BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DOCKET NO. EL17-055

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

Direct Testimony of Darren D Kearney
On Behalf of the Staff of the South Dakota Public Utilities Commission
March 28, 2018

Q. State your name.

A. Darren Kearney.

Q. State your employer and business address.

A. South Dakota Public Utilities Commission, 500 E Capitol Ave, Pierre, SD, 57501.

Q. State your position with the South Dakota Public Utilities Commission.

A. I am a Staff Analyst, which is also referred to as a Utility Analyst.

Q. What is your educational background?

A. I hold a Bachelor's of Science degree, majoring in Biology, from the University of Minnesota. I also hold a Masters of Business Administration degree from the University of South Dakota.

Q. Please provide a brief explanation of your work experience.

A. I began my career in the utility industry working as contract biologist for Xcel Energy, where I conducted biological studies around various power plants, performed statistical analysis on the data collected, and authored reports in order to meet National Pollutant Discharge Elimination System (NPDES) permit requirements.

After two years of performing biological studies, I then transitioned into an environmental compliance function at Xcel Energy as a full-time employee of the

company and became responsible for ensuring Xcel's facilities maintained compliance with the Oil Pollution Act of 1990. This involved writing Spill Prevention Control and Countermeasure (SPCC) plans and also ensuring Xcel facilities maintained compliance with those plans. During this time I was also responsible for the company's Environmental Incident Response Program, which involved training Xcel employees on spill reporting and response, managing spill cleanups, and mobilizing in-house and contract spill response resources. I was also responsible for aboveground storage tank permitting during this time.

I was in that role for approximately three years and then I transitioned to a coal-fired power plant at Xcel and became responsible for environmental permitting and compliance for the plant. Briefly, my responsibilities involved ensuring that the facility complied with all environmental permits at the plant, which included a Clean Air Act Title V Air Permit, a Clean Water Act NPDES permit, and a hazardous waste permit. I also drafted reports on the plant's operations for submission to various agencies as required by permit or law. After three years at the power plant, I left Xcel Energy to work for the South Dakota Public Utilities Commission (SD PUC).

I have been at the SD PUC for over five years now. During this time I worked on a variety of matters in the telecom, natural gas, and electric industries. The major dockets that I worked on were transmission siting, pipeline siting, wind energy facility siting and energy efficiency programs. I also work on matters

involving the Midcontinent Independent System Operator (MISO), specifically wholesale electricity market issues, transmission cost allocation and regional transmission planning. I also attended a number of trainings on public utility policy issues, electric grid operations, regional transmission planning, electric wholesale markets, and utility ratemaking.

My resume is provided as Exhibit_DK-1.

Q. On whose behalf was this testimony prepared?

A. This testimony was prepared on behalf of the Staff of the South Dakota Public Utilities Commission.

Q. When did Crocker Wind Farm, LLC file its Application for a permit to construct the Crocker Wind Farm?

A. The Application was filed on December 15, 2017.

Q. Did you review Crocker Wind Farm, LLC Application for a permit to construct the Crocker Wind Farm?

A. Yes. I also reviewed the figures, appendixes, discovery responses produced by all parties, and Crocker's direct testimony submitted with the application.

Q. Were other Staff involved in the review of this petition?

A. Yes. Staff Analyst Jon Thurber also assisted in reviewing the application. Kristen Edwards and Amanda Reiss are the Staff attorneys assigned to the docket.

Q. Explain, in your words, the main role of the SDPUC Staff in the Application proceedings.

A. After receiving the Application filing, Staff completed a review of the contents of the Application as it relates to the Energy Facility Siting statutes, SDCL 49-41B, and Energy Facility Siting Rules, ARSD 20:10:22. Staff then identified information required by statute or rule that was either missing from the Application or unclear within the Application and requested Crocker to provide or clarify that information (see Exhibit_DK-3). Once interested individuals were granted party status, Staff also issued discovery to the intervenors in order to understand what concerns they had with the project (see Exhibit_DK-2).

Staff also subpoenaed an expert from the Game Fish and Parks, Tom Kirschenmann, and an expert from the State Historic Preservation Office (SHPO), Paige Olson, to have individuals knowledgeable in their associated fields assist with Staff's review. Further, Staff hired two consultants to assist with reviewing the Application. The first consultant, David Hessler, has expertise on noise emitted from wind turbines and noise modeling. The second consultant, David Lawrence, has expertise regarding property valuation. These experts then completed their review and authored their testimony as filed in this docket.

Finally, Staff assisted a number of intervenors and affected landowners by providing responses to numerous questions on the windfarm, the siting process at the PUC and the opportunities available for these individuals to be heard by the Commission. If the landowners had specific concerns with the wind farm, Staff often recommended that those individuals file comments in the docket for the Commission's review. Where appropriate, Staff also included some of the landowners' questions or concerns in Staff's data requests sent to Crocker in order to clarify the issue.

Q. What is the purpose of Staff's expert witnesses in this proceeding?

A. Given that some of the information submitted in the Application is technical in nature, Staff sought experts within their respective fields to assess the merits and deficiencies of the Application. Staff asked the experts to review the relevant portions of the Application, testimony, and appendixes that fall within their areas of expertise and provide comments on the Application and supporting information.

Ultimately, Staff requested that the experts address whether or not the information submitted by Crocker aligns with industry best practices and if they agreed with the conclusions Crocker made regarding potential impacts from the project.

Q. Did Staff reach out to any other State Agencies for input?

A. Not for this docket. However, Staff did reach out to the South Dakota Department of Health to find out if they had an opinion on the potential health impacts from wind turbines in Crocker's previous docket (EL17-028).

Q. What was the South Dakota Department of Health's response?

A. The South Dakota Department of Health provided Staff with a letter stating that the Department of Health has not taken a formal position on the issue of wind turbines and human health. Further, they referenced the Massachusetts Department of Public Health and Minnesota Department of Health studies and identified those studies generally conclude that there is insufficient evidence to establish significant risk to human health. I included the Department of Health's letter as Exhibit_DK-4.

