

- Not Public Document – Not For Public Disclosure
- Public Document – Not Public Data Has Been Excised
- Public Document

Xcel Energy Information Request No. 3
Docket No.: IP-6985/WS-17-700
Response To: Minnesota Public Utilities Commission
Requestor: Tricia DeBleeckere
Date Received: September 5, 2019

Question:

Provide a status update as to the negotiations of Brian Lawburgh and the landowner hosting turbine T-101.

Response:

The Company has continued to work with all affected landowners on the location of turbine T-101, and is ready to move forward with a recommendation to the Commission that the location for turbine T-101 be shifted approximately 630 feet to the south. This would leave the turbine on its current proposed parcel but would eliminate any setback overlap on any other parcel. It also would move the turbine farther from the viewshed of Mr. Lawburgh's home and event-hosting business.

The Company has discussed this proposed shift with both Mr. Lawburgh and Mr. Nielsen, the owner of the parcel on which turbine T-101 is currently planned to be located, and understands that both are amenable to this change. We have studied the potential impacts of this revised location and learned that noise impacts and shadow flicker are within permit and state limits and have provided the results of these analyses as Attachment A and B respectively. Finally, this new location will not result in any environmental impacts other than a slightly longer turbine access road on Mr. Nielsen's property through cultivated crop land.

An additional result of this proposed relocation for turbine T-101 is that turbine location ALT-4 remains a viable alternative location should any one of the primary turbines need to be moved during the construction phase of the project due to unforeseen circumstances.

Attachment C to this response is a map reflecting the new T-101 location and Attachment D is an updated project-wide map. The Company will supplement the June 19, 2019, Petition to Amend the Site Permit with this proposed turbine location change.

Preparer: Matt Langan
Title: Principal Agent
Department: Siting and Land Rights
Telephone: 612-330-6954
Date: September 16, 2019

MEMO

TO: Brie Anderson, Merjent
FROM: Eddie Duncan, INCE Bd. Cert.
DATE: September 4, 2019
SUBJECT: Updated sound propagation modeling results for Blazing Star 2

Xcel Energy is considering a slightly adjusted wind turbine layout for Blazing Star 2. To confirm compliance with state and local standards, we reviewed the new turbine layout, and updated the Project's sound propagation model. As discussed below, we found that all residences remain below 50 dBA L₅₀ for both turbine-only sound level and combined sound level (turbine plus background sound).

The differences between the adjusted layout analyzed for this memorandum and the layout analyzed for the Noise Compliance Report¹ are as follows:

- Shifted T-101 192 meters to the south (Vestas V110)
- Changed the turbine model of T-109 from the Vestas V120 to the Vestas V110
- Changed the turbine model of T-111 from Vestas V110 to Vestas V120

As was the case in the Project's Noise Compliance Report, the Project still consists of ten Vestas V110s and ninety Vestas V120s.

The closest receivers to T-101 are Receiver IDs 304, 51, and 40, and the updated model result for all three of these receivers is 49 dBA. The closest receivers to T109 are Receiver IDs 335 and 336, and the updated model results for these receivers are 41 and 40 dBA, respectively. The closest receivers to T-111 are Receivers IDs 58, 171, and 69, and the updated model results for these receivers are 44, 43, and 43 dBA, respectively.

As discussed in the Noise Compliance Report¹, the project-wide background nighttime L₅₀ was 35 dBA. When added to the updated model results, the combined L₅₀ sound levels (turbine plus background) meet the 50 dBA L₅₀ limit set out in Minnesota Rules Chapter 7030.

¹ RSG, Noise Compliance Report, Blazing Star Wind Farm 2, June 11, 2019.



MEMO

TO: Brie Anderson, Merjent

From: Jay Haley, P.E.

