

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

**IN THE MATTER OF THE
APPLICATION OF DAKOTA RANGE
III, LLC FOR A PERMIT OF A WIND
ENERGY FACILITY AND A 345-KV
TRANSMISSION LINE IN GRANT
AND ROBERTS COUNTIES**

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**APPLICANT’S RESPONSES TO
STAFF’S FIRST SET OF DATA
REQUESTS TO APPLICANT**

EL18-046

Below, please find Dakota Range III, LLC’s (“Applicant”) Responses to Staff’s First Set of Data Requests to Applicant.

- 1-1 Referring to section 9.1 of the Application, please confirm that Figure 2 is the correct figure to reference for identifying locations of cemeteries, places of historical significance, and other community facilities.**

Ryan Henning: The reference in section 9.1 of the Application to Figure 2 is incorrect; the reference should be to Figure 15. The version of Figure 15 included with the Application included cemeteries and public lands and facilities. Since filing the Application, Dakota Range has received information regarding places of historical significance from the architectural history survey, and has updated Figure 15 to include the identified places of historical significance. The updated Figure 15 is included with these responses as Attachment 1-1(A).

- 1-2 Referring to section 9.2.1 when will the specific turbine model be chosen for the project?**

Christina White: Engie is in the process of evaluating various turbine models to determine which model has the best combination of price, availability, and production relative to the project's timeline and financial model. A final selection is expected by mid-2019.

- 1-3 Referring to table 11-1, please explain how it was determined that there would be 72 acres of permanent operational impacts for the transmission facility.**

Jack Middleton: The reference to 72 acres of permanent impacts for the transmission facility was an error. The actual anticipated permanent impacts of the transmission facility should have been limited to the structure locations. Specifically, with

approximately (i) 70 structures, (ii) two 36-inch diameter poles per structure (140 poles), and (iii) assuming that the ground area between the two poles will be unusable, Dakota Range III calculates approximately 0.15 acres of permanent impacts along the eight-mile transmission route.

- 1-4 Referring to section 12.2.2.2, please identify if any of the Project facilities will be located in areas that have the potential for slope instability. If there are project facilities in areas with the potential for slope instability, please identify how the Applicant will mitigate that risk.**

Ryan Henning: We have not identified any area of potential slope instability. Slope stability will be confirmed by the Civil Engineer of Record (“EOR”), which we have not yet contracted. The EOR will also prepare the SWPPP based on the final project facilities and the contractor will review and submit prior to construction. This document will address all the requirements from Section 12.2.2.2.

- 1-5 Referring to page 14-17 of the application, please explain why co-locating the transmission line along the right of way would lead to the South Parcel being unlikely to support either the Dakota Skipper or Poweshiek skipperling.**

Ryan Henning: Page 14-17 of the Application states: "Approximately 2,000 feet of the Transmission Facility traverses the South Parcel. However, based on the planned construction of the transmission line immediately adjacent to a public road and collocated to the ditch right-of-way, the South Parcel was determined unlikely to support either Dakota skippers or Poweshiek skipperlings. Therefore, no modifications to the Project were made with respect to this parcel." In other words, because the area in which the transmission line is proposed to be located has been previously disturbed, analysis conducted for Dakota Range III concluded that this area is unlikely to support either the Dakota skipper or Poweshiek skipperling, and no Project impacts are anticipated. See also Ryan Henning's Supplemental Direct Testimony at page 3, where he explained: "Grassland Polygon 75 (South Parcel) was determined to be unlikely to have either butterfly species given overall poor habitat quality." The results of these surveys are included in Exhibit 2 to Mr. Henning's Supplemental Direct Testimony.

- 1-6 Referring to section 16.1.2 of the Application, please identify the total number of occupied residences in the project area given the updated maps filed on December 11, 2018. Further, please confirm that no residences will be displaced due to construction of the facility.**

Brenna Gunderson: There are 39 occupied residences within the Wind Project Area. No residences will be displaced due to construction of the Project.

1-7 Referring to section 16.3, please explain why ambient sound level monitoring was not completed for the project area and why a community response assessment is not provided.

Brenna Gunderson: Dakota Range III did not conduct ambient sound level monitoring or prepare a community response assessment for the Project because Dakota Range III reviewed the applicable statutes, rules, and local ordinances concerning the Project, and there is no state or local requirement that these analyses be conducted. In addition, conducting ambient sound monitoring would not assist in determining compliance with the applicable operational sound requirements. With respect to a community response assessment, such an assessment would be a subjective analysis that would not assist in determining compliance with regulatory standards. Ambient sound level monitoring and community response assessments were also not conducted or required for prior wind projects permitted by the Commission.

1-8 Please provide an analysis demonstrating that the cumulative noise impacts of Dakota Range III along with Dakota Range I & II.

Rob O'Neal: As discussed in the Supplemental Direct Testimony of Rob O'Neal, Mr. O'Neal did analyze the potential cumulative sound impacts on receptors in proximity to both the Project and Dakota Range I and II and concluded that the cumulative sound impacts at the receptor closest to both projects would be "well below the newly adopted Grant County sound level limit of 45 dBA L90" (for a total sound level of both projects at 38 dBA Leq), and that cumulative impacts at other receptors would be even less.

1-9 Please provide an analysis demonstrating that the cumulative shadow flicker impacts of Dakota Range III along with Dakota Range I & II.

Rob O'Neal: As discussed in the Supplemental Direct Testimony of Rob O'Neal, Mr. O'Neal did analyze the potential cumulative shadow flicker impacts on receptors in proximity to both the Project and Dakota Range I and II and concluded that, with respect to the closest receptor to both projects, the total shadow flicker level from both projects would be 10 hours and 1 minute, well below the newly adopted Grant County shadow flicker limit of 30 hours per year. Mr. O'Neal noted that cumulative impacts at all other receptors would be even less.

- 1-10 Referring to section 16.4.2, please provide a summary of discussions Dakota Range III has had with the one participant regarding the expected shadow flicker levels being above 30 hours per year.**

Brenna Gunderson & Rob O'Neal: As identified in the Supplemental Direct Testimonies of Brenna Gunderson (at page 3) and Robert O'Neal (Exhibit 2 at page 4-10), there are two residences owned by Project participants in Grant County which modeling results indicate may experience more than 30 hours of shadow flicker per year. Dakota Range III discussed expected shadow flicker levels with the participants whose residences may experience shadow flicker levels above 30 hours per year. Neither participant was concerned, and both subsequently signed waiver agreements.

- 1-11 Referring to section 16.5, please provide an update on the determination from the Department of Defense and NTIA regarding any potential radar interference.**

Brenna Gunderson: As noted in the Application and Appendix J (at page 13), the Project is not anticipated to impact Department of Defense and Homeland Security radars; however, a definitive determination is obtained only after formal study by the Department of Defense triggered by the FAA 7460-1 notification process, which is currently anticipated in spring 2019. Dakota Range III will provide an update regarding this analysis when it is received. Correspondence from NTIA concerning the Project is included as Attachment 1-11(A). Additionally, based on comments in the NTIA letter, Dakota Range III consulted with the Western Area Power Administration, and a copy of that e-mail correspondence is included as Attachment 1-11(B).

- 1-12 Referring to section 16.5 of the application, is RC Communications planning to enter an agreement with Dakota Range III, similar to ITC? If so, please provide the status of the Agreement.**

Brenna Gunderson: Dakota Range III intends to sign a crossing agreement with RC Technologies and is in the process of finalizing the document.

- 1-13 Please identify when the Level III intensive cultural resource survey will be completed.**

Ryan Henning: As discussed in the Supplemental Direct Testimony of Ryan Henning, the Level III intensive cultural resource survey has been completed. Dakota Range III will file the completed report in this docket. During the survey, 135 previously unrecorded cultural sites were identified and recorded in both the direct and indirect area of potential effect ("APE"). Of those, 122 were Traditional Cultural Properties ("TCPs"), 2 were

Native American, and 11 were Euro-American. All TCPs were determined by the Tribal Historic Preservation Officer to be eligible for listing on the National Register of Historic Places ("NRHP"). Of the 11 Euro-American sites, 6 are recommended not eligible, and 5 are unevaluated for the NRHP. Both Native American sites are unevaluated for the NRHP. All eligible sites will be avoided by the Project. Unevaluated sites will be avoided or evaluated prior to construction.

