

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

**IN THE MATTER OF THE
APPLICATION BY CROCKER WIND
FARM, LLC FOR A PERMIT OF A
WIND ENERGY FACILITY AND A 345
KV TRANSMISSION LINE IN CLARK
COUNTY, SOUTH DAKOTA, FOR
CROCKER WIND FARM**

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**CROCKER WIND FARM, LLC'S
RESPONSES TO STAFF'S SECOND
SET OF DATA REQUESTS**

EL17-055

Below please find Crocker Wind Farm, LLC's Responses to Staff's Second Set of Data Requests.

2-1) Pursuant to ARSD 20:10:22:15(4), please provide the estimated recharge rate of the aquifer to be used for the O&M facility's potable water supply.

Brie Anderson: Potable water for the O&M facility would be supplied by one of the two aquifers within the Project Area: the Prairie Coteau 1 and Altamont 2 aquifers. According to Hamilton (1986), the average annual recharge rate for the Prairie Coteau 1 and Altamont 2 aquifers are 16,000 and 54,000 acre-feet, respectively. As discussed in Section 9.2.2.1 of the Application, shallow groundwater aquifers like those within the Project Area generally recharge quickly because they are receptive to recharge from precipitation and surface water flow; thus, the Project is not anticipated to affect groundwater resources.

2-2) On Page 70 of the Application it is identified that "All temporary impact acreages identified in Table 9-10 will be restored following construction, and allowed to naturally revegetate." Please explain what is meant by the phrase "allowed to naturally revegetate."

Melissa Schmit: Following construction, temporary impacts will be restored by seeding the disturbed soil with weed-free native grasses, forbs, and shrubs, in consultation with land managers and appropriate agencies. On grassland easements, the seed mix will be USFWS-approved. The phrase "allowed to naturally revegetate" refers to the act of loosening soil as necessary and laying the seed mix.

2-3) Referring to the last paragraph of section 9.5.5.2, what distance is being referred to where the project "would not be noticeably visible, if visible at all?"

Brie Anderson: The Region of Influence for cumulative impacts for visual resources is 25 miles. This distance is consistent with the USFWS Upper Great Plains Programmatic Environmental Impact Statement ("PEIS").

2-4) Referring to section 9.5.7.3, has Crocker already aligned turbine rows so that they point towards/away from the radar since Crocker does not anticipate mitigation will include moving turbines?

Melissa Schmit: Crocker has not aligned turbine rows so that they point towards/away from the radar. On March 16, 2016, Crocker sent a Project notification letter to the National Telecommunications and Information Administration (“NTIA”). The response included an Impact Analysis from the Department of Commerce National Oceanic and Atmospheric Administration (“NOAA”), located in Appendix H of the Application. The NOAA response indicated that while a portion of the Project falls within the Notification Zone, they “will not request mitigation of impacts for this project configuration.” Thus, while the letter goes on to outline potential mitigation strategies, the NOAA indicated they would not be required.

Crocker submitted an updated request to the NTIA based on the expanded Project boundary on November 16, 2017. A response was received on January 11, 2018, which was filed to the Project Docket on January 25, 2018. The response stated input was received from the Department of Agriculture, Department of Commerce, Department of Justice, and Department of Navy. No agencies had issues with turbine placement in the Project Area and, the response stated No Harmful Interference Anticipated (“NHIA”).

The language in Section 9.5.7.3 is inaccurate and should state: “The NOAA determined impacts to critical tornado detection from the Project are not anticipated and mitigation measures to reduce impacts to radar will not be required per the DOC/NOAA’s report dated April 4, 2016. Therefore, aligning turbines so rows of turbines point towards/away from the radar or moving turbines will not be required. Crocker will provide a final layout to the agencies for review as requested and implement other forms of mitigation, if necessary. Potential mitigation to ensure accurate rainfall measurements could include installing rain gauges or additional weather stations in the northern portion of the Project Area where precipitation estimates may be impacted. Additionally, the FAA review circulates to the weather radar operators allowing them to map the layout on their radar system to create a mask that then allows them to screen the interference from their forecasting.”

2-5) Referring to section 9.7.1.2, pursuant to ARSD 20:10:22:24 please provide a description of job classifications for each of the 18 full time jobs to be created by the project.

Jay Hesse: The JEDI model calculates that a 400 MW project will require approximately 18 full time jobs during operation and they are broken down into the following job classifications.

Field Technicians:	14.4
Administrative:	2.1
Management:	1.6

Total: Approximately 18

Field Technicians: These positions are responsible for the onsite operations, maintenance, repairs and replacement of equipment for the Project and lead in all areas of operations as directed by the onsite manager.