Q. Was Crocker Wind Farm, LLC's Application considered complete at the time of filing?

A. At the time of the filing, the application was generally complete. However, as identified above, Staff requested further information, or clarification, from Crocker which Staff believed was necessary in order to satisfy the requirements of SDCL 49-41B and ARSD 20:10:22. Crocker's responses to Staff's information requests received to date are attached as Exhibit_DK-3. Finally, I would also note that an applicant supplementing its original application with additional information as requested by Staff is not unusual for siting dockets.

Q. Based on your review of the Application, responses to Staff's data requests and Crocker's testimony, do you find the Application to be complete?

A. Yes. Staff found that Crocker provided information that addressed the information required by ARSD Chapter 20:10:22 and SDCL 49-41B. However, at the time of writing this testimony, it is my opinion that Crocker should provide additional information to more-thoroughly address certain rules so that the Commission may better understand the project's potential impacts. This opinion is based on Staff's interpretation of the Commission's rules and the testimony submitted by Staff's experts.

Q. What rules do you believe were not adequately covered in the Application, responses to Staff's data requests, or Crocker's prefiled testimony?

A. In my opinion, I found that Crocker touched upon all rule requirements in its Application. However, the following is a list of the rules that I found were not adequately covered in the Application, with a more detailed explanation of this finding explained later in my testimony:

1) ARSD 20:10:22:23(1) – "A forecast of the impact on … land values…"

2) ARSD 20:10:22:23(6) - "A forecast of the impact on landmarks and cultural resources of historic, religious, archaeological, scenic, natural, or other cultural significance."

3) ARSD 20:10:22:13 - "[t]he environmental effects shall be calculated to reveal and assess demonstrated or suspected hazards to the health and welfare of human, plant and animal communities *which may be cumulative or synergistic*

consequences of siting the proposed facility in combination with any operating energy conversion facilities, existing or under construction." {emphasis added}.

Q. Why do you believe Crocker did not adequately address ARSD 20:10:22:23(1)?

A. ARSD 20:10:22:23(1) requires the Applicant to provide a forecast of the project's impact on land values. While the Application does discuss expected impacts to property values and Crocker provides supporting information through the direct testimony of Mark Thayer, Staff's witness David Lawrence identified that he is unable to form an opinion about impacts to land/property values without a more specific study that focuses on South Dakota. Further, Mr. Lawrence identifies his concerns with Mr. Thayer providing a property valuation opinion without being licensed in South Dakota as an appraiser. Please refer to Mr. Lawrence's testimony for a more detailed explanation as to why Staff finds ARSD 20:10:22:23(1) has not been adequately addressed as it relates to land values.

Q. Why do you believe Crocker did not adequately address ARSD 20:10:22:23(6)?

A. ARSD 20:10:22:23(6) requires the Applicant to provide a forecast of the project's impact on cultural resources. While the Application does address cultural resources (see section 9.7.4 of the Application) and commits to avoidance of cultural resources, Staff's expert from SHPO, Paige Olson, identifies that she is unable to fully understand the potential adverse impacts to cultural resources

based on the information submitted in the Application and received to date. Ms. Olson identified that Crocker is currently conducting additional studies to determine the potential impacts to cultural resources. Once that information is provided to SHPO, she will be able understand the impacts and provide an opinion on the project. Please refer to Ms. Olson's testimony for further information.

Q. Why do you believe Crocker did not adequately address ARSD 20:10:22:13?

A. In my opinion, I found that the discussion regarding the potential cumulative impacts of the Project and existing wind farms adjacent to the Project area was not too robust. Given that the Day County Wind Farm and Oak Tree Wind Farm are adjacent to the project area, Staff would like to see a more detailed study that clearly identifies the cumulative environmental impacts (including both direct and indirect impacts) of wind energy projects in that area of the Prairie Coteau.

In past wind farm siting dockets before the Commission, cumulative impacts on the environment were not a major concern due to the number of wind projects existing in an area. However, as wind developers continue to build out wind-rich areas of the State and site projects adjacent to each other, Staff would like to see cumulative impacts clearly addressed in applications so that a project's impacts on a specific region can be fully understood. This is particularly important as

siting wind projects adjacent to one another impacts a larger percentage of the area's population and environment.

Specific to the Crocker Wind Farm, there are two factors involved with this project that may have warranted a more detailed cumulative impact analysis. First, the amount of grasslands, especially the potential for undisturbed grasslands, that are located within the project area (See Figure 13 of the Application). Second, the project is sited between the existing Day County Wind Farm and Oak Tree Wind Farm. Since the South Dakota Game Fish and Parks identifies remnant prairie tracts as having a high conservation value, I believe it is important for the Commission to understand what potential cumulative impacts could result from siting the Crocker Wind Farm at that location. An analysis on cumulative impacts is important for Commission consideration because if it shows that siting multiple wind farms in a given area poses a threat of serious injury to the environment, some form of mitigation may be required to offset those impacts. Exhibit_DK-5 of my testimony provides a map that I made of the Day County Wind Farm, Oak Tree Wind Farm, and proposed Crocker Wind Farm on potentially undisturbed land, which helps visualize why cumulative impacts are an important consideration for this project.

Q. Is it Staff's opinion that the Crocker Wind Farm Application should be denied or rejected because Staff finds Crocker did not adequately address these rules?

A. Not at this time. Because Crocker still has the opportunity to address outstanding issues on rebuttal and, to an extent, through the evidentiary hearing, Staff reserves any position until such time as we have a complete record upon which to base the position. I would also note that some of the outstanding issues may be addressed through conditions should the Commission grant a permit.