- 1-14 Referring to section 21.5 of the Application, please provide a map showing all cultural resources and traditional cultural properties located within the project area, as well as the facility layout that demonstrates those areas have been avoided.**

Ryan Henning: Please refer to the Level III intensive cultural resource survey report with respect to historic and archaeological resources. Dakota Range III is not authorized to release data regarding traditional cultural properties, as that data belongs to the respective Tribe.

- 1-15 Referring to Updated Appendix H – Sound Level Monitoring Report, for each non-participating receptor listed as having sound levels greater than 40 dBA please identify what other constraints prevent the sound levels from being reduced to less than or equal to 40 dBA.**

Brenna Gunderson: The Project has been designed to comply with all applicable permitting requirements, one of which is sound. Roberts County has a 50 dBA limit for non-participating receptors, and, in Grant County, Dakota Range III has committed to comply with the 45 dBA limit at non-participating receptors in the newly-enacted Grant County ordinance. The Project has been designed to comply with these ordinances. Since no requirement exists limiting sound levels to 40 dBA, this level was not considered in designing and siting the Project. Further, sound is not the only siting factor to consider - the Project must also comply with applicable: shadow flicker requirements; setbacks from roadways, homes, property lines, and other specified structures or features; beam path restrictions; wetland and waterbody restrictions; wildlife restrictions; cultural resource restrictions; and turbine spacing requirements. Additionally, Dakota Range III has agreed to avoid all identified tribal resources, must adhere to engineering design requirements, and works to incorporate landowner requests. Each of these constraints informs the design and siting of Project facilities, and shifting a turbine to accommodate a revision to one constraint impacts all of the other constraints and associated resources. Further, if a turbine shift is made, additional field survey work (such as cultural resource, wetland/waterbody, and tribal surveys) and/or analysis will be required if the shift falls outside of previously surveyed areas to determine compliance with the associated resource restrictions. As detailed in the Application and Dakota Range III's Direct and

Supplemental Testimony, the Project has been carefully designed and sited to adhere to all of the applicable constraints, and to minimize human and environmental impacts. *See also* response to DR 2-9.

1-16 Referring to Updated Appendix I – Shadow Flicker Monitoring Report, for each non-participating receptor listed as having shadow flicker levels greater than 15 hours per year, please identify what other constraints prevent the shadow flicker levels from being reduced to less than or equal to 15 hours per year.

Brenna Gunderson: The Project has been designed to comply with applicable permitting requirements, one of which is shadow flicker. Roberts County imposes a limit of 30 hours per year of shadow flicker at residences unless the requirement is waived by the homeowner, and Dakota Range III has voluntarily committed to this level in Grant County, as well. No requirement exists that would limit shadow flicker to 15 hours per year and, as such, this level was not considered when designing and siting the Project. Further, as noted in response to 1-15 above, shadow flicker is not the only siting factor to consider, and a change to one turbine siting constraint inevitably will affect other constraints. The Project has been carefully designed and sited to adhere to multiple constraints and to minimize human and environmental impacts. *See also* response to DR 2-10.

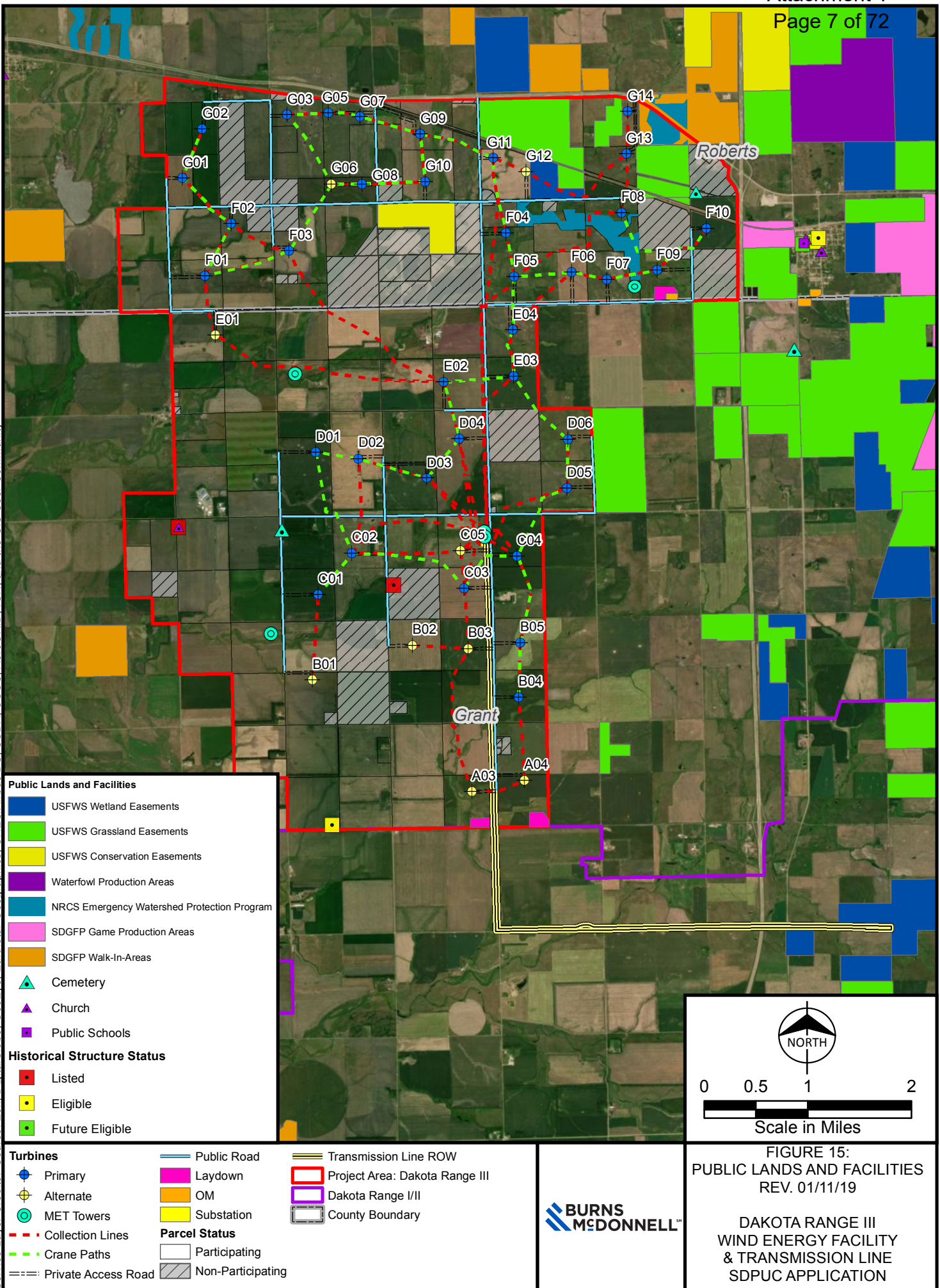
1-17 For each non-participating residence within the project area, please provide a table listing the distance from the residence to the nearest wind turbine and the distance from the property line to the nearest wind turbine.

Brenna Gunderson: See Attachment 1-17(A).

Dated this 17th day of January 2019.

By /s/ Mollie M. Smith
Mollie M. Smith
Lisa A. Agrimonti
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Source: Esri, USFWS HAPET, SDGFP, SD SHPO, Apex, and Burns & McDonnell Engineering Company, Inc.