Administrative: These positions are primarily responsible for supporting the operation and management team of the Project by maintaining records and administration of personnel activities for the Project.

Management: These positions are responsible for managing the day to day operations and maintenance of the Project. Duties include development and compliance with an operating budget, outage coordination and scheduling with the interconnect entity, scheduling coordinator and trading desk, and oversight of operations and maintenance.

2-6) Please provide a breakdown of the cost estimate for turbine decommissioning by cost category, including: labor, equipment (e.g. crane costs), shipping, disposal, salvage value, and site restoration. Further, please provide a separate calculation for the expected cost values at the end of the wind farm's operational life.

Rob Copouls: As stated in Section 5.2 of the Application, the actual cost to decommission will be based on the various costs and scrap material prices at the time of decommissioning. The cost estimate of \$100,000 to \$150,000 per turbine provided in the Application was based on labor costs and material prices from Geronimo's operating projects' decommissioning plans. An estimated breakdown per turbine follows:

Labor (removal of turbine, foundation and access road): ~\$53,500

Equipment Cost (including crane): ~\$84,000

Site Restoration: ~\$6,000

Removal Cost Per Turbine: ~\$143,500

Scrap Value of Tower Steel/Generator Components: ~\$55,000

Shipping/Disposal: 200 tons at ~\$100/ton (~\$20,000)

Total Salvage Value: ~\$35,000

A breakdown of equipment costs required per turbine follows:

Crawler Crane: ~\$40,000

Hydraulic Crane (required for processing scrap): ~\$10,000

Clamshell Attachment: ~\$50.00

Dump Truck: ~\$11,000

Hydraulic Excavator: ~\$800.00

Hydraulic Ram: ~\$400.00

Truck Tractor/Dump Trailer/Flatbed Trailer: ~\$1,500.00

Dozer: ~\$200.00

Skid Steer Loader: ~\$200.00

Hydroseeder: ~\$40.00

Mobilization/Demobilizing Equipment: ~\$20,000

A separate calculation for the expected cost values at the end of the wind farm's operational life cannot be provided at this time due to the difficulty in predicting inflation over the next 30+ years. Because an accurate estimate cannot be determined, industry standard is to reevaluate decommissioning costs every five years and provide an estimated cost with inflation 5 years out. The estimates provided above are in current dollars and an estimate for 7 years from now (assuming 2 years for development/construction) is provided below, assuming 1.70% Consumer Price Index inflation.

Labor (removal of turbine, foundation and access road): ~\$60,000

Equipment Cost (including crane): ~\$95,000

Site Restoration: ~\$7,000

Removal Cost Per Turbine: ~\$161,500

Scrap Value of Tower Steel/Generator Components: ~\$62,000

Shipping/Disposal: 200 tons at ~\$112/ton (~\$22,500)

Total Salvage Value: ~\$40,000

2-7) Please provide the GIS shapefiles for the proposed project layout.

Melissa Schmit: GIS shapefiles are attached.

2-8) Referring to Figure 2b please identify if easements are required from the non-participating landowners for the portion of the preliminary collector line that runs between turbines 228 and 151. If easements are required, please provide the status of the easements.

Mollie Smith: The preliminary collector line that extends between turbines 228 and 151 is located within the statutory public highway located thirty-three feet on either side of a section line (*see* S.D.C.L. 31-18-1 and 31-18-2). Pursuant to S.D.C.L. 31-26-1, a board of county commissioners “may grant to any person engaged in the manufacture or sale of electric light and power . . . the right to erect and maintain poles and wires or to bury underground cable for the purpose of conducting electricity. . . in and along any public highway in its county” upon submittal of a written application. In accordance with S.D.C.L. 31-26-1, and 31-26-10 through 31-26-14, Crocker will submit an application to the Clark County Board of County Commissioners requesting authorization to install the collector line in the section line public highway.

2-9) Refer to the response to Staff Data Request 1-5. In the NOTE under School Districts, the Applicant states “After year 10, all wind energy tax revenue will be considered “local effort” in the State school funding formula ...”. Per SDCL Chapter 13-13-10.1(6B), shouldn’t that statement state after year 9 or starting in year 10, all wind energy tax revenue will be considered local effort? If no, please explain.

Mollie Smith: The referenced sentence in the response to Staff Data Request 1-5 should read: “Beginning in the 10th year of producing power, all wind energy tax revenue will be considered “local effort” in the State school funding formula, which may decrease the amount of State aid needed to meet the districts’ calculated total need.”