Q. Does Staff have any recommendations regarding a road bond for the Project?

A. Yes. Pursuant to SDCL 49-41B-38, the Commission shall require any person preforming any construction to furnish an indemnity bond in a reasonable amount for a transmission facility. Since the Crocker Project includes a 5.2 mile 345-kV transmission line, a bond is required. Staff recommends setting the bond at $1 million.

This recommended amount is based on the bonding requirements established in the two previous wind farm dockets. In Docket EL15-020 (Willow Creek Wind Farm) there was less than 1 mile of transmission proposed and a road repair bond set at $500,000. In Docket EL09-028 (Prairie Winds SD1) there was 13 miles of transmission line proposed and a road repair bond set at $1.5 million. Given that Crocker Wind Farm includes a 5.2 mile transmission line (a distance that falls in the middle of the two previous dockets), I felt that a $1 million road repair bond would be reasonable for this project.

Q. Does Staff have any recommendations regarding a decommissioning bond for the Project?

A. Yes. In accordance with ARSD 20:10:22:33.01, the commission may require a bond, guarantee, insurance, or other requirement to provide funding for the decommission and removal of a wind energy facility. At this time, it is difficult to forecast the expected decommissioning cost of a wind farm that may be retired in approximately 20 to 30 years (see Crocker response to Staff DR 2-6). Also, I would note that there is a carrying cost associated with any bond. As such, Staff recommends that the Commission require Crocker to submit an updated decommissioning plan, updated decommissioning cost forecasts, and company financials ten years after the date of commercial operation. At that time, the Commission would review the updated information and determine if a bond is warranted and at what amount.

Q. In its Application, Crocker requests that the permit allow turbines to be shifted within 1,000 feet of the proposed location so long as specified noise and shadow flicker thresholds at occupied residences are not exceeded, cultural resources and sensitive species habitat are avoided, and wetland impacts are avoided to the extent practicable. What is Staff's position on this request?

A. I do not agree with this request. While I understand the need for some flexibility to micro-site turbines, I cannot support this request. In docket EL17-028 Crocker filed a letter indicating that they needed the flexibility of 325 feet and now in this

docket it changed to 1,000 feet. Justification for this increase was to avoid cultural resources and Dakota skipper habitat; however, Crocker has already incorporated the avoidance of those resources in its proposed turbine layout (see Crocker's response to Staff's data requests 1-6 and 2-10).

Staff's initial impression was that 1,000 feet seemed like too large of a turbine shift without some additional review. We thought through this request and tried to come up with a distance for shifting turbines that we can support. We could not find any support in the Application for a shorter distance beyond the flexibility desired by Crocker. Ultimately, Staff concluded that, from a technical perspective, the project impacts provided in the permit application are based on the proposed turbine layout. Any changes to turbine locations could cause a change in the impacts of the project. I acknowledge that some turbine shifts may not cause any changes to the project impacts, however I believe that some form of additional review is prudent.

Q. How does Staff propose to handle turbine shifts that occur during micro-siting if the permit is granted?

A. I believe that a process can be established in a permit condition that allows for additional review of the final turbine locations. If the Commission grants a permit, I recommend that the Commission require Crocker to file the following for review prior to starting construction:

1) a list of turbine sites that changed;

2) a map showing the new turbine location;

3) justification for each turbine change; and

4) an analysis on any impacts that occur because of that change.

I further recommend that Commission allow 30 days for Staff, the intervenors, and the Commission to review any shifts in turbine locations and be afforded the opportunity to raise concerns. If no concerns are raised by the parties or the Commission within 30 days, then the turbine changes would be automatically approved. However, if a party (or the Commission) raises a concern with a turbine shift, then that turbine shift would be brought before the Commission for consideration and approval.

I believe the process described above provides transparency to the parties, and the public, regarding the final locations of the turbines.

Q. Does this conclude your testimony?

A. Yes.

DARREN D. KEARNEY

500 E Capitol Ave · Pierre, SD 57501· 605-773-3201
Darren.Kearney@state.sd.us

EDUCATION:

UNIVERSITY OF SOUTH DAKOTA, Vermillion, South Dakota
Beacom School of Business
Master of Business Administration (GPA 4.0) *June 2013 – May 2015*

UNIVERSITY OF ST. THOMAS, Minneapolis, Minnesota
Opus College of Business
Pursued Master of Business Administration (GPA 3.95) *November 2011 – December 2012*

UNIVERSITY OF MINNESOTA, Minneapolis, Minnesota
College of Biological Sciences
Bachelor of Science, Biology (GPA 3.347) *December 2003*

EXPERIENCE:

SOUTH DAKOTA PUBLIC UTILITIES COMMISSION, Pierre SD
Utility Analyst *February 2013 - Present*

- Ensured public utility company filings are in compliance with South Dakota statutes and regulations.
- Analyzed siting dockets, testified before the Commission, and worked on settlement agreements as appropriate.
- Analyzed energy efficiency, telecom tariff, telecom certificate of authority, electric service territory, and other electric dockets in order to form a position and make recommendations to the Commission on those dockets.
- Reviewed proposed EPA Clean Power Plan rules and authored comments in response to the proposed rules.
- Worked on MISO wholesale electric market, regional transmission planning, and cost allocation issues.
- Attended a number of trainings on electric grid operation, regional transmission planning, public utility policy issues, and ratemaking.

XCEL ENERGY, Minneapolis MN
Plant Environmental Analyst III *October 2009 – February 2013*

- Reviewed power plant processes and made modifications as necessary to ensure the plant was in continued compliance with environmental permits and regulations.
- Coordinated environmental related testing (e.g. annual stack tests required by Air Permit/CAA).
- Worked on Title V Air Permit and NPDES Permit renewals/amendments.
- Reviewed plant air and water emissions data and generated compliance reports for Air and NPDES/SDS Permits.
- Performed plant compliance inspections/audits to ensure permits, policies, and procedures were properly executed.
- Provided environmental training to plant staff.
- Conducted root cause investigations on spills and permit non-compliance incidents, developed corrective actions to prevent incident reoccurrence, and then implemented the corrective actions as directed by plant management.
- Acted as point of contact during regulatory agency inspections and internal audits.
- Managed the facility's hazardous waste program for compliance with county waste rules and RCRA.

