

June 5, 2020

**VIA ELECTRONIC FILING**

Will Seuffert  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place E, Suite 350  
St. Paul, Minnesota 55101

**Re: Buffalo Ridge Wind, LLC – Certificate of Need – Second Application Amendment**

**MPUC Docket No. IP-IP7006/CN-19-309  
OAH 82-2500-36550**

Dear Mr. Seuffert:

Buffalo Ridge Wind, LLC (BRW or Applicant) hereby submits this Second Certificate of Need (CON) Application amendment (Second Application Amendment). BRW's initial CON Application (Initial Application) was filed on July 12, 2019, and subsequently updated on August 9, 2019 to account for the optimization of the wind turbine array. On February 21, 2020, BRW filed a CON Application Amendment (First Application Amendment) to modify the wind turbine technology and layout within the original 17,609-acre Project Area to address a Federal Aviation Administration, Department of Defense, and U.S. Air Force concern that the wind turbine array may impact a common air route surveillance radar. In this Second Amendment, BRW proposes to further modify the Project's proposed wind turbine technology and layout to change four safe harbor wind turbines from General Electric (GE) 2.3 MW turbines to GE 2.52 MW turbines; change two alternative turbine locations from GE 2.82 MW turbines to GE 2.52 MW turbines; modify operational power capacity at several turbines; as well as to make minor turbine shifts to address landowner concerns, such as the proximity of Project infrastructure to drain tiles. There are no other changes.<sup>1</sup>

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<sup>1</sup> Interested stakeholders will have the opportunity to comment on this Second Application Amendment under a revised procedural schedule being developed by the parties in consultation with Commission Staff and the presiding Administrative Law Judge following the postponement of the Public Hearing originally scheduled for March 26, 2020. It is currently contemplated that the Public Hearing will occur in late July with written comments from the public and state agencies accepted into August 2020.

50 South Sixth Street, Suite 2600, Minneapolis, MN 55402

The primary reason for the change of the wind turbine technology for the four safe harbor wind turbines is due to delay in obtaining the results of the Midcontinent Independent System Operator Inc.'s (MISO) interconnection studies, which moves the Project's in-service date from 2020 to 2021. The MISO interconnection study results are due to be released in the fall of 2020, which, even if the Project had an approved site permit and certificate of need, would not provide sufficient time to construct the Project in 2020. Therefore, BRW has adjusted the permitting, construction, and commercial operations schedule.

Due to changes in turbine technology for the safe harbor wind turbines, the Project's total power capacity will increase slightly from 108.7 MW to 108.9 MW.<sup>2</sup>

More specifically, this Second Application Amendment proposes to change the four GE 2.3 MW safe harbor wind turbines to GE 2.52 MW turbines, as well as change two of the alternative GE 2.82 MW turbines to GE 2.52 MW turbines. A total of 36 GE 2.82 MW turbines and three alternative GE 2.82 MW turbines remain unchanged since the First Application Amendment. A map comparing the Initial Application wind turbine array, the First Application Amendment wind turbine array, and this Second Application Amendment wind turbine array is provided in **Attachment A**. Access roads, collection routes, and crane walks were adjusted to accommodate the revised turbine array, which can be seen in **Figure 1**, below. **Table 1** provides a summary of the wind turbine design changes.<sup>3</sup>

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<sup>2</sup> Select GE 2.82 MW wind turbines (turbines 8, 17, 19, 20, 21, 29, 33, 36, 38 and Alt5) are proposed to run under a noise reduction operation, which lowers the Project's total power capacity slightly from the nameplate capacity of the turbines.

<sup>3</sup> Aside from Table 1, the table numbering in this amendment corresponds to the table numbering in BRW Initial Application.