2-10) Refer to the response to Staff Data Request 1-6.

a) Refer to the response to Staff Data Request 1-6(a).

i. Provide the results of the Class III cultural resource field surveys obtained in late November 2017, and specifically identify the documentation that supports specific turbines will need to be moved.

Melissa Schmit: When the Class III cultural resource field survey data was received in late November 2017, Crocker’s Motion for Reconsideration to Docket EL17-028 had been filed and a hearing was pending on a revised configuration containing 132 turbine locations. The Motion for Reconsideration requested non-material shifts in turbine locations of less than 325’ without further Commission action. Upon evaluation of the November survey data, turbine shifts beyond 325’ were required to avoid both cultural resources and suitable Dakota skipper habitat.

During the same timeframe in late November, Crocker was working with the USFWS to revise the Project configuration to further avoid and minimize impacts to easement land and initiate tribal consultation under Section 106 of the National Historic Preservation Act (“NHPA”) as part of the federal permitting process for siting facilities on grassland easements. Once letters and maps are sent to tribal representatives, any modifications to the Project configuration would require an updated mailing and, subsequently, the comment period would be extended. To ensure

the Project timeline was not impacted by numerous configuration revisions, Crocker elected to remove 10 turbines that could not be shifted within 325' prior to a decision on the pending Motion for Reconsideration. If the Motion for Reconsideration had been granted, Crocker intended to re-file a revised application with those 10 locations removed to provided consistency with the configuration under evaluation with the USFWS.

In the current Project configuration provided in the Application, Crocker has omitted the 10 turbines referenced above in order to maintain consistency between the Project configuration provided for tribal consultation in the federal permitting process and the Project configuration provided in the PUC process. As a result, all survey results to date have been incorporated into the current Project configuration; however, cultural resource avoidance area shapefiles are attached as requested. Please note the cultural resource data is confidential.

- ii. Provide the number associated with each turbine that will need to be moved because of the cultural survey, and identify the number of feet the turbine will need to be moved.**

Melissa Schmit: All survey results to date have been incorporated into the Project configuration. As detailed above in 2-10(a)(i), the current Project configuration accounts for Crocker's removal of 10 turbines in November 2017 that would have required shifts of more than 325' to avoid environmentally sensitive areas, while complying with other required setbacks. The turbine numbers of those removed include 24, 26, 27, 40, 42, 80, 83, 85, 141, and 200, which would have required shifts between 392 and 1,260 feet. In the current Application, Crocker has requested the ability to shift turbines 1,000 feet to ensure future turbine locations can be shifted appropriately to account for additional Project-specific data received, and the distance requested is supported by the prior Project-specific data discussed above.

- iii. Will the Applicant have the cultural resource studies and surveys completed before the hearing scheduled in May 2018? Please explain.**

Melissa Schmit: Cultural resource surveys are approximately 78% complete and will be completed in the spring once field conditions allow (when the snow is melted and the ground is visible). Thus, the timing of completion of the cultural resource studies and surveys is weather-dependent, and it is uncertain at this time if the results will be available by the time of the evidentiary hearing.

- b) Refer to the response to Staff Data Request 1-6(c). Explain how individuals granted intervention or party status could participate in a request to change turbine location.**

Mollie Smith: Individuals granted intervention or party status in Docket EL 17-055 will have the opportunity to present testimony and evidence regarding Crocker's proposed process for Commission approval of turbine location changes described in response to Staff Data Request 1-6(c) at the evidentiary hearing. Further, given Crocker's commitment that any turbine shifts will meet all local and state setback requirements, including noise and shadow flicker requirements

for non-participating landowner residences, and that specified sensitive areas will be avoided, potential turbine changes are not anticipated to impact nonparticipating landowners. That said, the proposed request for approval of a turbine change described in response to DR 1-6(c) could be submitted by Crocker as a motion, which would be filed with the Commission and served on individuals included on the docket's official Service List. This approach has been used in the past for a permittee to seek Commission approval pursuant to the terms of a permit (*see, e.g.*, Motion for Approval of Third Party Compliance Monitor, In the Matter of the Application of Dakota Access, LLC for an Energy Facility Permit to construct the Dakota Access Pipeline Project, HP 14-002).

2-11) Please provide the estimated useful life of the wind project, and the estimated useful life for the 345 kV transmission line. If the wind project's useful life is shorter than the associated transmission line, will the transmission line be decommissioned at the same time as the wind project? Please explain.

Jay Hesse: The useful life of the wind project will be determined over time based on the overall demand for power in the future and some of the other factors listed below.