Environmental Analyst II *August 2006 – October 2009*

- Subject matter expert for AST/UST compliance, the Oil Pollution Act of 1990 (SPCC) and Industrial Stormwater.
- Managed an Environmental Incident Response Program that involved coordinating spill cleanups and training individuals on reporting/cleanup requirements for oil/chemical spills and power plant permit non-compliance incidents.

ADECCO TECHNICAL, Edina MN
Contract Biologist - Xcel Energy Environmental Analyst *June 2004 – August 2006*

- Developed monitoring plans, conducted field monitoring/sampling, performed statistical analysis on data collected, and authored reports for biological studies at Xcel Energy power plants as required by State and Federal Rules.
- Established knowledge of environmental permits and Federal, State, and Local environmental regulations.

ACHIEVEMENTS

- Academic: Beta Gamma Sigma International Honor Society (Business School)

**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	* * * * * * * *	**INTERVENORS' RESPONSES TO STAFF'S FIRST SET OF DATA REQUESTS** **EL17-055**

Below, please find Intervenor's responses to Staff's First Set of Data Requests.

1-1) Provide copies of all data requests submitted to or by the Intervenors and copies of all responses provided to those data requests. Provide this information to date and on an ongoing basis.

This information will be provided.

1-2) Refer to SDCL 49-41B-22.

a. Please specify particular aspect/s of the applicant's burden that the individuals granted party status intend to personally testify on.
b. Please specify particular aspect/s of the applicant's burden of proof the Intervenors intend to call a witness to testify on.

Intervenors are still evaluating the Application and Crocker Wind Farm, LLC's ability to satisfy the provisions of SDCL 49-41B-22. At the present time, Intervenors intend to illicit testimony on all four points of SDCL 49-41B-22 from witnesses already identified by Crocker Wind Farm, LLC and the PUC Staff (via subpoenas). Intervenors are still evaluating whether they will call additional witnesses.

1-3) Refer to SDCL 49-41B-25. Identify any "terms, conditions, or modifications of the construction, operation, or maintenance" that the Intervenors would recommend the Commission order. Please provide support and explanation for any recommendations.

Intervenors recommend the Commission order proof of liability insurance in the amount of 10 million dollars, minimum. (Attached: Newspaper article - $6.7 million settlement; WindAction – Wind Energy and Aviation Safety, Fatalities)

Intervenors recommend the Commission require a decommissioning plan prior to approval of the application. Further, Intervenors recommend the Commission require a performance bond of $200,000 per turbine, with periodic increases for inflation, for decommissioning and reclamation. Intervenors also recommend the Commission require the decommissioning and reclamation of any turbine that remains nonfunctional or out of compliance for more than 12 consecutive months. (Attached: Eva's Decommissioning Estimate for Pleasant Ridge Wind Farm)

Intervenors recommend the Commission require the installation and use of an Aircraft Detection Lighting System which meets FAA standards, the study of which was required by the Clark County Board of Adjustment. (See Written Findings, Item 19 of the Clark County Board of adjustment for support and explanation.)

Intervenors recommend the Commission require proof of a signed written agreement between the Applicant and Interstate Telecommunications Cooperative before approval of this permit. (See Application 9.5.7.3)

Intervenors recommend the Commission require a signed written agreement regarding crossings of pipeline between the Applicant and Northern Border Pipeline before approval of this permit.

Intervenors recommend the Commission require the Applicant to provide a Property Value Guarantee (PVG) surety bond for all properties located within two miles of the footprint, Applicant to be responsible for all appraisal costs. This would allow affected homeowners to recoup their loss if they elect to relocate away from the turbine project and cannot sell for the pre-project market value of their properties.

Intervenors recommend the Commission establish a 3-mile buffer around Reid Lake State Waterfowl Refuge to protect migrating waterfowl and eagles. (See Application Appendix H, Agency Correspondence: Scott Larson, USFWS and Silka Kempema, SDGFP.)

This response may be supplemented as Intervenors learn of other potential concerns regarding the Project.

1-4) Please list with specificity the witnesses the Intervenors intend to call. Please include name, address, phone number, credentials and area of expertise.

See response to Request 1-2.

1-5) Do the Intervenors intend to take depositions? If so, of whom?

Not at this time.

Dated at Sioux Falls, South Dakota this 14th day of March, 2018.

DAVENPORT, EVANS, HURWITZ & SMITH, L.L.P.

/s/ Reece M. Almond

Reece M. Almond
206 W. 14th Street
P.O. Box 1030
Sioux Falls, SD 57101-1030
Phone: (605) 336-2880
Fax: (605) 335-3639
Attorneys for Intervenors

Certificate of Service

The undersigned, one of the attorneys for Intervenors, certifies that a true and correct copy of the foregoing was served on March 14, 2018, via email upon the following persons:

Ms. Mollie Smith
Fredrikson & Byron, PA
Attorneys for Crocker Wind Farm, LLC
msmith@fredlaw.com

Mr. Brett Koenecke
Ms. Kara C. Semmler
May, Adam, Gerdes & Thompson, LLP
Attorneys for Crocker Wind Farm, LLC
brett@mayadam.net
kcs@mayadam.net

Ms. Kristen Edwards
Staff Attorney
South Dakota Public Utilities Commission
kristen.edwards@state.sd.us

Ms. Amanda Reiss
Staff Attorney
South Dakota Public Utilities Commission
amanda.reiss@state.sd.us

Dated at Sioux Falls, South Dakota this 14th day of March, 2018.