Issued: 1/16/2019



ATTACHMENT 1-11 (A)
UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

Mr. B. Benjamin Evans, P. E.
Evans Engineering Solutions, LLC
524 Alta Loma Drive
Thiensville, WI 53092

Re: Dakota Range III Project: Grant & Roberts Counties, SD

Dear Mr. Evans:

In response to your request on September 19, 2018, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Dakota Range III Wind Project, located in Grant & Roberts Counties, South Dakota.

After a 45+ day period of review, one agency, the Department of Energy (DOE), had concerns with turbine placement in this area. Comments from DOE are below:

The Department of Energy requests that the developer coordinate turbine placement directly with our Western Spectrum Manager. Contact details are included in this letter.

Scott E. Johnson, U. S. Department of Energy; Western Area Power Administration HQ, P. O. Box 281213, Lakewood, CO 80228-8213, phone: 720-962-7380; fax: 720-962-4080, email: sjohnson@wapa.gov.

While the other IRAC agencies did not identify any concerns regarding radio frequency blockage, this does not eliminate the need for the wind energy facilities to meet any other requirements specified by law related to these agencies. For example, this review by the IRAC does not eliminate any need that may exist to coordinate with the Federal Aviation Administration concerning flight obstruction.

Thank you for the opportunity to review these proposals.

Sincerely,

A handwritten signature in blue ink, appearing to read "John R. McFall".

John R. McFall
Deputy Chief, Spectrum Services Division
Office of Spectrum Management

From: Johnson, Scott [mailto:SJohnson@WAPA.GOV]
Sent: Tuesday, November 20, 2018 4:28 PM
To: Brenna Gunderson
Cc: ben@evansengsolutions.com
Subject: RE: [EXTERNAL] RE: Dakota Range III and Follow-up on I-II

Brenna,

I reviewed the wind turbines in what I think you are calling the Dakota Range III project. The closest turbine to our radio system appears to be F10, and it is about 2500 feet from our system. This was based on what was in the KMZ file. I also had the turbines as listed in the spreadsheet loaded into our GIS, I am anticipating that they will match up without discrepancy. If we find any discrepancies in the two sources of data, I will let you know. At this point however, DR III appears to not pose a problem.

I apologize for the delay, I have been traveling much more lately and it takes longer to get through the work requests.

Let me know if you have any questions and I look forward to getting your DR I & II updated information.

Thanks,

Scott E. Johnson | Sr. Telecommunications Engineer | Spectrum Management
Western Area Power Administration | Headquarters | Lakewood, CO
Department of Energy
(O) 720.962.7380 | (F) 720.962.4080 | sjohnson@wapa.gov



From: Brenna Gunderson [mailto:brenna.gunderson@apexcleanenergy.com]
Sent: Thursday, November 8, 2018 12:28 PM
To: Johnson, Scott <SJohnson@WAPA.GOV>
Cc: ben@evansengsolutions.com
Subject: [EXTERNAL] RE: Dakota Range III and Follow-up on I-II

Scott,

I'm writing to check-in on your review of our Dakota Range III project and to see if you have any questions for me.

Thank you,

Brenna

BRENNA GUNDERSON
Director of Project Development

Apex Clean Energy, Inc.

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**APPLICANT'S RESPONSES TO
STAFF'S SECOND SET OF DATA
REQUESTS TO APPLICANT**

EL18-046

Below, please find Dakota Range III, LLC's ("Applicant") Responses to Staff's Second Set of Data Requests to Applicant.

- 2-1) Regarding county permitting, please provide the Grant Count Conditional Use Permit. Also, provide an update on the Roberts County Conditional Use Permit application after the January 29, 2019, meeting referenced in Ms. Gunderson's testimony.**

Brenna Gunderson: Response to be provided separately.

- 2-2) Please provide the safety and operations manuals for the Vestas V136-4.2 MW turbines.**

Brenna Gunderson: Based on communications with Vestas, Dakota Range III understands that Vestas is still in the process of updating its turbine operations manual for the V136-4.2 MW turbine, and the updated manual is expected in the summer of 2019. However, Vestas noted that the only differences between the turbine model covered by the turbine manual previously provided in the Dakota Range I and II docket (EL 18-003) and the V136-4.2 MW turbine are the controller and the generator. Therefore, Vestas does not expect the manuals to change significantly, and Vestas is comfortable using the previously provided manual to support the V136-4.2 MW turbine. As needed, and subject to appropriate confidentiality protections, Dakota Range III will file the manual in this docket.

- 2-3) Refer to Page 2-2 of the Application. Please provide a copy of the standard Wind Easement and Transmission Easement agreements.**

Brenna Gunderson: See Attachments 2-3(A) and 2-3(B), which are provided as proprietary and confidential documents.

- 2-4) Refer to Page 7-1 of the Application. The Applicant states that the Project would employ 10 full-time personnel. Are the full-time personnel specific to the Dakota Range III project, or would personnel be shared between Dakota Range I, II, and III? Please explain.**

Brenna Gunderson: The up to 10 full-time personnel identified in the Dakota Range III application are specific to Dakota Range III. Although there could be further coordination between the owners of Dakota Range I and II and Dakota Range III regarding project operations in the future, Dakota Range III is not aware of any such plan, and the up to 10 full-time personnel identified in the Application are, as noted, only for Dakota Range III.

- 2-5) Refer to Page 8-1 of the Application. The Applicant estimates O&M and administrative costs to be approximately \$100,000 per year. Is this estimate specific to the transmission facility? If yes, does the Applicant have an estimate of the O&M and administrative costs associated with the wind facility? Please explain.**

Brenna Gunderson: The \$100,000 cost is associated with overall Project electrical components: the substation, transmission line and collection system. The overall estimated Project site O&M costs and administrative costs are expected to be an additional approximately \$4.5 million per year, including a long-term service agreement with the turbine supplier.

- 2-6) Refer to Page 10-3 of the Application. The Applicant states it will take steps to mitigate shadow flicker concerns at residences that could experience flicker levels above 30 hours per year. Can the Applicant use Turbine Control Software to automatically shut down a specific turbine or turbines for an appropriate amount of time as necessary to comply with the shadow flicker commitment? Please explain.**

Brenna Gunderson: As noted in the Supplemental Direct Testimony of Brenna Gunderson, in Roberts County, all residences have been modeled at less than 30 hours per year of shadow flicker, so no mitigation is proposed. In Grant County, modeling results indicated that two residences owned by Project participants may experience shadow flicker levels greater than 30 hours per year. This has been explained to those residence owners. The residence owners did not express concern regarding shadow flicker, and each executed shadow flicker waiver agreements in favor of Dakota Range III. As such, it will not be necessary to employ turbine control software to mitigate shadow flicker.

- 2-7) Refer to the Pre-filed Supplemental Direct Testimony of Robert O’Neal, Lines 141 – 142. Please provide all orders and documentation from the German court case which deemed 30 hours per year of flicker acceptable.**

Rob O’Neal & Mollie Smith: The citation in Mr. O’Neal’s testimony comes from the following reference on the Danish Wind Industry Association website: <http://xn--drmstre-64ad.dk/wp-content/wind/miller/windpower%20web/en/tour/env/shadow/index.htm>. Dakota Range III would note that the German court case is cited in other documentation regarding shadow flicker (see, e.g., Shadow Flicker Impact Analysis for the Ashley Wind Energy Project, McIntosh County, North Dakota, North Dakota Public Service Commission Case No. PU-09-370, available at: <https://psc.nd.gov/database/documents/09-0370/041-010.pdf>). Dakota Range III does not have documentation from the German court case.

- 2-8) Refer to the Pre-filed Supplemental Direct Testimony of Robert O’Neal, Lines 63 – 65. Mr. O’Neal states “A compliance L90 measurement is approximately 2 dBA less than the modeled Leq sound level as proven by real-world post-construction measurement programs.” Please provide the study referenced in the footnote that supports this claim.**

Rob O’Neal: See Attachment 2-8(A) (the relevant portion of the study has been provided for ease of reference).