**Table 1: Summary of BRW Certificate of Need Application Wind Turbine Changes**

Turbine Number			Turbine Model			Changes between First and Second Application Amendments
Second Application Amendment	First Application Amendment	Initial Application	Initial Application	First Application Amendment	Second Application Amendment	
1	1	1	GE 2.82	GE 2.82	GE 2.82	-
2	2	2	GE 2.82	GE 2.82	GE 2.82	-
3	3	3	GE 2.82	GE 2.82	GE 2.82	-
4	4	4	GE 2.82	GE 2.82	GE 2.82	-
5	5	5	GE 2.82	GE 2.82	GE 2.82	-
6	6	6	GE 2.82	GE 2.82	GE 2.82	-
7	7	7	GE 2.82	GE 2.82	GE 2.82	-
8	8	8	GE 2.3	GE 2.82	GE 2.82	-
9	9	9	GE 2.52	GE 2.82	GE 2.82	-
10	10	10	GE 2.82	GE 2.82	GE 2.82	-

Turbine Number			Turbine Model			Changes between First and Second Application Amendments
Second Application Amendment	First Application Amendment	Initial Application	Initial Application	First Application Amendment	Second Application Amendment	
11	11	11	GE 2.52	GE 2.82	GE 2.82	-
12	12	12	GE 2.82	GE 2.82	GE 2.82	-
13	13	13	GE 2.82	GE 2.82	GE 2.82	-
14	14	14	GE 2.52	GE 2.82	GE 2.82	-
15	15	15	GE 2.52	GE 2.82	GE 2.82	-
16	16	16	GE 2.82	GE 2.82	GE 2.52	Model change from GE 2.82 to GE 2.52
17	17	17	GE 2.82	GE 2.82	GE 2.82	-
18	18	18	GE 2.82	GE 2.82	GE 2.82	-
19	19	-	-	GE 2.82	GE 2.82	-
20	20	-	-	GE 2.82	GE 2.82	-
21	-	20	GE 2.82	-	GE 2.82	Turbine moved back to location proposed in the Initial Application

Turbine Number			Turbine Model			Changes between First and Second Application Amendments
Second Application Amendment	First Application Amendment	Initial Application	Initial Application	First Application Amendment	Second Application Amendment	
22	22	22	GE 2.82	GE 2.82	GE 2.82	-
23	23	23	GE 2.82	GE 2.82	GE 2.82	-
24	24	24	GE 2.82	GE 2.82	GE 2.82	-
25	25	25	GE 2.82	GE 2.82	GE 2.82	-
26	26	26	GE 2.3	GE 2.3	GE 2.52	Model change from GE 2.3 to GE 2.52
27	27	27	GE 2.82	GE 2.82	GE 2.82	-
28	28	28	GE 2.82	GE 2.82	GE 2.82	-
29	29	29	GE 2.52	GE 2.82	GE 2.82	-
30	30	30	GE 2.82	GE 2.82	GE 2.82	-
31	31	Alt3	GE 2.3	GE 2.3	GE 2.52	Model change from GE 2.3 to GE 2.52
32	32	32	GE 2.82	GE 2.82	GE 2.82	-

Turbine Number			Turbine Model			Changes between First and Second Application Amendments
Second Application Amendment	First Application Amendment	Initial Application	Initial Application	First Application Amendment	Second Application Amendment	
33	33	Alt4	GE 2.52	GE 2.82	GE 2.82	-
34	34	34	GE 2.82	GE 2.82	GE 2.82	-
35	35	35	GE 2.82	GE 2.82	GE 2.82	-
36	36	Alt5	GE 2.52	GE 2.82	GE 2.82	Turbine moved 80 feet
37	Alt4	33	GE 2.82	GE 2.82	GE 2.82	Turbine activated from alternate to primary
38	Alt3	31	GE 2.82	GE 2.82	GE 2.82	Turbine activated from alternate to primary; Turbine moved 54 feet
39	Alt2	21	GE 2.82	GE 2.82	GE 2.82	Turbine activated from alternate to primary
40	-	19	GE 2.82	-	GE 2.52	Turbine moved back to location proposed in the Initial Application
-	Alt5	36	-	-	-	Location dropped
-	40	40	-	-	-	Location dropped