/s/ Reece M. Almond
Reece M. Almond

**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	* * * * * * * *	**CROCKER WIND FARM, LLC'S RESPONSES TO INTERVENORS FIRST SET OF DATA REQUESTS** **EL17-055**

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

1-1) Provide copies of all data requests submitted to or by Crocker Wind Farm, LLC and copies of all responses provided to those data requests. Provide this information to date and on an ongoing basis.

Mollie Smith: Crocker has received three sets of data requests from PUC Staff. The requests and Crocker's public responses to the first two sets of data requests have been posted to the PUC's electronic docket. Crocker will provide the third set of data requests and responses when complete, and will provide additional data requests on an ongoing basis as requested. Non-public information would be provided pursuant to a protective agreement.

1-2) SD codified law, ASDR 20:10:22:07 requires a named project manager of the proposed facility. Provide the name of this individual and a copy of that individual's resume.

Melissa Schmit: Jay Hesse is the Crocker Project Manager. His resume is attached.

1-3) The pre-filed testimony of two Geronimo executives, Mr. Fladeboe and Ms. Engelking, state that Geronimo has satellite offices in a number of states including South Dakota. Please provide the following date for South Dakota office(s): Address, telephone & fax numbers and daily office hours.

Jay Hesse: Geronimo's South Dakota office has been located in at 925 29th St SE, Watertown, SD 57201 at National American University. Geronimo began renting the Watertown office space in February of 2016. However, we were informed on January 19, 2018 that this location of National American University was to close on 2/28/2018, so we are currently evaluating our options for different office space going forward.

Geronimo has been working on multiple projects in South Dakota and this Watertown office has been centrally located for our work on these projects. This office is not utilized as a retail office space with set office hours for the general public; rather, it is a location for employees and

contractors to work from and to host meetings with landowners and other stakeholders as scheduled by Geronimo staff. Landowners and stakeholders are provided contact information directly to Geronimo personnel or contact information to Geronimo Energy Headquarters where communications are directed appropriately. Geronimo Energy Headquarters is located at 7650 Edinborough Way, Suite 725, Edina, MN 55435 (Phone: 952-988-9000 Fax 952-988-9001).

Geronimo Energy also has an employee, Michael Binder, who works from a home office in Bristol, SD. Bristol is about 20 miles north of the Crocker Project area, which enables Mr. Binder to work closely with Crocker landowners and stakeholders. Michael Binder's contact information is: Email: mbinder@geronimoenergy.com; Phone: 605-590-1017.

Once the Project is operational, an office will be established on site and will hold regular business hours.

1-4) Page 135 of the application for permit indicates "Complete" for FCC and NTIA. For each of those agencies, please provide a copy of permit application as submitted by Crocker and a copy of the permit issued by those agencies.

Melissa Schmit: A permit application is not required for the FCC and NTIA. Crocker commissioned Comsearch to conduct telecommunication studies for the Project, which included a non-federal Microwave Study (refer to Appendix G of the Application). NTIA consultation occurred on March 14, 2016 and again on November 16, 2017 to include the expanded Project boundary. A response was received by the NTIA on May 16, 2016 (refer to Appendix H of the Application) and January 12, 2018 (refer to updated correspondence from NTIA and WAPA posted to EL17-055 on January 25, 2018). Additional information on coordination with the NTIA can be found in response to PUC Staff's Data Request 2-4 (see responses to second set of data requests).

1-5) In the December 15, 2017 direct testimony of Ms. Engelking (page 6), it states: "The Project was qualified for the Federal PTC at the end of 2015, and thus needs to be operating by the end of 2019 to receive credits". Please explain how the project qualifies for the PTC prior to the start of construction.

Betsy Engelking: The IRS has determined that there are two methods to qualify for the start of construction requirement in order to receive the Federal Production Tax Credits for wind energy. The first method is by investing at least five percent of the capital in the project, purchasing items such as turbine components or other capital items. The second is to begin "Physical Work of a Significant Nature." IRS notice 2013-29 stated the following, among other things, regarding what constitutes Physical Work of a Significant Nature: "[P]hysical work on a custom-designed transformer that steps up the voltage of electricity produced at the facility to the voltage needed for transmission is physical work of a significant nature with respect to the facility because power conditioning equipment is an integral part of the activity performed by the

facility." Geronimo contracted for construction of a custom-designed transformer for Crocker prior to the end of 2015.

1-6) For the Vestas V110 and Vestas V136 turbines, please provide a copy of any manuals or guidelines that have been issued by the manufacturer which include safety information.

Melissa Schmit: Crocker does not have operation manuals for any of the turbine models under consideration as a turbine supply agreement has not yet been executed. Also, we object to the use of the term "guidelines" as vague.

1-7) When did Crocker first learn of the Lone Tree Airport and does Crocker contend that the currently proposed turbine siting of six turbines one plus miles northwest of the airport meet FAA minimum standards.

Michael Morris: Crocker became aware of an airstrip owned by Mr. Sheldon Stevens in early 2016 as we were evaluating land acquisition opportunities in the area. At the time, this was an unregistered private airstrip and was not present either on aeronautical charts or the FAA's master airport record. Mr. Stevens petitioned the FAA to establish a private use airport in May 2016 (https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=displayNRACase&locationID=293392501&row=0), and the airport was added to the FAA's master database in December 2016. Since Lone Tree was established as a private use airport, it is not afforded FAA airspace protections per 14 CFR Part 77.

1-8) Page 109 of the Application states: "turbines have been sited in a manner that avoids all identified microwave beam paths and communication systems". Referencing Figure 5, Project Setbacks, a turbine (#155) appears to intercept a microwave beam path. Please explain the apparent discrepancy.

Melissa Schmit: Turbines are not drawn to scale on the Application maps. Turbine 155 does not intercept the microwave beam path and, during final micrositing, Crocker will ensure the turbine location is set back appropriately to avoid any potential beam path interference.

