f) any other information reasonably requested by the Commission.

The permittee shall file this information in a format recommended in the Department's guidance on energy production reporting. This information shall be considered public and must be filed electronically.

10.10 Wind Resource Use

The Permittee shall, by February 1st following each complete or partial calendar year of operation, file with the Commission the average monthly and average annual wind speed collected at one permanent meteorological tower during the preceding year or partial year of operation. This information shall be considered public and must be filed electronically.

10.11 Emergency Response

The Permittee shall prepare an Emergency Response Plan in consultation with the emergency responders having jurisdiction over the facility prior to project construction. The Permittee shall submit a copy of the plan, along with any comments from emergency responders, to the

Commission at least 14 days prior to the pre-construction meeting and a revised plan, if any, at least 14 days prior to the pre-operation meeting. The Permittee shall provide as a compliance filing confirmation that the Emergency Response Plan was provided to the emergency responders and Public Safety Answering Points (PSAP) with jurisdiction over the facility prior to commencement of construction. The Permittee shall obtain and register the facility address or other location indicators acceptable to the emergency responders and PSAP having jurisdiction over the facility.

10.12 Extraordinary Events

Within 24 hours of discovery 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, acts of sabotage, collector or feeder line failure, and injured worker or private person. The Permittee shall, within 30 days of the occurrence, file a report with the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

11 DECOMMISSIONING, RESTORATION, AND ABANDONMENT

11.1 Decommissioning Plan

The Permittee shall comply with the provisions of the most recently filed and accepted decommissioning plan. The initial version of the decommissioning plan was submitted for this project as part of the July 17, 2019, and August 9, 2019, site permit applications. The Permittee shall file an updated decommissioning plan, incorporating comments and information from the permit issuance process and any updates associated with the final construction plans, with the Commission 14 days before the pre-construction meeting. The decommissioning plan shall be updated every five years following the commercial operation date.

The plan shall provide information identifying all surety and financial securities established for decommissioning and site restoration of the project in accordance with the requirements of Minn. R. 7854.0500, subp. 13. The decommissioning plan shall provide an itemized breakdown of costs of decommissioning all project components, which shall include labor and equipment. The plan shall identify cost estimates for the removal of turbines, turbine foundations, underground collection cables, access roads, crane pads, substations, and other project components. The plan may also include anticipated costs for the replacement of turbines or repowering the project by upgrading equipment.

The Permittee shall also submit the decommissioning plan to the local unit of government

having direct zoning authority over the area in which the project is located. 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.

11.2 Site Restoration

Upon expiration of this permit, or upon earlier termination of operation of the project, or any turbine within the project, the Permittee shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables and lines, foundations, buildings, and ancillary equipment to a depth of four feet. Any agreement for removal to a lesser depth or no removal shall be recorded with the county and shall show the locations of all such foundations. To the extent feasible, the Permittee shall restore and reclaim the site to pre-project conditions, including topography and topsoil conditions. 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. 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 of termination.

11.3 Abandoned Turbines

The Permittee shall advise the Commission of any turbines that are abandoned prior to termination of operation of the project. The project, or any turbine within the project, shall be considered abandoned after one year without energy production and the land restored pursuant to Section 11.2 unless a plan is submitted to and approved by the Commission outlining the steps and schedule for returning the project, or any turbine within the project, to service.

12 COMMISSION AUTHORITY AFTER PERMIT ISSUANCE

12.1 Final Boundaries

After completion of construction, the Commission shall determine the need to adjust the final boundaries of the site required for this project in accordance with Minn. R. 7854.1300, subp. 1.

12.2 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 project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

12.3 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 this permit. No modification may be made except in accordance with applicable statutes and rules.

12.4 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 project; or

(c) existence of other grounds established by rule.

12.5 More Stringent Rules

The issuance of this 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.

12.6 Right of Entry

The Permittee shall allow Commission designated representatives 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 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.

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

12.7 Proprietary Information

Certain information required to be filed with the Commission under this permit may constitute trade secret information or other type of proprietary information under the Data Practices Act or other law. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

13 PERMIT AMENDMENT

This permit may be amended at any time by the Commission in accordance with Minn. R. 7854.1300, subp. 2. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

14 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer. The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new permittee, and interested persons such process as is required. The Commission may impose additional conditions on any new permittee as part of the approval of the transfer.

Within 14 days of beginning operation, the Permittee shall file a notice describing its ownership structure, identifying, as applicable:

(a) the owner(s) of the financial and governance interests of the Permittee;

(b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and

(c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity).

The Permittee shall immediately notify the Commission of:

(a) a change in owner(s) of the majority* financial or governance interests in the Permittee;

(b) a change in owner(s) of the majority* financial or governance interests of the Permittee's owners; or

(c) a sale which changes the parent entity of the Permittee.