Turbine Number			Turbine Model			Changes between First and Second Application Amendments
Second Application Amendment	First Application Amendment	Initial Application	Initial Application	First Application Amendment	Second Application Amendment	
Alt1	Alt1	Alt1	GE 2.82	GE 2.82	GE 2.82	-
Alt2*	39	39	GE 2.3	GE 2.3	GE 2.52	Turbine changed from primary to alternate; Model change from GE 2.3 to GE 2.52
Alt3*	38	38	GE 2.3	GE 2.3	GE 2.52	Turbine changed from primary to alternate; Model change from GE 2.3 to GE 2.52
Alt4	37	37	GE 2.82	GE 2.82	GE 2.82	Turbine changed from primary to alternate
Alt5	21	Alt2	GE 2.52	GE 2.82	GE 2.82	Turbine changed from primary to alternate

\* Alt2 and Alt3 have changed from GE 2.3 MW turbines to GE 2.52 MW turbines in order to preserve the Project's potential safe harbor turbine locations.

**Section 1.1 – The Buffalo Ridge Wind Project**

As previously described, the Project’s total capacity is now 108.9 MW and will be generated using 36 GE 2.82 MW wind turbines and four GE 2.52 MW wind turbines.

**Section 2.0 – The Buffalo Ridge Wind Project**

**Table 1** in Section 2.0 has been updated to reflect the 0.2 MW increase in capacity as follows:

**Table 1. Certificate of Need Application Schedule of Payments**

<b>Fee Calculation</b>	<b>Second Application Amendment Amount</b>	<b>First Application Amendment Amount</b>	<b>Initial Application Amount</b>
<b>Fee Calculation Equation</b>	\$10,000 + (\$50×MW)	\$10,000 + (\$50×MW)	\$10,000 + (\$50×MW)
Due with CON Application	\$3,861.25	\$3,858.75	\$3,865.00
Due 45 Days after Application Submittal Date	\$3,861.25	\$3,858.75	\$3,865.00
Due 90 Days after Application Submittal Date	\$3,861.25	\$3,858.75	\$3,865.00
Due 135 Days after Application Submittal Date	\$3,861.25	\$3,858.75	\$3,865.00
<b>Total Calculated Fee</b>	<b>\$15,445</b>	<b>\$15,435</b>	<b>\$15,460</b>



## **Section 5.0 – Certificate of Need Criteria**

### **Section 5.2 – Description of Turbines and Towers**

#### **5.2.1 Size, Type, and Timing**

As previously mentioned, the Initial Application indicated that the Project is approximately 109 MW. In the First Application Amendment, the capacity of the Project decreased slightly to 108.7 MW. However, the capacity of the Project has increased slightly from 108.7 MW to 108.9 MW since submission of the First Application Amendment.

#### **5.2.4 Reliability**

The Initial Application estimated the Project’s annual net capacity factor to be 48% to 52%. The First Application Amendment indicated an expected net capacity factor of approximately 47% to 54%. The expected annual net capacity factor represented in the First Application Amendment has not changed for this Second Application Amendment.