- 2-9) In Docket EL18-026, the Commission ordered the following sound condition for the Prevailing Wind Park:**

The Project, exclusive of all unrelated background noise, shall not generate a long-term sound pressure level (L10), as measured over a period of at least two weeks, defined by Commission staff, that includes all integer wind speeds from cut in to full power, of more than 40 dBA within 25 feet of any non-participating residence unless the owner of the residence has signed a waiver, and 45 dBA of any participating residence unless the owner of the residence has signed a waiver. Applicant shall, upon Commission formal request, conduct field surveys or provide post-construction monitoring data verifying compliance with specified noise level limits using applicable American National Standards Institute (ANSI) methods. If the long-term average level exceeds 40 dBA at any non-participating residence, or 45 dBA at any participating residence where the owner of the residence has not signed a waiver, then the Applicant shall take whatever steps are necessary in accordance with prudent operating standards to rectify the situation. Sound monitoring will not be repeated in a representative area during

any five-year period unless operational or maintenance changes result in a reasonable assumption of higher turbine sound levels.

A) Please explain why the Company is advocating for L90 and Leq as appropriate sound measurements for a permit condition rather than L10.

Rob O'Neal: First, L90 is the newly adopted requirement in Grant County. Second, the Leq is directly comparable to the model output of the pre-construction predictive models since, by standard, the models use Leq input sound data as provided by the manufacturers of wind turbines. In addition, an L10 can be influenced by short, transient sounds unrelated to the wind turbine. To some degree the Leq can also be influenced by short, loud sounds; however, the L90 represents a steady-state condition such as that of a wind turbine under maximum sound with no other non-wind turbine sounds influencing it. Figure RDO-1 (Attachment 2-9(A)) is an example of a two plus week sound measurement program of an existing wind farm. The sound meter is within 1,150 feet of the closest wind turbine. The L10 sound level is plotted along with the power output of the nearest wind turbine. As one can see in Figure RDO-1, the L10 varies from approximately 22 dBA to 73 dBA over this 20-day measurement period. How a program like this would be evaluated against a 40 dBA long-term L10 limit is unclear.

B) Will the Company commit to not generate a long-term sound level of more than 40 dBA within 25 feet of any non-participating residence unless the owner of the residence has a signed waiver? Please explain.

Brenna Gunderson: No. As discussed in response to 1-15 previously, the Project has been designed to comply with numerous constraints and setbacks, only one of which is sound. Design and siting of Project facilities began in early 2018, and the Project has been designed to comply with applicable requirements. Dakota Range III understands that any conditions imposed on the Project in this docket will be based on the record developed herein, and Dakota Range III is not aware of any justification for a 40 dBA limit. As noted in the Supplemental Direct Testimony submitted by Dr. Mark Roberts, scientific literature establishes no human health effects at the sound levels proposed for the Project. Specifically, on pages 7-8 of that testimony, Dr. Roberts explained that there are not potential adverse health effects from the audible sound of

wind turbines at the levels of sound (up to 45 dBA) to be produced by the Project; Dr. Roberts stated: the "science has not identified a causal link between any specific health condition and exposure to sound patterns generated by contemporary wind turbine models. In addition to my own conclusions, several other respected organizations and agencies have reached similar conclusions." Similarly, a limit of 45 dBA is consistent with prior Commission decisions with respect to the Crocker Wind Farm (Docket No. EL17-055) and Dakota Range I and II (Docket No. EL18-003). In addition, no specific requests with respect to sound levels have been made by landowners in or near the Project, and no one has intervened in the docket. While the Holborns have submitted comments regarding infrasound and low frequency sound, those comments were filed in multiple dockets and are not specific to this Project, and are not part of the evidentiary record.

2-10) In Docket EL18-026, the Commission ordered the following shadow flicker condition for the Prevailing Wind Park:

Applicant shall install turbine control equipment on the Project's turbines that allows for individual turbines to be shut down as necessary to ensure that shadow flicker does not exceed 15 hours per year with no more than 30 minutes per day at non-participating residencies and participating residencies that have not signed a waiver. Applicant shall also take steps to mitigate shadow flicker concerns at any residence that could experience shadow flicker levels above 15 hours with no more than 30 minutes per day.

A) Please explain why the Company is advocating for a 30 hours per year limit for shadow flicker rather than the Commission ordered limit of 15 hours per year in Docket EL18-026.

Brenna Gunderson: As discussed in response to 1-15 and 1-16 previously, the Project has been designed to comply with numerous constraints and setbacks, only one of which is shadow flicker. Design and siting of the Project began in early 2018, and the Project has been designed to comply with applicable requirements. Dakota Range III understands that any conditions imposed on the Project in this docket will be based on the record developed herein, and Dakota Range III is not aware of any justification for a 15 hour limit. As noted in the Supplemental Direct Testimony submitted by Dr. Mark Roberts, scientific literature establishes no human health effects from shadow flicker from wind turbines. Specifically, on page 10 of that testimony, Dr. Roberts testified: "I found

no scientific studies indicating any demonstrated health effects arising from shadow flicker produced by wind turbines, or any other type of flicker humans commonly experience, such as from computer monitors, TV screens, or fans. With respect to claims that shadow flicker from wind turbines may affect persons with epilepsy, there is no indication that a wind turbine would have an impact because the frequency of shadow flicker from wind turbines is not the frequency that induces epileptic seizures." Similarly, a limit of 30 hours per year is consistent with prior Commission decisions with respect to the Crocker Wind Farm (Docket No. EL17-055) and Dakota Range I and II (Docket No. EL18-003). In addition, no requests with respect to shadow flicker levels have been made by landowners in or near the Project, and no one has intervened in the docket.

- B) Please explain why the Company's commitment on shadow flicker does not include a daily limit, such as no more than 30 minutes per day, as the Commission ordered in Docket EL18-026.**

Brenna Gunderson: In the company's experience, commitments on daily shadow flicker limits are not typical. In addition, no such requirement has been established at the state level or in Grant or Roberts Counties. See also the response to 2-10(A).

- 2-11) Has the Company included all agency correspondence in Appendix B of the Application from the U.S. Fish and Wildlife Service (USFWS) and South Dakota Game, Fish, and Parks (SDGFP)? If no, please provide.**

Ryan Henning: Dakota Range III met with USFWS and SDGFP in December 2018. Due to the Federal Government shutdown, the minutes of the December 2018 meeting have not yet been able to be finalized, but Dakota Range III will provide a copy of the minutes once final. Additionally, Dakota Range III received a letter from USFWS in December 2018; however, it appears that the letter may inadvertently be referencing information related to a separate proposed wind project in another state. Dakota Range III would like to provide USFWS with the opportunity to correct the letter, as needed, and will coordinate with USFWS regarding the letter once Federal Government operations resume. Following that coordination, Dakota Range III will supplement its response.

- 2-12) In Docket EL18-026, the Commission ordered Prevailing Wind Park to fund a decommissioning escrow account annually at a rate of \$5,000 per turbine per year for the first 30 years, commencing no later than the commercial operation date. See**

Condition 40, subparts (a) – (j) of the Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry for the entire condition. Does the Applicant agree to the decommissioning condition referenced above for this permit? Please explain.

Brenna Gunderson: Response to be provided separately.

Dated this 18th day of January 2019.

By /s/ Mollie M. Smith
Mollie M. Smith
Lisa A. Agrimonti
FREDRIKSON & BYRON, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402
Phone: (612) 492-7270
Fax: (612) 492-7077
Attorneys for Dakota Range III, LLC

**Findings of Fact
Conditional Use Permit
Dakota Range III LLC: Wind Energy Systems
December 17, 2018**

This matter having come before the Grant County Board of Adjustment and the Board having taken testimony and heard the evidence, the Board enters the following Findings of Fact in support of its motion to approve the Petitioner's application for a Conditional Use Permit.