1-9) Produce all written communications, electronic or otherwise, between Crocker (including its affiliate, Geronimo) and the USFWS related to the project.

Melissa Schmit: Substantive communications other than those included in Appendix H of the Application with the USFWS related to the entire Project are attached. Crocker has proposed Project infrastructure on USFWS easements, which will require an easement exchange if approved by the USFWS. This is Federal Action under the National Environmental Policy Act (NEPA) and Crocker has prepared an Environmental Assessment (EA), which is expected to be

released for public comment the week of March 12th. The EA was developed in coordination with the USFWS, is the USFWS's document and analysis of the Project, and includes a summary of coordination between Crocker and the USFWS with respect to the proposed easement exchange. Once released, the public will have the opportunity to provide input on the USFWS's analysis of the Project – a process independent from the SD PUC permitting process.

1-10) Produce all written communications, electronic or otherwise, between Crocker (including its affiliate, Geronimo) and the SDGFP related to the project.

Melissa Schmit: Communication with the SDGFP is attached.

1-11) Provide a copy of all environmental study data and reports prepared by "West" for Crocker Wind Farm, LLC, to date and through completion of their study.

Melissa Schmit: A number of WEST reports are publicly available, as they were filed with the Application in PUC Docket No. El 17-028, and the reports include environmental study data collected. Additional WEST reports for the Project are attached. Please note that we identified a formatting problem with the Figures section of the 2017 Dakota skipper and Poweshiek skipperling Survey Report. We are requesting corrected figures, and will provide them following receipt.

1-12) Produce a copy of the landowner easement agreement used for this project. To the extent more than one standard agreement was used, produce a copy of each agreement.

Mollie Smith: Memorandums of Land Lease and Wind Easement and Memorandums of Transmission Easement Agreements executed for the Project have been recorded with the Clark County Recorder's Office and may be obtained by members of the public, including Intervenors, through that office. A document providing recording information for each memorandum is attached. With respect to the easement agreements, Crocker objects to providing said documents because they are nonpublic documents, which contain proprietary and confidential terms. Further, the publicly-available memoranda provide confirmation of the existence of the agreements.

1-13) Identify those properties/landowners that received or will receive a one-time payment.

Melissa Schmit: Only landowners with an easement for the transmission line had the option to select reoccurring or one-time payments under the terms of the lease. Crocker objects to providing this information, as payment information is confidential, and the requested information is not relevant to this proceeding.

1-14) Identify all other wind projects for which Geronimo has been involved with the development thereof in the past 10 years. For each project, state whether Geronimo continues to be involved therein and, if so, briefly explain in what capacity.

Jay Hesse: Geronimo was established in 2005 and developed its first wind project on land owned by Geronimo's founder. Historically, Geronimo has partnered with corporations and utilities that own and operate the projects. Geronimo maintains appropriate relationships with project owners and stakeholders. Below is a list of wind and solar projects developed by Geronimo over the last 10 years.

Project	Project Size (MW)	Online Date	Power Purchaser	Ownership
Odin Wind	20	2008	Missouri River Energy	Corporation/Utility - not affiliated with Geronimo
Marshall Wind	19	2008	Missouri River Energy	Corporation/Utility - not affiliated with Geronimo
Prairie Rose Wind	200	2012	Northern States Power - MN (Xcel)	Corporation/Utility - not affiliated with Geronimo
Odell Wind	200	2016	Northern States Power - MN (Xcel)	Corporation/Utility - not affiliated with Geronimo
Aurora Solar	100	2016	Northern States Power - MN (Xcel)	Corporation/Utility - not affiliated with Geronimo
Grande Prairie Wind	400	2016	Omaha Public Power District	Corporation/Utility - not affiliated with Geronimo
Walnut Ridge Wind	212	2016	US General Services Agency	Corporation/Utility - not affiliated with Geronimo

Project	Project Size (MW)	Online Date	Power Purchaser	Ownership
Community Solar Gardens 1	98	2017 & 2018	Northern States Power - MN (Xcel)	Corporation/Utility - not affiliated with Geronimo
Black Oak Wind	78	2016	Minnesota Municipal Power Agency	Corporation/Utility - not affiliated with Geronimo
Courtenay Wind	200	2016	Northern States Power - MN (Xcel)	Corporation/Utility - not affiliated with Geronimo
Pierre Solar	1	2016	Missouri River Energy	Affiliate of Geronimo
Apple Blossom Wind	100	2017	Consumers Energy (CMS)	Corporation/Utility - not affiliated with Geronimo
South Fork Wind	13	2016	Muscatine Power and Water	Corporation/Utility - not affiliated with Geronimo
Nordic Solar	55	2017 & 2018	Northern States Power - MN (Xcel)	Affiliate of Geronimo
Green River Wind	194	2018	Confidential	Affiliate of Geronimo
TOTAL	**1,890**			

Although Geronimo has not always maintained ownership of projects it developed, Geronimo has maintained ownership of projects in recent years. Geronimo is affiliated with Geronimo Investment Management, an investment firm that invests solely in renewable energy assets. As a result, going forward, Geronimo plans to own and operate the projects it develops, including the Crocker Wind Farm. However, even if a different company were to acquire and operate the Crocker Wind Farm in the future, it is important to note that the owner would acquire the Project subject to existing agreements and permit requirements.

1-15) Explain why Jesse and Tara Huber, who live adjacent to the footprint, were not notified by certified letter regarding the Public Input Hearing. Further explain why their residence (15686-422nd Avenue) is not shown in maps of project setbacks.