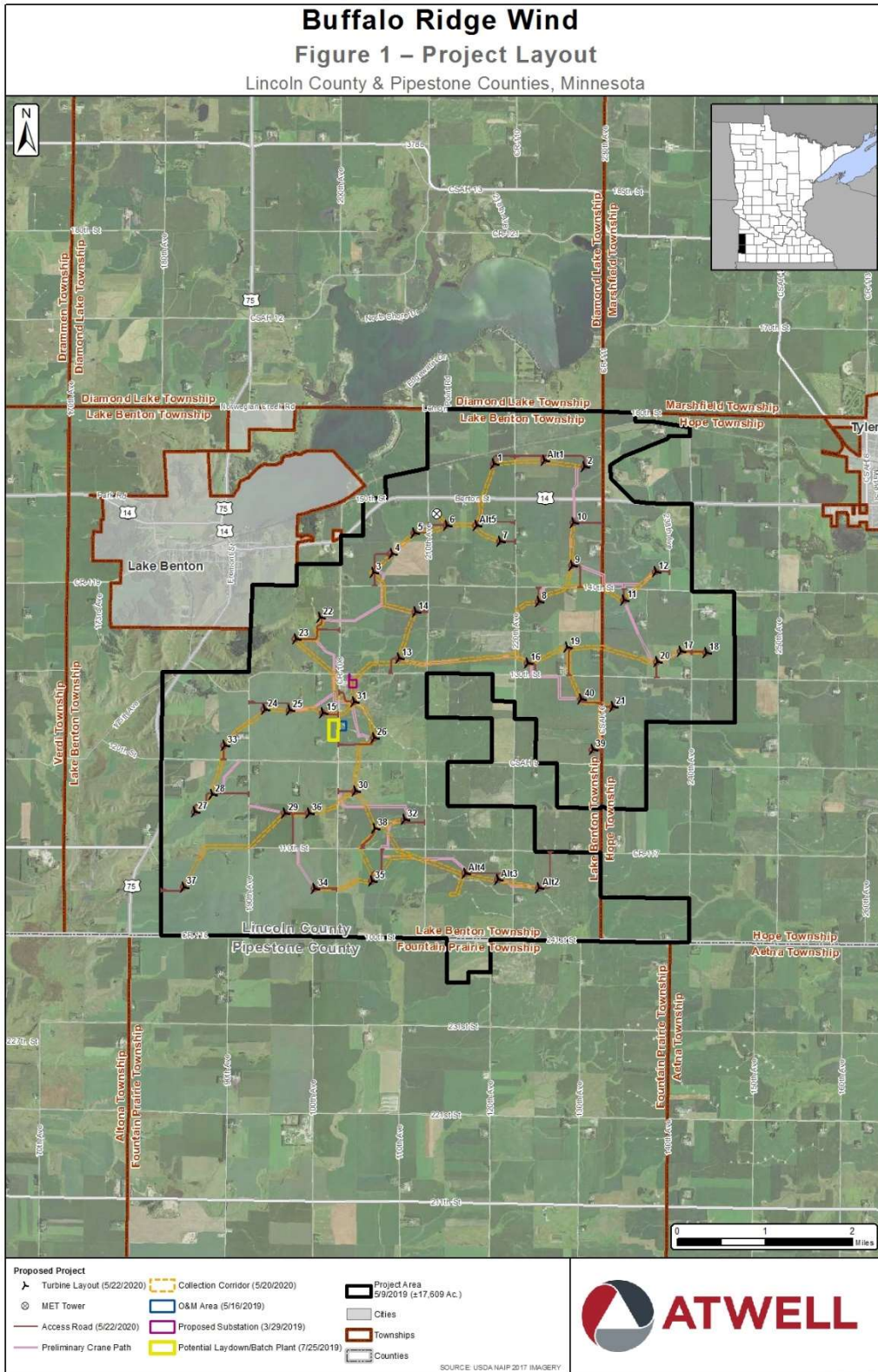
The projected average annual output increased from approximately 478,600 megawatt hours (MWh) to 480,250 MWh between the Initial Application and First Application Amendment. The average annual output represented in the First Amendment Application remains unchanged for this Second Application Amendment.