1. Standard Findings of Fact for Conditional Uses adopted in the Articles of By-Laws for Grant County Board of Adjustment: Article 12.
2. The following use is listed in the A – Agricultural Zone and Zone B of the Aquifer Protection Overlay District of the Grant County Zoning Ordinance and (Ref: SDCL 11-2-17.3):
 - Wind Energy Systems (Ref: Zon. Ord. 1101.03.22).
 - All uses permitted by conditional use in the underlying district which do not pose a potential risk to groundwater resources and are not a prohibited use may be approved by the Board of Adjustment provided they can meet Performance Standards outlined for the Aquifer Protection Overlay Zones. (Ref: Zon. Ord. 1105.09)
 - All Conditional Uses allowed in underlying districts, with the exception of those prohibited, may be approved by the Board of Adjustment provided they can meet Performance Standards outlined for the Aquifer Protection Overlay Zones. (Ref: Zon. Ord. 1105.10)
3. On or before November 6, 2018, Dakota Range III LLC. applied for a conditional use permit to operate a Wind Energy System on property in Blooming Valley, Farmington, Mazeppa & Lura Townships as displayed in Exhibit "A" attached and hereby incorporated by reference
4. This application meets the definition of a Wind Energy System.
5. This permit should not become effective until all required permits are granted by the state and federal government, including the remaining applications and licenses referenced in the application.

6. The application and testimony at this meeting allowed the Board to adequately review how the applicant will satisfy requirements of Section 1211 of the Grant County Zoning Ordinance; including but not limited to site clearance, topsoil protection, compaction, livestock protection, fences, public roads, haul roads, turbine access roads, private roads, control of dust, soil erosion and sediment control, electromagnetic interference, lighting, turbine spacing, footprint minimization, collector lines, feeder lines, decommissioning, tower height, flicker appearance, and noise.
7. The applicant satisfactorily demonstrated the ability to meet required setbacks for turbines from property lines, right-of-way, residences, businesses, government facilities and other structures, uses, municipalities and features which would require setback.
8. The applicant submitted all materials required by Section 1211 of the Grant County Zoning Ordinance, including but not limited to boundaries of the site proposed for WES, a map of easements, maps of occupied residential structures, businesses, churches, and buildings owned and/or maintained by a governmental entity, maps of sites for WES, access roads, and utility lines, location of other WES in general area, project schedule, and mitigation measures.
9. The agreement in the letter of assurance that the applicant will obtain a haul road agreement satisfies the requirement for a haul road agreement.
10. The application, and testimony during the meeting adequately addressed all concerns of the ordinance, including those concerns which apply to the provisions of the Zoning Ordinance raised in written testimony received in accordance with the By-Laws of this Board, and in testimony given during the public hearing. All issues that were brought up with the application or during testimony which relate to the Zoning Ordinance or Land Use Plan were adequately addressed.
11. The Board considered and determines that, with conditions proposed by the Board, the proposed use will meet the intent, purpose, and regulations of the Comprehensive Land Use Plan and Zoning Ordinance.
12. That Wind Energy Systems such as proposed by the applicant are allowable in the A – Agricultural District, and Zone B of the Aquifer Protection District under certain conditions; and
13. Further, the satisfaction of the conditions of the Zoning Ordinance regulating Wind Energy Systems (Section 1211), the Aquifer Protection District (Section 1105), and all conditional use permits (Section 504) satisfies Section 104 (Purpose) of the Grant County Zoning Ordinance.

14. Therefore, the Board of Adjustment finds that it is empowered to grant the conditional use, and that the granting of the conditional use will not adversely affect the public interest.
15. The Board requests the zoning officer to prepare the findings of fact which are to be approved by the Chairman of the Board; and for the zoning officer to issue the conditional use permit and any letters of assurance, building permits or other items associated with said conditional use permit.
16. In order to comply with the requirements of the Zoning Ordinance the Board of Adjustment prescribes the following conditions and safeguards in conformity with the Grant County Comprehensive Land Use Plan and Zoning Ordinance to be agreed to in the form of a "Letter of Assurance":
 - 1) Effective Date and Transferability:
 - a. Upon issuance of permit by South Dakota Public Utilities Commission.
 - b. This permit shall expire on December 17, 2020 if no substantial construction as described in the application has been completed; or if a State Permit from the South Dakota Public Utility Commission has not been issued; or within two (2) years of the final decision regarding any appeal to circuit court relating to the issuance of the permit.
 - c. The applicant may apply for an extension of this permit if the requirements of 1.b above cannot be met.
 - d. The Conditional Use permit is transferable. Subsequent owners/operators shall agree to the same conditions described herein.
 - 2) General Requirements:
 - a. There shall be no discharge of industrial processed water on the site
 - b. Storage of petroleum products in quantities exceeding one hundred (100) gallons at one (1) locality in one (1) tank or series of tanks must be in elevated tanks; such tanks larger than eleven hundred (1,100) gallons must have a secondary containment system where it is deemed necessary by the Board of Adjustment.
 - c. Grantor shall provide the zoning office with an updated local contact information of plant supervisor with authority to implement dust control and other necessary enforcement of the conditions of this permit.
 - 3) Obligation to Meet Requirements:
 - a. Applicant agrees to construct all WES towers with a setback distance equal to or greater than exhibited in the application.
 - b. Applicant agrees that the construction and operation of all WES towers will comply with noise and shadow flicker thresholds exhibited in the application's noise and shadow flicker analysis
 - c. Applicant further agrees to meet requirements of Section 1211 of the Grant County Ordinance in a manner consistent with its application in reference to

remaining obligations including but not limited to: submittal of Soil Erosion and Sediment Control Plans, Haul Road Agreements, Decommissioning Plan, Final site location of towers, building permit application, meeting applicable federal and state requirement as required by Section 1211.

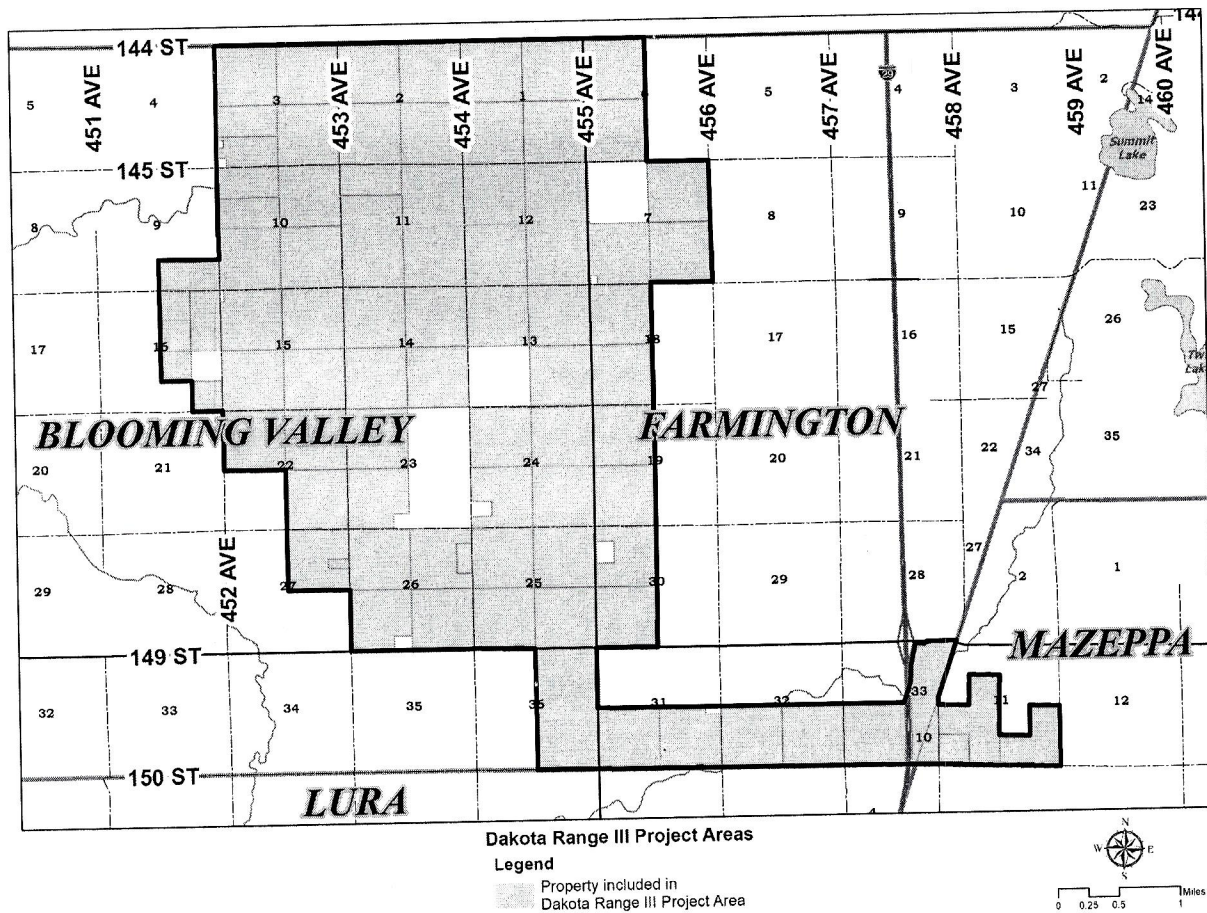
- d. Applicant acknowledges the ability of the Board of Adjustment to require some form of financial assurance to cover the anticipated costs of decommissioning the WES Facility. Tentative zoning ordinance amendments propose a financial instrument be established at \$5,000 per tower per year for 30 years.
- e. Applicant agrees that haul road agreements are to be executed not less than 30 days prior to construction.
- f. Applicant agrees that haul Road Agreement language to include provision that the adjoining landowners be notified of road closures at least 2 days prior to road closure.