The estimated useful life of a wind turbine is typically 20-30 years; however, Crocker wind farm agreements with landowners allow for up to 50 years of operation, which would enable Crocker to install new turbines or repower the facility to operate beyond the useful life of the initial set of turbines, with the appropriate permits and approvals. It is also possible to renegotiate new agreements with landowners to continue the Project beyond 50 years.

The estimated service life of the transmission line is approximately forty years, however high-voltage transmission lines are seldom completely retired and the useful life could be extended well beyond this timeline with regular maintenance (up to 80 years). The transmission line will be decommissioned when there is no longer a projected need for it within the larger electrical grid and, therefore, no longer a need to transmit power from this area to the transmission system. Crocker will coordinate with the Commission and impacted landowners on the details around the timing of decommissioning.

2-12) At the February 5, 2018, public input hearing, a commenter requested that Crocker provide a property value guarantee to non-participating residents adjacent to the wind project. What is the Company's position on this request?

Betsy Engelking: Crocker does not intend to provide any guarantees to property values of non-participating residents. There are a number of factors that can influence rural property values, including but not limited to the demand for land in the area, crop prices and productivity, the condition of buildings and structures, as well as the general economy, all of which can vary significantly over time. As such, it would be very difficult (if not impossible) to isolate any portion of a change in property value as attributable to the existence of a wind farm on adjacent land. Provision of property guarantees is not a common practice among renewable developers or project developers in general. Geronimo has never proposed nor been asked by a state regulatory

body to provide property value guarantees with respect to its projects in any of the states where we have permitted a wind farm.

2-13) How has Crocker mitigated the risk of ice throw from wind turbines through project planning and wind turbine operation?

Melissa Schmit: Crocker will install ice detection technology that mitigates risk of ice throw. This technology measures bending of the blade as it rotates. If ice builds up on the blade, the monitoring system will detect they are rotating off balance and the turbine will be automatically shut down. The monitoring system will detect when the ice has been shed and the turbine will commence operation. Additionally, turbines are setback 500 feet from roads and a minimum of 1,000 feet from residences. The combination of ice detection technology and turbine setbacks address the potential concern of ice throw for the Project.

2-14) Regarding the wind project and aerial sprays:

a) Please explain how the wind turbines will impact aerial spraying in the project area.

Patrick Smith/Melissa Schmit: The Federal Aviation Administration's rules and regulations govern safety for commercial and private aviation, including pilot licensing, air traffic control, and lighting for the wind turbines. All of these are regulations that increase air safety and create a consistent system for owners and operators of towers and other tall structures, as well as the aviation community. Private pilots fly at their own discretion and must make their own safety determinations with regards to the things they are flying around, atmospheric conditions, and their own skills. Aerial spraying can continue around wind turbines, as acknowledged by a pilot that spoke at the Public Input Hearing. Additionally, when concerns are raised, Geronimo discusses the potential impact/limitations on aerial spraying with potential Project participants. Thus, the Crocker participating landowners are able to make an informed decision as to how to use their property.

b) Has the wind project been planned to allow aerial spraying in the project area? Please explain.

Jay Hesse: Typical wind farm design in this region does allow for aerial spraying because the turbines are constructed in strings and the typical spacing between turbines allows aerial sprayers to access between turbines. The preferred spacing between turbines north to south is around ½ mile and spacing east to west is typically around ¼ mile.

c) How are met towers marked so that aerial sprayers can avoid the obstruction?

Melissa Schmit: The permanent met towers proposed in the Application that would be constructed during Project construction will be marked consistent with SDCL 50-9-13 and the

FAA's requirements, including alternating orange and white paint, obstruction lighting, or both. At this time, we expect the towers will be free standing and not require guy wires.

**d) Will the wind project affect aerial spraying for any non-participating residents?
Please explain.**

Jay Hesse: While any above ground structure on neighboring property can impact how some aerial sprayers will approach spraying a field, we have found that pilots approach this topic differently based on their comfort flying in wind farms. However, it is typical that areas surrounding wind farms continue to be serviced by aerial spraying as stated above in the response to question 2-14 (a). Turbines are spaced so aerial sprayers could fly between the turbines and the turbines are also setback from unsigned neighboring property at least 550' throughout the Project.

Additionally, property owners retain airspace rights up to 500 feet and aerial applicators must regularly make adjustments based on the various conditions and structures in the area including existing residences, bee hives, transmission lines, various towers, grain bins, wind turbines, and other structures.

Dated this 22nd day of February 2018.



Melissa Schmit