Melissa Schmit: SDCL 49-41B-5.2 provides that notice be sent to "the owner of record," which "is limited to the owner designated to receive the property tax bill sent by the county treasurer." In accordance with SDCL 49-41B-5.2, Crocker compiled the list of addresses to be sent a copy of the Public Input Hearing Notice based on Clark County Parcel GIS data obtained from Clark County, which provides the requisite information for "the owner of record." All residences identified from those files were notified by certified mail of the Public Input Hearing.

The setback maps in the Application submitted on December 15, 2017 highlighted the residences and setbacks for residences that were once within 3,960' (3/4 mile setback) of a turbine location. The updated map series provided in response to Data Request 1-17 below, and the map series posted to Docket EL17-055 on March 1, 2018, include Jesse and Tara Huber's residence located at 15686- 422nd Avenue, Crocker, SD 57217 and confirm compliance with the setback from non-participating residences.

1-16) Explain why Gale Paulson's residence, 16304- 423rd Avenue, is not included on the maps showing project setbacks.

Melissa Schmit: The setback maps in the Application submitted on December 15, 2017 highlighted the residences and setbacks for residences that were within 3,960' (3/4 mile setback) of a turbine location. The updated map series provided in response to Data Request 1-17 below, and the map series posted to Docket EL17-055 on March 1, 2018, include Gale Paulson's residence at 16304-423rd Avenue Crocker SD 57217, and confirm compliance with the setback from non-participating residences.

1-17) Figures 2a-d and 5a-d map series show that they overlap and allow alignment to view entire project yet they do not properly align. Maps a and c overlap and b and d overlap, but there is missing portions of information because maps a and b, and c and d do not overlap (despite corner insert depicting that they do.) Please provide map series that allow full viewing of project when printed.

Melissa Schmit: Refer to attached maps.

1-18) Identify the number of times a proposed access road will cross the Northern Border Pipeline. Please provide a map showing approximately where such crossing will occur.

Jay Hesse: One access road crossing of the Northern Border Pipeline is proposed. This crossing is on the access road north of Turbine 94 (see Figure 5a Project Setback Detailed 1). Crocker is coordinating with Northern Border Pipeline and will only construct this access road with the

appropriate coordination and crossing agreement with Northern Border Pipeline Company (refer to the Northern Border Pipeline Communications posted to EL17-055 on February 27, 2018). Crocker has included multiple access road options to access the turbines in this area. Crocker can either access the turbines in this area with the access road to the north of Turbine 94 over the pipeline or access the turbines from the south with the access road between Turbine 94 and Turbine 13.

Dated this 12th day of March, 2018.

Melissa Schmit

Bates Label Range	Document Description
CROCKER000001	Jay Hesse Resume
CROCKER000002-000009	Wind Lease List
CROCKER000010	Transmission Easement List
CROCKER000011-000012	Conference call notes (Nov. 9, 2016)
CROCKER000013-000015	Conference call notes (Dec. 13, 2016)
CROCKER000016-000017	Conference call notes (May 19, 2016)
CROCKER000018-000019	Conference call notes (Apr. 6, 2017)
CROCKER000020	Email re: additional grouse information (Dec. 14, 2016)
CROCKER000021	Email re: Crocker Wind Farm Meeting Request (Nov. 1, 2016)
CROCKER000022-000023	Email re: Crocker Wind Farm Update (Aug. 31, 2016)
CROCKER000024-000027	Email re: Crocker Wind Project (Jan. 11, 2016)
CROCKER000028-000029	Email re: Crocker Meeting Minutes – 12/13/2016 (Jan. 12, 2017)
CROCKER000030-000115	Email re: Crocker Avian Displacement Documents (and attachments) (Dec. 6, 2017)
CROCKER000116-000128	Email re: 10 mile radius Crocker wind farm review (and attachments) (Mar. 14, 2016)
CROCKER000129-000130	Email re: Natural Heritage Program Data Request for Crocker Wind Farm (and attachment) (Feb. 17, 2016)
CROCKER000131-000135	Email re: Crocker Nov. 9th meeting minutes and avian use survey protocol (and attachment) (Dec. 9, 2016)
CROCKER000136-000137	Email re: Crocker Wind Farm Update (and attachment) (Aug. 30, 2016)
CROCKER000138-000139	Email re: Crocker grassland bird survey maps (and attachment) (May 24, 2017)
CROCKER000140	Email re: Geronimo Energy – Crocker Draft BBCS (Jan. 19, 2017)
CROCKER000141	Email re: Crocker Documents on Sharefile (Nov. 7, 2016)
CROCKER000142-000206	Email re: Crocker Mapbook (and attachments) (Dec. 14, 2017)
CROCKER000207-000210	Email re: Crocker Meeting Minutes – 12/13/2016 (and attachment) (Jan. 4, 2017)
CROCKER000211-000213	Email re: Geronimo Energy – Crocker Wind Farm Meeting Minutes (and attachment) (July 18, 2016)
CROCKER000214-000215	Email re: Crocker Maps and Shapefiles (and attachment) (Dec. 15, 2016)
CROCKER000216-000218	Email re: Crocker Wind Farm – Grassland and Wetland Easement (Jan. 25, 2016)
CROCKER000219-000221	Email re: Crocker Wind Farm Update (Sept. 7, 2016)
CROCKER000222-000224	Email re: Lek Setbacks and Site Visit (and attachment) (June 8, 2016)
CROCKER000225-000227	Email re: Crocker Wind Farm – meeting with WEST (Sept. 21, 2016)
CROCKER000228-000244	Letter from U.S. Fish and Wildlife Service to Geronimo Wind Energy, LLC (Dec. 1, 2010)
CROCKER000245-000250	Email re: Butterfly Survey Guidance (June 2, 2016)