1) Violation and Penalties:

- a. Violations of requirements of the ordinance relating to the operations of a specific tower will result in enforcement/penalties in reference to the specific tower found to be in violation, and will be enforced in the manner as described in Section 4.b below.
- b. Violation of the terms of this conditional use permit will be determined by the Grant County Zoning Officer.
 - (1) The first violation substantiated by the Zoning Officer of this conditional use permit may result in a notification letter stating the violation and a prescribed period of time to remove the violation. A second violation occurring within one calendar year of the previous violation may result in a review of the validity of the conditional use permit and potential revocation of said permit. A third violation within one calendar year of the initial violation may result in revocation of the conditional use permit and/or cessation of the specific tower within forty-five days (45) of notice of revocation.
 - (2) The applicant may make appeal from the decision of the Zoning Officer or other agent of the Grant County Board of Adjustment to the Grant County Board of Adjustment. The applicant shall file with the Zoning Officer a notice of appeal specifying the grounds thereof. The Zoning Officer shall forthwith transmit to the Board of Adjustment all papers constituting the record upon which the action appealed from was taken. Such appeal shall be taken within thirty (30) days. Appeals from the Board of Adjustment shall be taken to Circuit Court.
 - (3) Failure to comply with the decision of the Zoning Officer or other agent of the Grant County Board of Adjustment may be deemed a separate violation.

The Conditional Use Permit was approved by a vote of 6 yes and 1 no (Pillatzki). (Ref: SDCL 11-2-59).

Exhibit A



Nancy Johnson

Nancy Johnson, Chairperson
Grant County Board of Adjustment

Date Approved: December 17, 2018

Date Signed: 12-28-2018

Date Filed: 12-28-18

Conditional Use Permit Number(s): CUP11062018 A

**Findings of Fact
Conditional Use Permit
Dakota Range III LLC: Electric Power Transmission Line
December 17, 2018**

This matter having come before the Grant County Board of Adjustment and the Board having taken testimony and heard the evidence, the Board enters the following Findings of Fact in support of its motion to approve the Petitioner's application for a Conditional Use Permit.

1. Standard Findings of Fact for Conditional Uses adopted in the Articles of By-Laws for Grant County Board of Adjustment: Article 12.
2. The following use is listed in the A – Agricultural Zone and Zone B of the Aquifer Protection Overlay District of the Grant County Zoning Ordinance and (Ref: SDCL 11-2-17.3):
 - Wind Energy System – Electric Power Transmission Line (Feeder) (Ref: Zon. Ord. 1101.03.22 & 1211.03.8).
 - All uses permitted by conditional use in the underlying district which do not pose a potential risk to groundwater resources and are not a prohibited use may be approved by the Board of Adjustment provided they can meet Performance Standards outlined for the Aquifer Protection Overlay Zones. (Ref: Zon. Ord. 1105.09)
 - All Conditional Uses allowed in underlying districts, with the exception of those prohibited, may be approved by the Board of Adjustment provided they can meet Performance Standards outlined for the Aquifer Protection Overlay Zones. (Ref: Zon. Ord. 1105.10)
3. On or before November 6, 2018, Dakota Range III LLC. applied for a conditional use permit to construct and operate an Electric Power Transmission Line (Feeder) on property within Blooming Valley, Farmington, Mazeppa & Lura Townships as displayed in Exhibit "A" attached and hereby incorporated by reference
4. This permit should not become effective until all required permits are granted by the state and federal government, including the remaining applications and licenses referenced in the application.

5. The application and testimony at this meeting allowed the Board to adequately review how the applicant will satisfy requirements of Section 1211.03.8
6. The applicant submitted all materials required by Section 1211 of the Grant County Zoning Ordinance, including but not limited to boundaries of the site proposed for WES; a map of easements, maps of occupied residential structures, businesses, churches, and buildings owned and/or maintained by a governmental entity, maps of sites for WES, access roads, and utility lines, location of other WES in general area, project schedule, and mitigation measures.
7. The agreement in the letter of assurance that the applicant will obtain a haul road agreement satisfies the requirement for a haul road agreement.
8. The application, and testimony during the meeting adequately addressed all concerns of the ordinance, including those concerns which apply to the provisions of the Zoning Ordinance raised in written testimony received in accordance with the By-Laws of this Board, and in testimony given during the public hearing. All issues that were brought up with the application or during testimony which relate to the Zoning Ordinance or Land Use Plan were adequately addressed.
9. The Board considered and determines that, with conditions proposed by the Board, the proposed use will meet the intent, purpose, and regulations of the Comprehensive Land Use Plan and Zoning Ordinance.
10. That Wind Energy Systems – Electric Power Transmission Line (Feeder) such as proposed by the applicant are allowable in the A – Agricultural District, and Zone B of the Aquifer Protection District under certain conditions; and
11. Further, the satisfaction of the conditions of the Zoning Ordinance regulating Wind Energy Systems – Electric Power Transmission Line (Feeder) (Section 1211.03.8), the Aquifer Protection District (Section 1105), and all conditional use permits (Section 504) satisfies Section 104 (Purpose) of the Grant County Zoning Ordinance.
12. Therefore, the Board of Adjustment finds that it is empowered to grant the conditional use, and that the granting of the conditional use will not adversely affect the public interest.
13. The Board requests the zoning officer to prepare the findings of fact which are to be approved by the Chairman of the Board; and for the zoning officer to issue the conditional use permit and any letters of assurance, building permits or other items associated with said conditional use permit.

14. In order to comply with the requirements of the Zoning Ordinance the Board of Adjustment prescribes the following conditions and safeguards in conformity with the Grant County Comprehensive Land Use Plan and Zoning Ordinance to be agreed to in the form of a "Letter of Assurance":

1) Effective Date and Transferability:

- a. Upon issuance of permit by South Dakota Public Utilities Commission.
- b. The Conditional Use permit is transferable. Subsequent owners/operators shall agree to the same conditions described herein.