## **Section 6.0 – Description of LEGF and Alternatives (Minn. R. 7849.0250)**

### **Section 6.1 – Proposed Project (Minn. R. 7849.0250(A))**

The Initial Application stated that three turbine models would be used for the Project, including: 31 GE 2.82 MW wind turbines, five GE 2.52 MW wind turbines, and four GE 2.3 MW wind turbines. In the First Application Amendment, the five GE 2.52 MW wind turbines were proposed to be replaced with GE 2.82 MW wind turbines for a total of 36 GE 2.82 MW wind turbines and four GE 2.3 MW wind turbines. The current project layout is now proposed to utilize four GE 2.52 MW turbines rather than the four GE 2.3 MW wind turbines proposed in the First Application Amendment. The GE 2.52 MW turbines have a 116-meter rotor diameter (RD) with 90-meter towers. As both the GE 2.52 MW turbines have the same hub height as the GE 2.82 MW turbines and the same RD as the GE 2.3 MW turbines, this change is negligible. A map showing the updated Project is provided below in **Figure 1**.

**Figure 1. Project Layout**



**Section 6.1.1 – Nominal Generating Capacity and Effect of Economies of Scale (Minn. R. 7849.0250(A)(1))**

The total nominal generating capacity of the Project was initially approximately 109 MW. In the First Application Amendment, the generating capacity decreased slightly to 108.7 MW. Due to changes in project design, the generating capacity is now 108.9 MW.

**Section 6.1.2 – Annual Capacity Factor (Minn. R. 7849.0250(A)(2))**

As previously described, the projected annual net capacity factor for the Project is now approximately 47% to 54% with a projected average annual output of approximately 480,250 MWh.

**Section 6.2 – Availability of Alternatives (Minn. R. 7849.0250(B))**

**Section 6.2.2 – Upgrades to Existing Resources (Minn. R. 7849.0250(B)(2))**

The Initial Application stated that there was no potential upgrade to an existing Great River Energy (GRE) facility suitable to produce approximately 109 MW of wind energy. The capacity of the Project has been updated to 108.9 MW and it remains true that no upgrade to an existing GRE facility would be suitable to produce 108.9 MW of wind energy.

**Section 6.2.3 – New Transmission (Minn. R. 7849.0250(B)(3))**

The Initial Application stated that, according to GRE, there are no transmission alternatives that would provide approximately 109 MW of wind energy, as only a wind generating plant can produce the approximately 109 MW of renewable energy contracted for in the power purchase agreement. The capacity of the project has been updated to 108.9 MW and it remains true that no transmission alternatives would be suitable to provide 108.9 MW of wind energy.

**Section 11.0 – Environmental Information for Proposed Project and Alternatives (Minn. R. 7849.0310)**

**Section 11.1 Wind Facility**

**Section 11.1.1 Impacts to Visual Resources**

In the Initial Application, BRW proposed using 31 GE 2.82 MW turbines with a total height of 152.1 meters, five GE 2.52 MW turbines with a total height of 152.1 meters, and four GE 2.3 MW turbines with a total height of 138.3 meters. The First Application Amendment proposed using 36 GE 2.82 MW turbines with a total height of 152.1 meters and four GE 2.3 MW turbines with a total height of 138.3 meters. The Project now proposes replacing the four GE 2.3 MW turbines with four GE 2.52 MW turbines that have a total height of 148.3 meters. The GE 2.52

MW turbines have a total height that is 10 meters higher than the previously proposed GE 2.3 MW turbines. Changes in visual impacts are expected to be negligible. Table 4 has been updated to reflect current Project technology.

**Table 4. Rotor Diameter and Number of Turbines**

<b>Turbine Model</b>	<b>Rotor Diameter (meters/feet)</b>	<b>Rotor Tip Height (meters/feet)</b>	<b>Ground Clearance (meters/feet)</b>	<b>Number of Turbines</b>	<b>Number of Alternate Turbines</b>
<b>GE 2.52 MW</b>	116.5/382.2	148.3/487	32/105	4	2
<b>GE 2.82 MW</b>	127/ 417.3	152.1/499	25/82	36	3

### **Section 11.1.1 Shadow Flicker Impacts**

The Initial Application indicated that the predicted, expected annual shadow flicker duration ranged between 0 hours, 0 minutes and 37 hours, 29 minutes per year, which occurred at participating receptor 141. The First Application Amendment indicated that predicted expected annual shadow flicker duration increased to 40 hours, 49 minutes and was at participating receptor 93. The First Application Amendment also indicated that the maximum modeled expected annual flicker at a non-participating receptor (receptor 51) was 29 hours, 39 minutes, which was a 54-minute decrease from the 30 hours, 35 minutes at non-participating receptor 154 indicated in the Initial Application.