DATE: September 4, 2019

Subject: Blazing Star 2, LLC Shadow Flicker Effects from Turbine Moves

The Blazing Star 2 shadow flicker analysis was updated to include the latest turbine array changes. The differences between the adjusted layout analyzed for this memorandum and the layout analyzed for the April 15, 2019 shadow flicker report are as follows:

- Shifted T-101 192 meters to the south (Vestas V110)
- Changed the turbine model of T-109 from the Vestas V120 to the Vestas V110
- Changed the turbine model of T-111 from Vestas V110 to Vestas V120

The results of the updated analysis indicate that there were reductions in shadow flicker hours at 8 of the 10 receptors affected by the turbine moves. There were 8 non-participating receptors, 6 of which showed decreased shadow flicker hours, two that showed an increase from 7 hours and 39 minutes to 8 hours and 06 minutes, and from 4 hour and 56 minutes to 5 hours and 54 minutes respectively, and 2 participating receptors which showed a decrease. The highest number of hours of shadow flicker at a non-participating receptor remains the same at 25 hours and 32 minutes.

Based on these results, the conclusions in the original study dated 4/15/19 remain the same and are restated below:



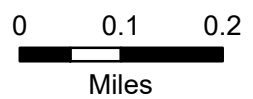
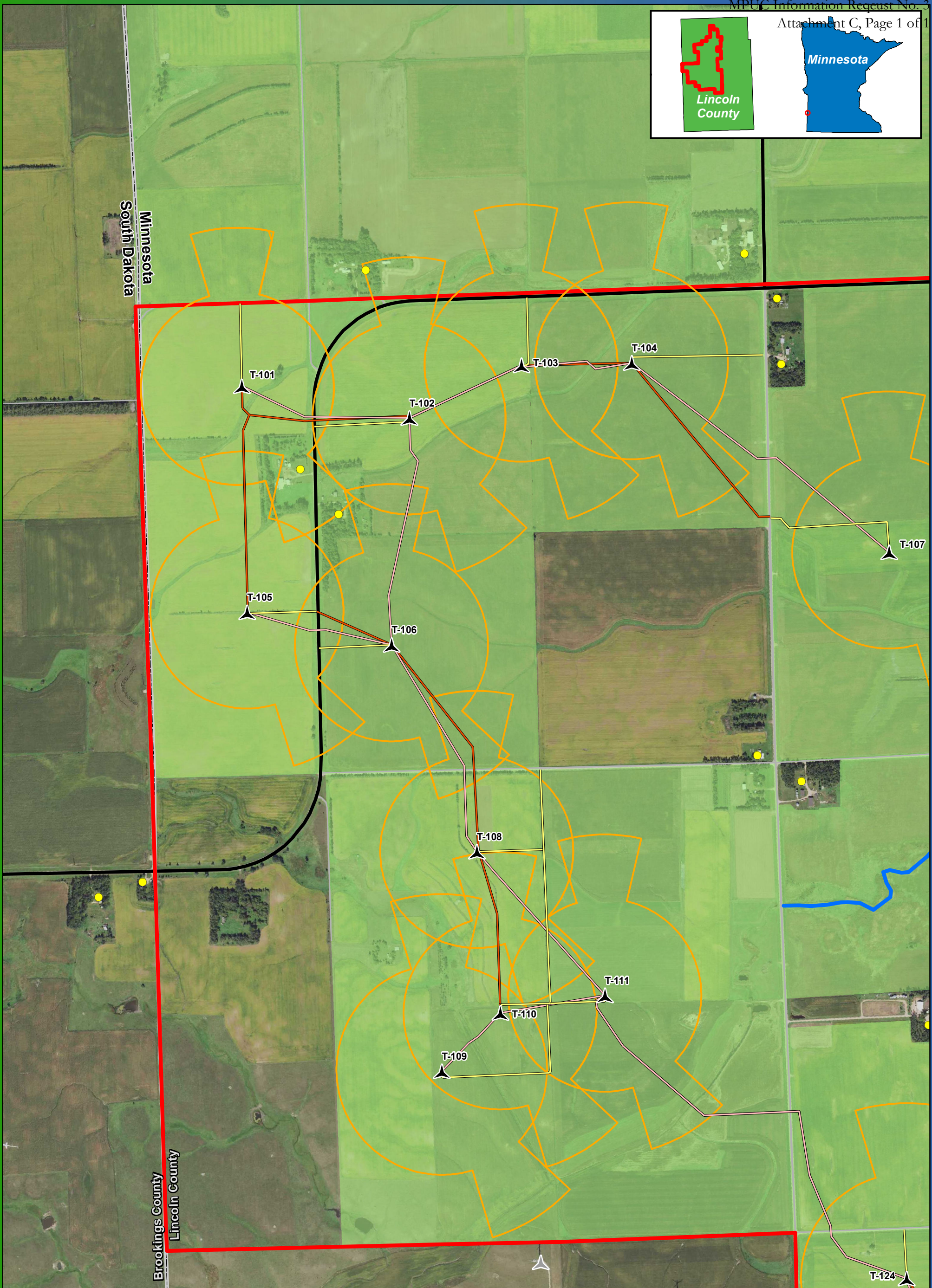
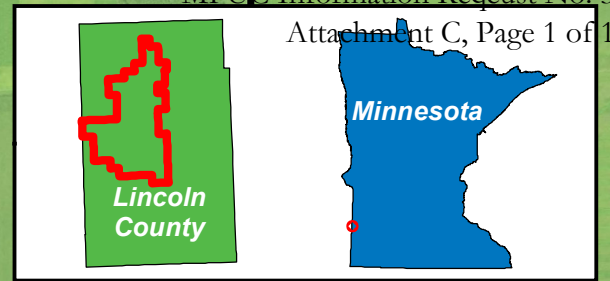