2) General Requirements:

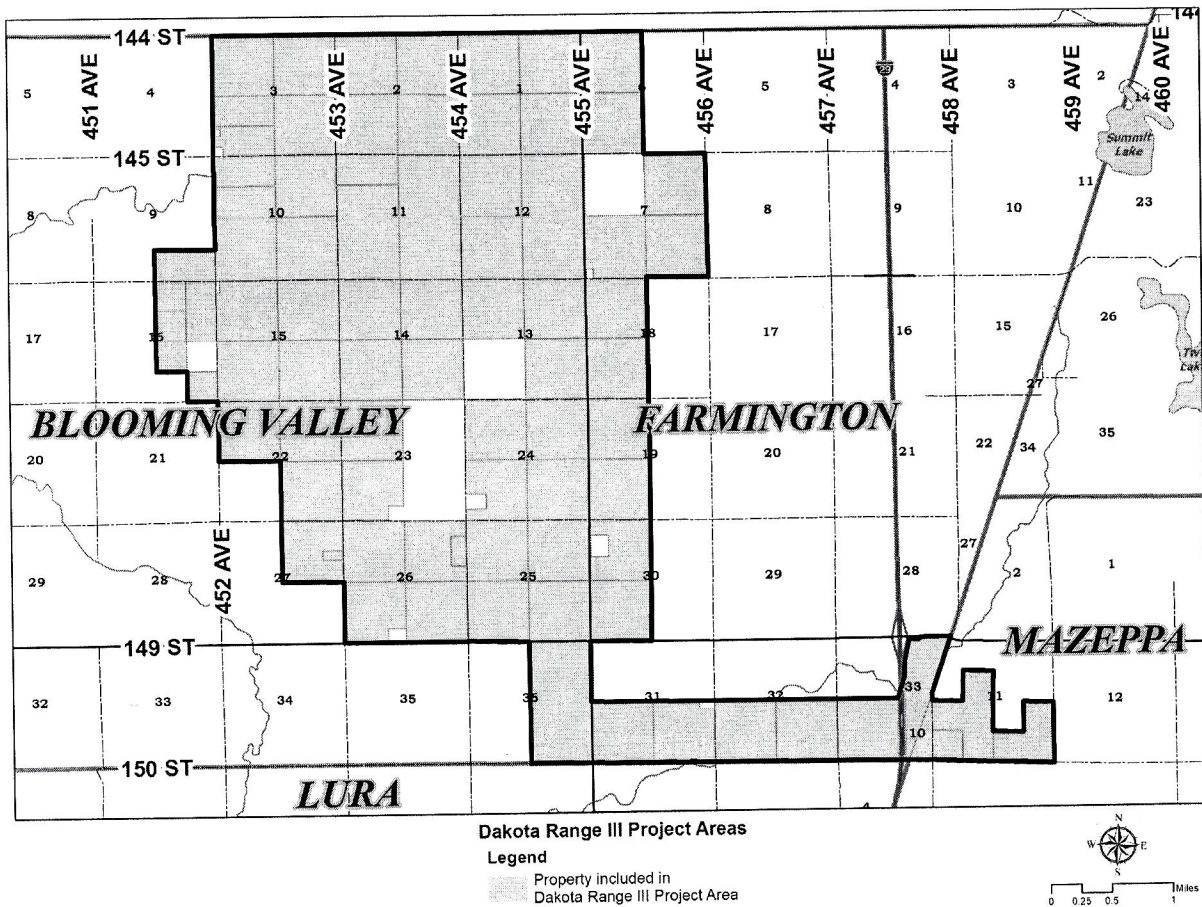
- a. There shall be no discharge of industrial processed water on the site
- b. Storage of petroleum products in quantities exceeding one hundred (100) gallons at one (1) locality in one (1) tank or series of tanks must be in elevated tanks; such tanks larger than eleven hundred (1,100) gallons must have a secondary containment system where it is deemed necessary by the Board of Adjustment.
- c. Grantor shall provide the zoning office with an updated local contact information of plant supervisor with authority to implement dust control and other necessary enforcement of the conditions of this permit.

3) Obligation to Meet Requirements:

- a. Applicant agrees to meet requirements of Section 1211 of the Grant County Ordinance in a manner consistent with its application in reference to remaining obligations including but not limited to: submittal of Soil Erosion and Sediment Control Plans, Haul Road Agreements, building permit application, meeting applicable federal and state requirement as required by Section 1211.
- b. Applicant agrees to submit the site plan and engineering drawings for the feeder lines before commencing construction. Feeder line support structures (power poles) shall be placed on private property where concrete or other similar materials are used as an exposed or above-ground permanent foundation.
- c. Applicant agrees that haul road agreements are to be executed not less than 30 days prior to construction.
- d. Applicant agrees that haul Road Agreement language to include provision that the adjoining landowners be notified of road closures at least 2 days prior to road closure.

The Conditional Use Permit was approved by a vote of 6 yes and 1 no (Pillatzki). (Ref: SDCL 11-2-59).

Exhibit A



Nancy Johnson
Nancy Johnson, Chairperson
Grant County Board of Adjustment

Date Approved: December 17, 2018

Date Signed: 12-28-2018

Date Filed: 12-28-18

Conditional Use Permit Number(s): CUP11062018B

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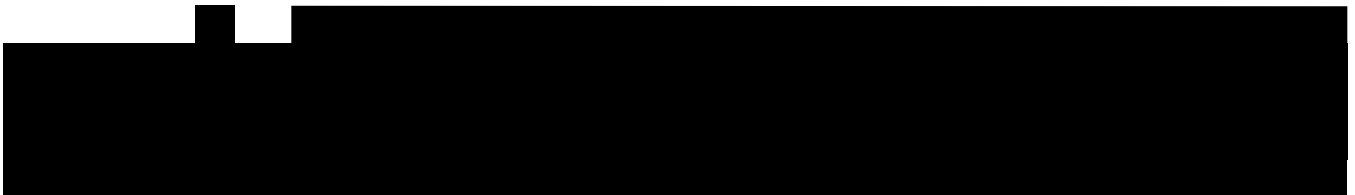
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9.8 Setback Waivers. To the extent that (a) Landowner now or in the future owns or leases any land

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twenty (20) days after the receipt of such request. Such new easement agreement shall be effective as of

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DISCUSSION OF A-WEIGHTED SOUND METRICS

The A-weighted sound value is the most commonly used metric in environmental noise regulation. We believe this to be due, in part, to the fact that it is designed to mimic the human response to loudness at lower sound levels. Assuming audibility is the minimum requirement for annoyance and activity interference, the A-weighted sound level is relevant for use in noise regulations.

This Section establishes which metric results in the greatest observable change when the turbines are shut down and restarted. At locations within 660 meters, the L_{\min} and L_{90} show the greatest change. These parameters are less sensitive to short-duration events in the background. At 990 meters, there is so much background sound relative to the wind turbine sound that there is very little difference between the metrics.

The next best metrics for demonstrating changes to the A-weighted sound levels resulting from wind turbines around shutdowns, after the L_{\min} and L_{90} , are the L_{50} followed by the L_{eq} .

Comparing five-minute metrics based on one-second L_{eq} , $L_{F\max}$ and $L_{S\max}$, there is generally little difference between L_{eq} and $L_{F\max}$. The $L_{S\max}$ generally has a smaller level difference between turbine-on and turbine-off. This is likely because the slow response setting is less responsive to wind turbine amplitude modulation.

With respect to the variability of the parameters from one five-minute period to the next, improved predictability comes from lower standard deviations when the wind turbine is on. The L_{\max} metric has the highest standard deviations. There is little difference in standard deviation among the L_{\min} , L_{90} , L_{50} , and L_{eq} metrics. The highest standard deviations tend to occur in the prevailing crosswind direction.

In light of these findings, the most predictable and stable metrics for wind turbine unattended monitoring tend to be the L_{\min} and L_{90} , while the least predictable and stable are the L_{10} and L_{\max} .