The maximum predicted expected annual shadow flicker duration for this Second Application Amendment is now 42 hours and 11 minutes (participating receptor 841). This is an increase of 1 hour 22 minutes since the First Application Amendment and an increase of 4 hours and 42 minutes since the Initial Application. The maximum modeled expected annual flicker at a non-participating receptor (receptor 154) is 28 hours, 51 minutes, which is a 1 hour 44 minute decrease from the 30 hours, 35 minutes at the same non-participating receptor (receptor 154) indicated in the Initial Application. This is also a 48-minute decrease from the 29 hours, 39 minutes at non-participating receptor 51 indicated in the First Application Amendment.

In the Initial Application, 294 receptors were predicted to experience no annual shadow flicker, 73 locations were predicted to experience less than 10 hours per year of shadow flicker, 38 locations were expected to have between 10 and 30 hours of shadow flicker per year, and six locations were expected to have over 30 hours of shadow flicker per year, including one non-participating receptor. However, the revised model for the First Application Amendment indicated 295 receptors are predicted to experience no annual shadow flicker, 67 locations are predicted to experience less than 10 hours per year of shadow flicker, 40 locations are expected to have between 10 and 30 hours of shadow flicker per year, and nine locations are expected to have over 30 hours of shadow flicker per year, none of which are non-participating receptors.

These statistics from the First Application Amendment remain unchanged for this Second Application Amendment.

**Section 12.0 – Facility Information for Proposed Project and Alternatives Involving Construction of a Large Electric Generating Facility (LEFG) (Minn. R. 7849.0320)**  
**Section 12.8 – Noise (Minn. R. 7849.0320(I))**

The Initial Application referred to the Lake Benton II wind facility as “future non-Project”, indicating that this wind facility was to be commissioned in the future. However, the repowered Lake Benton II wind facility (Lake Benton Wind II) is currently operational. Additionally, the Initial Application used the term “existing non-Project” to refer to turbines from the Ruthton Wind Farm. In the revised analysis for both the First and Second Application Amendments, this existing non-Project is now referred to as “Ruthton Wind Turbines”.

In the Initial Application, the highest modeled L50 sound level from the Project + existing non-Project (i.e., Ruthton Wind Turbines) + Future Non-Project (i.e., Lake Benton Wind II) scenario was 52 dBA and occurred at one non-participating location (receptor 44). This L50 sound level remained the same for the First Application Amendment, and has not changed in this Second Application Amendment. However, receptor 44 has changed from non-participating to participating.

In the Initial Application, the second highest modeled L50 sound level from the Project + existing non-Project + Future Non-Project scenario was 48 dBA and occurred at two locations (one participating and one non-participating). In the revised analysis for the First Application Amendment, the second highest modeled L50 sound level from the Project + Ruthton Wind Turbines + Lake Benton Wind II scenario was 48 dBA and occurred at three locations: non-participating receptor 42 and participating receptors 64 and 841. In the revised analysis for this Second Application Amendment, the second highest modeled L50 sound level from the Project + Ruthton Wind Turbines + Lake Benton Wind II scenario is 48 dBA and occurs at two locations: non-participating receptor 42 and participating receptor 64.

Thank you for your attention to this Second Application Amendment.