Conclusions

The conservative results of this study indicate that for the 215 receptors modeled, 13 measured more than 30 hours per year at participating landowners' occupied residences with none measuring over 25 hours and 32 minutes or more per year of realistic shadow flicker at a non-participating landowner's occupied residence. The shadow flicker impact on the receptors was calculated from turbines within 1 mile with reductions due to turbine operational time, turbine operational direction and sunshine probabilities included. This shadow flicker analysis is based on a number of conservative assumptions including:

- No credit was taken for the blocking effects of trees or buildings.
- The receptors were omni-directional rather than modeling specific facades of buildings.

The overall effect of using these conservative assumptions indicate that realistically, the number of hours of shadow flicker that would be observed will be less than those predicted by this study.



Imagery Source: National Geographic World Map
Data Source: Geronimo Energy, MN DNR, Census, Lincoln Co.

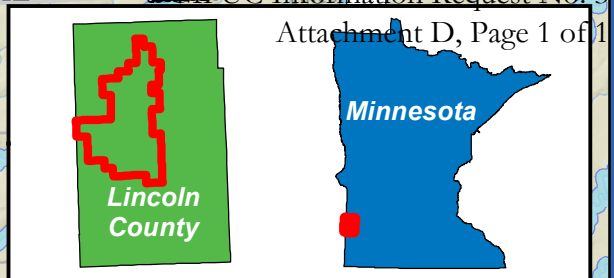
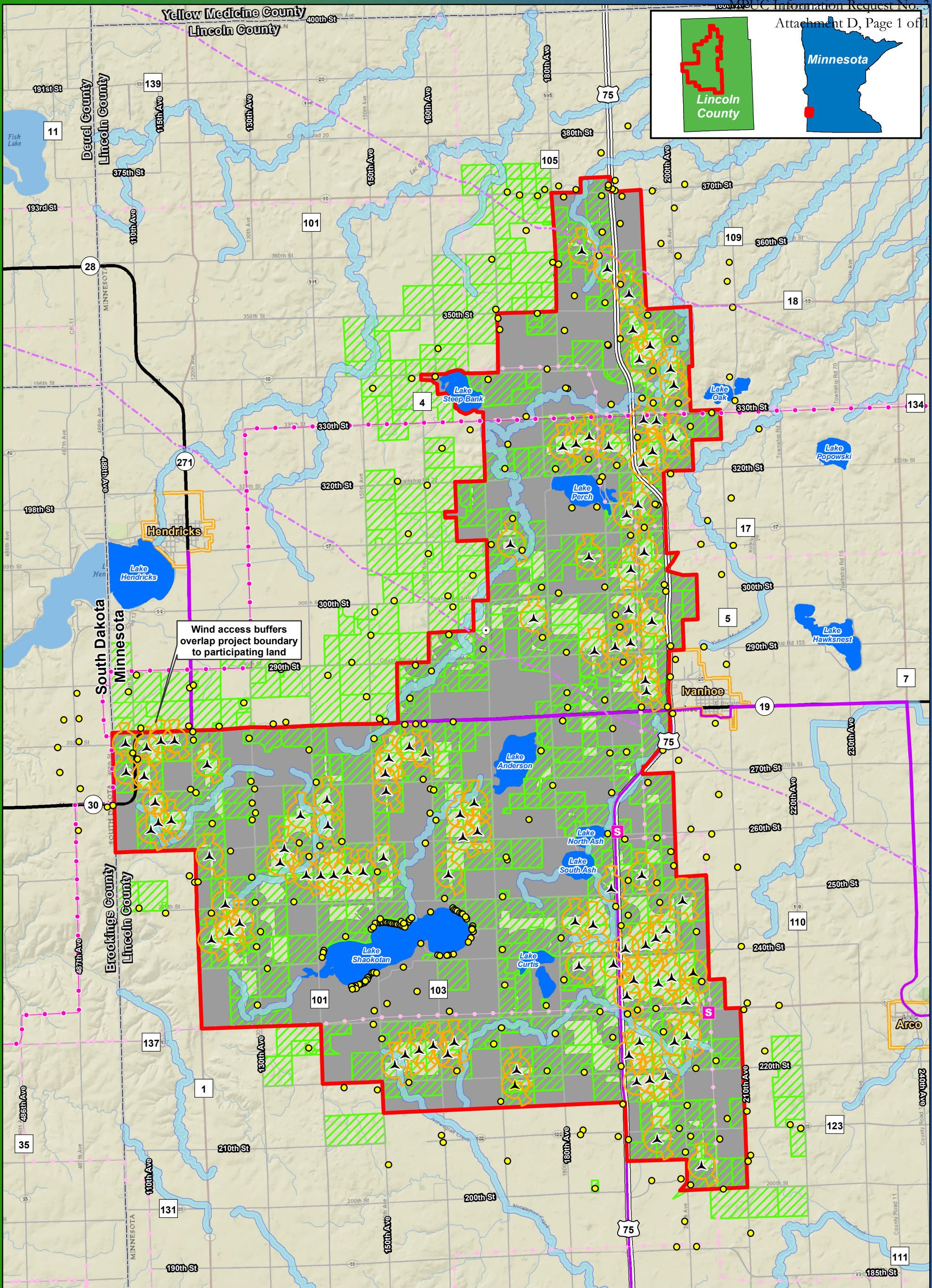
Turbine T-101 Removal