**When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest*.

The Permittee shall notify the Commission of:

(a) the sale of a parent entity or a majority interest in the Permittee;

(b) the sale of a majority interest of the Permittee's owners or majority interest of the owners; or

(c) a sale which changes the entity with ultimate control over the Permittee.

15 REVOCATION OR SUSPENSION OF 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 Permittee, 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;

(c) there has been a material violation of a provision of an applicable statute, rule, or

an order of the Commission; or

(d) the Permittee has filed a petition with the Commission requesting that the permit be revoked or terminated.

In the event the Commission determines that it is appropriate to consider revocation or suspension of this permit, the Commission shall proceed in accordance with the requirements of Minn. R. 7854.1300 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 this permit suspended or revoked.

16 EXPIRATION DATE

This permit shall expire 30 years after the date this permit was approved and adopted.

ATTACHMENT 1
Complaint Handling Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES FOR
PERMITTED ENERGY FACILITIES

A. Purpose

To establish a uniform and timely method of reporting and resolving complaints received by the permittee concerning permit conditions for site or route preparation, construction, cleanup, restoration, operation, and maintenance.

B. Scope

This document describes complaint reporting procedures and frequency.

C. Applicability

The procedures shall be used for all complaints received by the permittee and all complaints received by the Minnesota Public Utilities Commission (Commission) under Minn. R. 7829.1500 or Minn. R. 7829.1700 relevant to this permit.

D. Definitions

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

Substantial Complaint: A written complaint alleging a violation of a specific 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, remains unresolved or unsatisfactorily resolved to one or both of the parties.

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 designate a representative responsible for filing complaints to the Commission's eDocket system. This person's name, phone number and email address shall accompany all complaint submittals. The name and contact information for the representative shall be kept current in eDockets.

2. A person presenting the complaint should, to the extent possible, include the following information in their communications:

    a. name, address, phone number, and email address;
    b. initial date of the complaint;
    c. tract, parcel number, or address of the complaint;
    d. a summary of the complaint; and
    e. whether the complaint relates to a permit violation, a construction practice issue, or other type of complaint.

3. The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

    a. docket number and project name;
    b. name of complainant, address, phone number and email address;
    c. precise description of property or parcel number;
    d. name of permittee representative receiving complaint and date of receipt;
    e. nature of complaint and the applicable permit condition(s);
    f. summary of activities undertaken to resolve the complaint; and
    g. a statement on the final disposition of the complaint.

F. Reporting Requirements

The permittee shall commence complaint reporting at the beginning of project construction and continue through the term of the permit, unless otherwise required below. 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 the Commission's Public Advisor at 1-800-657-3782 (voice messages are acceptable) or publicadvisor.puc@state.mn.us. For e-mail reporting, the email subject line should read "PUC EFP Complaint" and include the appropriate project docket number.

Monthly Reports: During project construction, restoration, and operation, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be filed by the 15th of each month to Will Seuffert, Executive Secretary, Public Utilities Commission, using the eDockets system. The eDockets system is located at: https://www.edockets.state.mn.us/EFiling/home.jsp. If no complaints were received during the preceding month, the permittee shall file a summary indicating that no complaints were received.

If a project has submitted twelve consecutive months of complaint reports with no complaints, monthly

reports can terminate by a letter to eDockets notifying the Commission of such action. If a substantial complaint is received (by the company or the Commission) following termination of the monthly complaint report, as noted above, the monthly reporting should commence for a period of one year following the most recent complaint or upon resolution of all pending complaints.

If a permittee is found to be in violation of this section, the Commission may reinstate monthly complaint reporting for the remaining permit term or enact some other commensurate requirement via notification by the Executive Secretary or some other action as decided by the Commission.

G. Complaints Received by the Commission

Complaints received directly by the Commission from aggrieved persons regarding the permit or issues related to site or route preparation, construction, cleanup, restoration, or operation and maintenance will be promptly sent to the permittee.

The permittee shall notify the Commission when the issue has been resolved. The permittee will add the complaint to the monthly reports of all complaints. If the permittee is unable to find resolution, the Commission will use the process outlined in the Unresolved Complaints Section to process the issue.

H. Commission Process for Unresolved Complaints

Complaints raising substantial and unresolved permit issues will be investigated by the Commission. Staff will notify the permittee and appropriate persons if it determines that the complaint is a substantial complaint. With respect to such complaints, the permittee and complainant shall be required to submit a written summary of the complaint and its current position on the issues to the Commission. Staff will set a deadline for comments. As necessary, the complaint will be presented to the Commission for consideration.

I. Permittee Contacts for Complaints and Complaint Reporting

Complaints may be filed by mail or email to the permittee's designated complaint representative, or to the Commission's Public Advisor at 1-800-657-3782 or publicadvisor.puc@state.mn.us. The name and contact information for the permittee's designated complaint representative shall be kept current in the Commission's eDocket system.

ATTACHMENT 2
Compliance Filing Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE FOR
PERMITTED ENERGY FACILITIES

A. Purpose

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

B. Scope and Applicability

This procedure encompasses all known compliance filings required by permit.