Respectfully submitted,

**Stinson LLP**

*/s/ Brian M. Meloy*

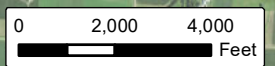
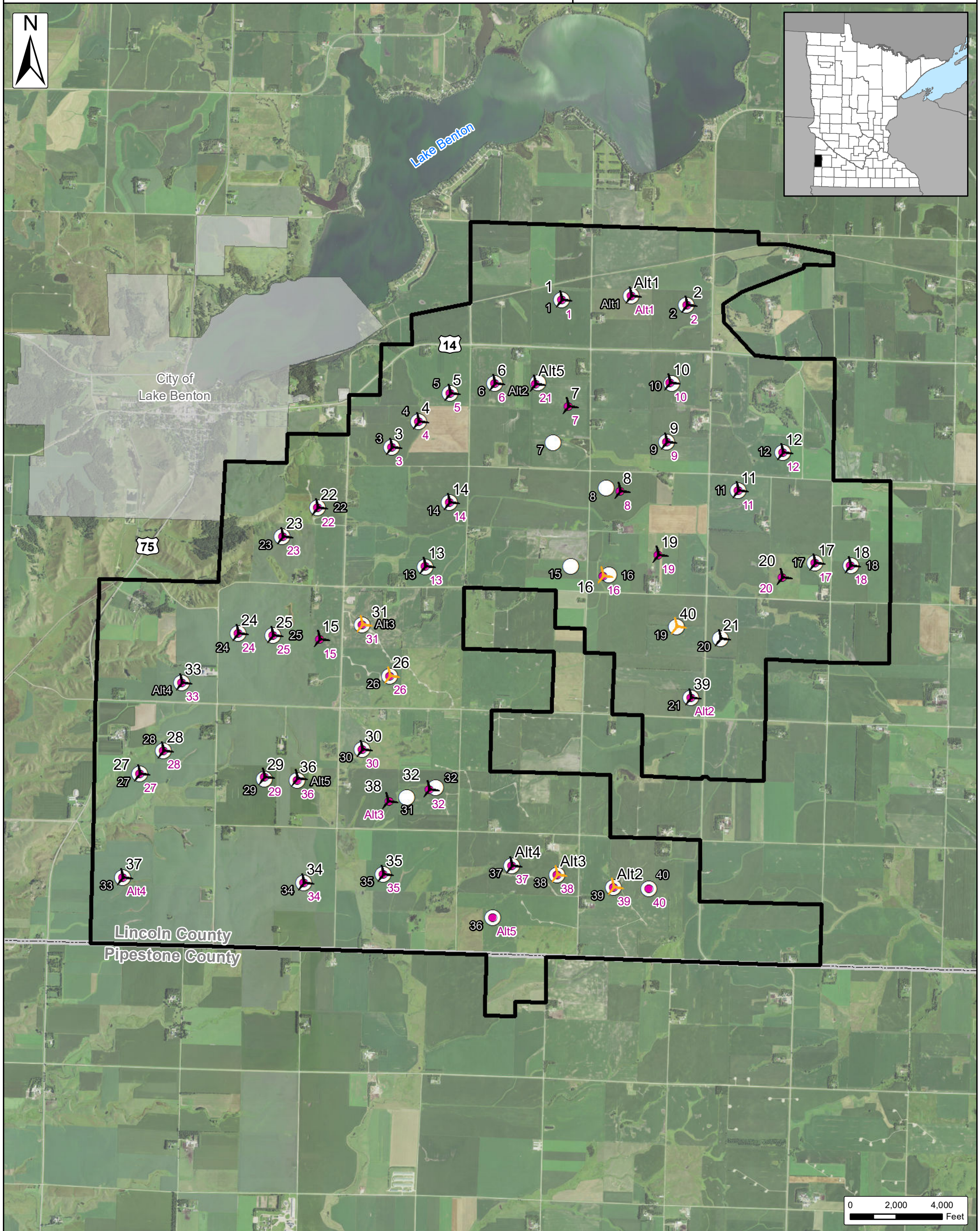
# **ATTACHMENT A**