Vestas V110/V120

Blazing Star Wind Farm 2
Lincoln County, MN

44.460125, -96.336861

* Turbines are not to scale

- Preliminary Turbine Location
- Existing Turbine Location
- Access Road
- Collection Line
- Crane Path
- Public Waters Inventory (PWI)
- Residential Structures within 1 Mile (excluding cities of Hendricks and Ivanhoe)
- Project Area Boundary
- 3x5 Wind Access Buffer
- Participants within 1 Mile



Wind access buffers overlap project boundary to participating land

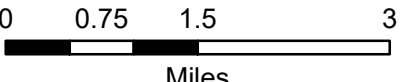
Figure 3
Turbine Layout and Constraints
Vestas V110/V120

Blazing Star Wind Farm 2
Lincoln County, MN

44.460125, -96.336861

- ▲ Preliminary Turbine Location
- ▲ Alternate Turbine Location
- ADLS Tower
- Residential Structures within 1 Mile (excluding cities of Hendricks and Ivanhoe)
- ▭ Project Area Boundary (Sept 2019)
- ▭ 3x5 Wind Access Buffer
- ▭ Setbacks
- ▭ Shoreland Management District
- ▭ Participants within 1 Mile
- Ⓢ Existing Substation
- Existing Transmission Line
- MVP 345kV Transmission Line
- Existing Pipeline
- Snowmobile Trail

* Turbines are not to scale



Imagery Source: National Geographic World Map
 Data Source: Geronimo Energy, MN DNR, Census, Lincoln Co.