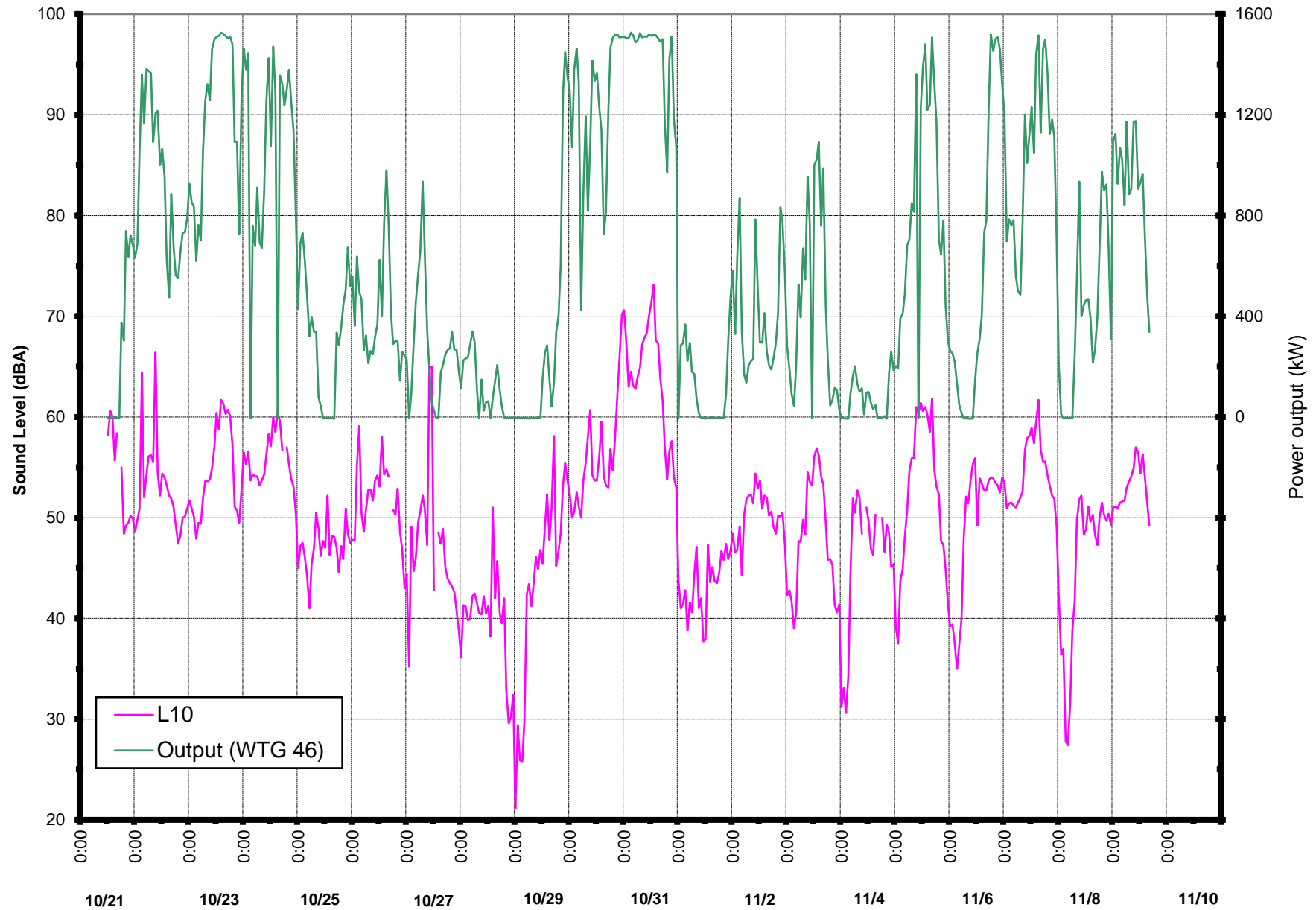
If the structure of a regulatory standard is a comparison of the measured wind turbine sound level to the background L_{90} , then one may choose both how to calculate the background L_{90} , and to what metric it should be compared. By collecting one-second sound levels, the L_{90} of any period (e.g. five minutes) can be calculated from the statistical distributions of the A-weighted $L_{F(1\text{-sec})}$, $L_{S(1\text{-sec})}$, $L_{F\max(1\text{-sec})}$, $L_{eq(1\text{-sec})}$, etc. As shown in Table 6, when calculating turbine-on sound levels using the L_{90} of the $L_{F\max(1\text{-sec})}$, we get a 0.7 dB higher level than when using the $L_{eq(1\text{-sec})}$. When calculating background using the L_{90} of the $L_{F\max(1\text{-sec})}$, we get a 0.5 dB higher level than when using the $L_{eq(1\text{-sec})}$. The difference between the two methods of calculating L_{90} is insignificant.

When looking among the metrics in Figure 10, the five-minute L_{90} of the A-weighted $L_{F\max}$ is about 2 dB lower than the $L_{eq(5\text{-min})}$ in the prevailing crosswind and downwind directions, but about the same in the upwind direction.

SOURCE: *Massachusetts Study on Wind Turbine Acoustics Report*, Resource Systems Group, Inc., February 18, 2016, at 48.

Figure RDO-1
Location E -- Sound Levels and Power Output

ATTACHMENT 2-9(A)



**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

**IN THE MATTER OF THE
APPLICATION OF DAKOTA RANGE
III, LLC FOR A PERMIT OF A WIND
ENERGY FACILITY AND A 345-KV
TRANSMISSION LINE IN GRANT
AND ROBERTS COUNTIES**

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**APPLICANT’S RESPONSES TO
STAFF’S THIRD SET OF DATA
REQUESTS TO APPLICANT**

EL18-046

Below, please find Dakota Range III, LLC’s (“Applicant”) Responses to Staff’s Third Set of Data Request to Applicant.

3-1 Refer to Table 10-1 and Page 16-15 of the Application. On Table 10-1, the Applicant listed the Grant County setback from public roads and property lines as at least 500 feet or 110% the height of the wind turbine, whichever is greater. On Page 16-15, the Applicant stated, “turbines are required to be set back at least 2 times the height of the wind turbines from the centerline of the public ROW and from non-participating property lines in Grant County unless a waiver is signed by non-participating landowners.”

3-1(A) Please clarify what is Grant County’s public ROW and non-participating property line setback.

Brenna Gunderson: Per Section 1211.04(2), Grant County's setback requirements for public right-of-way and non-participating property lines are as follows:

Distance from Public Right-of-Way: 500 Feet or 110% of the vertical height of the wind turbine, whichever is greater***

Distance from Property Line: 500 Feet or 110% of the vertical height of the wind turbine, whichever is greater *****

*** The horizontal setback shall be measured from the base of the tower to the public right-of-way.

***** The horizontal setback shall be measured from the base of the tower to the adjoining property line unless wind easement has been obtained from adjoining property owner.

3-1(B) If “at least 2 times the height of the wind turbine” is the appropriate Grant County setback, please explain the basis for Grant County’s setback.

Brenna Gunderson: Two times the height of the wind turbine is not the correct Grant County setback.

3-2 Please provide GIS shape files for the project.

Brenna Gunderson: See GIS shape files provided separately via Sharefile.

3-3 On Page 24-1, the Applicant states “current decommissioning requirements in Grant and Roberts Counties require that all towers, turbine generators, transformers, overhead collector and feeder lines, foundations, buildings, and ancillary equipment be dismantled and removed to a depth of 4 feet no more than 18 months after the expiration of the conditional use permit.” When will the conditional use permits expire?

Brenna Gunderson: Pursuant to the current zoning ordinance in Roberts County, a Wind Energy System conditional use permit expires three (3) years from the date of issuance, or within two (2) years after the date of issuance of a permit by the South Dakota Public Utilities Commission, whichever occurs last. In Grant County, the current zoning ordinance provides that a Wind Energy System conditional use permit expires if no substantial construction has commenced within three (3) years of issuance; or if a State Permit from the South Dakota Public Utilities Commission has not been issued within two (2) years of issuance of the permit. The county zoning ordinances do not address expiration of Wind Energy System conditional use permits in connection with decommissioning.

Dated this 22nd day of January 2019.

By /s/ Mollie M. Smith
Mollie M. Smith
Lisa A. Agrimonti
FREDRIKSON & BYRON, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402
Phone: (612) 492-7270
Fax: (612) 492-7077
Attorneys for Dakota Range III, LLC