# Buffalo Ridge Wind Energy Center Turbine Layout Comparison




Lincoln and Pipestone Counties, Minnesota

Client: Buffalo Ridge  
Wind, LLC

Issue Date:  
5/27/2020  
Atwell, LLC Project:  
17000620



-  Current Turbine Array  
GE 2.82 Model
-  Current Turbine Array  
GE 2.52 Model
-  Turbine Array Submitted in First  
Application Amendment
-  Turbine Array Submitted in Initial  
Application

-  Proposed Project Area
-  City/Village
-  County Boundary



SOURCE: USDA National Agriculture Imagery Program (2017)

**STATE OF MINNESOTA  
BEFORE THE  
PUBLIC UTILITIES COMMISSION**

Katie Sieben	Chair
Joseph Sullivan	Commissioner
Matthew Schuerger	Commissioner
John Tuma	Commissioner
Valerie Means	Commissioner

In the Matter of the Application of Buffalo Ridge Wind, LLC for a Certificate of Need for the 109 MW Large Wind Energy Conversion System in Lincoln and Pipestone Counties, Minnesota

MPUC Docket No.  
IP7006/CN-19-309

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of **Buffalo Ridge Wind, LLC's Second Certificate of Need Application Amendment** has been served today by e-mail and/or U.S. Mail to the following:

Name	Email/Address	Delivery Method
Barbara Case	<a href="mailto:barbara.case@state.mn.us">barbara.case@state.mn.us</a>	Electronic
Generic – Commerce Attorneys	<a href="mailto:commerce.attorneys@ag.state.mn.us">commerce.attorneys@ag.state.mn.us</a>	Electronic
Kate Fairman	<a href="mailto:kate.frantz@state.mn.us">kate.frantz@state.mn.us</a>	Electronic
Annie Felix Gerth	<a href="mailto:annie.felix-gerth@state.mn.us">annie.felix-gerth@state.mn.us</a>	Electronic
Sharon Ferguson	<a href="mailto:sharon.ferguson@state.mn.us">sharon.ferguson@state.mn.us</a>	Electronic
Andrew Gibbons	<a href="mailto:andrew.gibbons@stinson.com">andrew.gibbons@stinson.com</a>	Electronic
Kari Howe	<a href="mailto:kari.howe@state.mn.us">kari.howe@state.mn.us</a>	Electronic
Ray Kirsch	<a href="mailto:Raymond.Kirsch@state.mn.us">Raymond.Kirsch@state.mn.us</a>	Electronic
Karen Kromar	<a href="mailto:karen.kromar@state.mn.us">karen.kromar@state.mn.us</a>	Electronic
Susan Medhaug	<a href="mailto:Susan.medhaug@state.mn.us">Susan.medhaug@state.mn.us</a>	Electronic
Brian Meloy	<a href="mailto:brian.meloy@stinson.com">brian.meloy@stinson.com</a>	Electronic
Brian J. Murphy	<a href="mailto:Brian.J.Murphy@nee.com">Brian.J.Murphy@nee.com</a>	Electronic
Kevin Pranis	<a href="mailto:kpranis@liunagroc.com">kpranis@liunagroc.com</a>	Electronic
Generic – Residential Utilities	<a href="mailto:residential.utilities@ag.state.mn.us">residential.utilities@ag.state.mn.us</a>	Electronic



Name	Email/Address	Delivery Method
Stephan Roos	<a href="mailto:stephan.roos@state.mn.us">stephan.roos@state.mn.us</a>	Electronic
Will Seuffert	<a href="mailto:Will.Seuffert@state.mn.us">Will.Seuffert@state.mn.us</a>	Electronic
Janet Shaddix Elling	<a href="mailto:jshaddix@janetshaddix.com">jshaddix@janetshaddix.com</a>	Electronic
Cynthia Warzecha	<a href="mailto:cynthia.warzecha@state.mn.us">cynthia.warzecha@state.mn.us</a>	Electronic

Dated this 5th day of June, 2020

*/s/ Nena L. Kuhnly*

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Nena L. Kuhnly