C. Definitions

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

D. Responsibilities

1. The permittee shall file all compliance filings with Will Seuffert, Executive Secretary, Public Utilities Commission, through the eDockets system. The eDockets system is located at: https://www.edockets.state.mn.us/EFiling/home.jsp

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

2. All filings must have a cover sheet that includes:

    a. Date
    b. Name of submitter/permittee
    c. Type of permit (site or route)
    d. Project location
    e. Project docket number
    f. Permit section under which the filing is made
    g. Short description of the filing

3. Filings that are graphic intensive (e.g., maps, engineered drawings) must, in addition to being electronically filed, be submitted as paper copies and on CD. Paper copies and CDs should be sent to: 1) Will Seuffert, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147, and 2) Department of Commerce, Energy Environmental Review and Analysis, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198.

The Commission may request a paper copy of any electronically filed document.

PERMIT COMPLIANCE FILINGS[1]

PERMITTEE: BUFFALO RIDGE WIND, LLC
PERMIT TYPE: LARGE WIND ENERGY CONVERSION SYSTEM
PROJECT LOCATION: LINCOLN AND PIPESTONE COUNTIES
PUC DOCKET NUMBER: IP-7006/WS-19-394

Filing Number	Permit Section	Description of Compliance Filing	Due Date
1	4.7	Prairie Protection and Management Plan	30 days prior to submitting site plan, as necessary
2	4.12	Notification to Airports	14 days prior to pre-construction meeting
3	5.1	Distribution of Permit and Complaint Procedures	Within 30 days of permit issuance
4	5.3.1	Field Representative	14 days prior to commencing construction
5	5.3.2	Site Manager	14 days prior to commercial operation
6	5.3.7	NPDES/SDS and SWPPP Permits	In accordance with the Minnesota Pollution Control Agency
7	5.3.10	Landowner Notification of Pesticide Application	14 days prior to application
8	5.3.11	Invasive Species Protection Plan	14 days prior to pre-construction meeting
9	5.3.13	Identification of Roads and Road Agreement	14 days prior to pre-construction meeting

[1] This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. It is not a substitute for the permit; the language of the permit controls.

Filing Number	Permit Section	Description of Compliance Filing	Due Date
10	5.3.17	Assessment of Interference with Electronic Communications	14 days prior to pre-construction meeting
11	5.3.22	Site Restoration	60 days after completion of restoration
12	5.3.26	Public Safety / Education Materials	Upon request
13	5.6.2	Other Permits and Regulations	14 days prior to pre-construction meeting
14	6.1	Leslie Wigton Property	14 days prior to pre-construction meeting
15	6.2	SWCD Review of Plans	14 days prior to pre-construction meeting
16	7.1	Biological and Natural Resource Inventories	30 days prior to the pre-construction meeting
17	7.2	Shadow Flicker Data	14 days prior to pre-construction meeting
18	7.3	Wake Loss Studies	14 days prior to pre-construction meeting and with annual report
19	7.4	Post-Construction Noise Methodology	14 days prior to pre-construction meeting
20	7.4	Post-Construction Noise Study	Within 18 months of completion of the repowering project
21	7.5.1	Avian and Bat Fatality Monitoring Results	Upon completion of monitoring

Filing Number	Permit Section	Description of Compliance Filing	Due Date
22	7.5.2	Avian and Bat Protection Plan Audits	14 days prior to pre-construction meeting, and 15th of March each year or partial year
23	7.5.3	Quarterly Incident Reports	15th of January, April, July and October
24	7.5.4	Immediate Incident Reports	Within 24 hours of discovery and a report within 7 days
25	8.1	Demonstration of Wind Rights	14 days prior to pre-construction meeting
26	8.2	Power Purchase Agreement Notification	Within 60 days of the expiration of the PPA
27	9.0	Complaint Procedures	14 days prior to pre-construction meeting
28	10.1	Pre-Construction Meeting Summary	Within 14 days following the meeting
29	10.2	Pre-Operation Meeting	14 days prior to commercial operation
30	10.3	Site Plan	14 days prior to pre-construction meeting
31	10.4	Construction Status Reports	Monthly
32	10.5	Labor Statistic Reporting	Within 45 days of the end of each quarter
33	10.6	Notice of In-Service Date	3 days before facility is placed into service

Filing Number	Permit Section	Description of Compliance Filing	Due Date
34	10.7	As-Builts	Within 90 days of completion of construction
35	10.8	GPS Data	Within 90 days of completion of construction
36	10.9	Project Energy Production	February 1st of each year
37	10.10	Wind Resource Use	February 1st of each year
38	10.11	Emergency Response Plan	14 days prior to pre-construction meeting
39	10.12	Extraordinary Event	Within 24 hours of discovery
40	11.1	Decommissioning Plan	14 days prior to pre-construction meeting
41	14	Ownership Structure	Within 14 days of beginning operation