CROCKER000251-000269	Email re: Butterfly Survey Guidance (and attachment) (May 27, 2016)
CROCKER000270-000278	Email re: Geronimo Energy – Crocker Wind Farm Env. Survey Information (and attachment) (July 11, 2016)
CROCKER000279-000295	Email re: Crocker – mapbook showing current Crocker layout and skipper habitat polygons (and attachments) (June 5, 2017)
CROCKER000296-000297	Email re: Crocker Wind Farm Update (Aug. 31, 2016)
CROCKER000298-000299	Email re: Eagles at Reid Lake – Crocker project (Oct. 24, 2017)
CROCKER000300-000329	Email re: Crocker grassland bird survey maps (and attachment) (May 25, 2017)
CROCKER000330-000349	Email re: USFWS R6 Guidelines for BBCS and ECPs, also Comm. Tower Guidance (and attachments) (Dec. 13, 2016)
CROCKER000350-000452	Avian Use Studies for the Crocker Wind Farm: Year 1 Report (Oct. 2017)
CROCKER000453-000491	2017 Dakota Skipper and Poweshiek skipperling Survey Report (Nov. 2017)
CROCKER000492-000504	2017 Eagle Nest Survey (Aug. 2017)
CROCKER000505-000560	Grassland Use Studies for the Crocker Wind Farm (Oct. 2017)
CROCKER000561-000564	Figures 2a-d Project Layout Detailed
CROCKER000565-000569	Figures 5a-d Setbacks Detailed

**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	* * * * * * * * *	**CROCKER WIND FARM, LLC'S FIRST SET OF DATA REQUESTS TO INTERVENORS** **EL17-055**

Below, please find Crocker Wind Farm, LLC's ("Crocker") First Set of Data Requests to Intervenors.[1] Please submit responses within 10 business days or promptly contact the undersigned to discuss an alternative arrangement. In addition, please specify the responder when answering each interrogatory. Should any response have subparts answered by more than one individual, identify the respondent by subpart.

1-1) Provide copies of all data requests submitted by the PUC Staff to the Intervenors in this proceeding and copies of all responses provided to those data requests. Provide this information to date and on an ongoing basis.

1-2) In the Intervenors' Application for Party Status in the above-referenced action, it states: "Reasons for such opposition [by Intervenors] include but are not limited to: concerns regarding the applicant's compliance with applicable laws and rules; concerns involving the environmental, social, and economic injury the project will have on the [Intervenors] and the area; concerns that the project will impair the health, safety, and welfare of the applicants and inhabitants of the area; and concerns that the project will interfere with the orderly development of the region." With respect to above, please respond to the following:

a) Identify the basis of each Intervenor's opposition to the Project related to "concerns involving the environmental, social, and economic injury the project will have on the [Intervenors] and the area."

b) Identify the basis of each Intervenor's opposition to the Project related to "concerns that the project will impair the health, safety, and welfare of the [Intervenors] and inhabitants of the area."

c) Identify the basis of each Intervenor's opposition to the Project related to "concerns that the project will interfere with the orderly development of the region."

[1] For the purposes of these requests, "intervenors" shall refer to those intervenors granted party status in this docket in the South Dakota Public Utilities Commission's Order Granting Intervention and Party Status on February 26, 2018.

1-3) For each individual Intervenor, identify:

a) Whether Intervenor owns property or resides in the vicinity of the proposed Crocker Wind Farm ("Project") and, if so, the location (by section, township, and range) of such property and/or residence;

b) If Intervenor has a residence in the vicinity of the Project, how far said residence is from the closest proposed Project turbine location;

c) If Intervenor has a residence in the vicinity of the Project, whether the Intervenor lives at the residence throughout the entire year and, if not, how many months of the year the Intervenor lives at the residence;

d) If Intervenor owns property in the vicinity of the Project, how Intervenor uses his/her land, including, but not limited to, whether the Intervenor uses his/her land for agricultural purposes;

e) Intervenor's occupation;

f) Any mitigation measures that could address Intervenor's concerns with respect to the Project, including those concerns identified in response to Data Request 1-2(a)-(c);

g) Any documents, information, education, training, or professional experience the Intervenor has relied upon to form his/her opinions concerning the Project. Where Intervenors have relied upon documents or other tangible materials, please provide such documents and/or materials; and

h) With respect to those Intervenors who own property and/or reside in the vicinity of the Project, any sensitive or unique features of that property that the Intervenor asserts would be impacted by the Project.

1-4) Identify any witnesses, including expert witnesses, who are anticipated to submit testimony on behalf of Intervenors. For each anticipated witness:

a) Describe the subject matter of the witness's testimony; and

b) Identify and provide copies of any documents the witness intends to rely on to support his/her testimony.

1-5) Identify and provide any exhibits Intervenors intend to rely upon or use at the evidentiary hearing in this matter.

1-6) Identify and provide any documents any Intervenor submitted at the public input hearing in this matter.

1-7) Identify any communications, written or otherwise, an Intervenor has had with units, officials, and/or representatives of local, state, and/or federal governments or agencies concerning the Project.

a) For any written communications, provide a copy of the communication.

b) For any unwritten communications, provide the date of the communication, the persons involved, and the subject matter of the communication.

1-8) Identify any communications, written or otherwise, an Intervenor has had regarding the Project with owners of infrastructure located within the Project boundaries, including, but not limited to, Northern Border Pipeline Company and Interstate Telecommunications Cooperative.

a) For any written communications, provide a copy of the communication.

b) For unwritten communications, provide the date of the communication, the persons involved, and the subject matter of the communication.

Dated this 9th day of March, 2018.

Respectfully Submitted,

By /s/ Mollie M. Smith

Mollie M. Smith
FREDRIKSON & BYRON, P.A.
Attorneys for Crocker Wind Farm, LLC
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402
Phone: (612) 492-7270
Fax: (612) 492-7077

AND

Brett Koenecke
Kara C. Semmler
MAY, ADAM, GERDES & THOMPSON LLP
Attorneys for Crocker Wind Farm, LLC
503 South Pierre Street
P.O. Box 160
Pierre, South Dakota 57501-0160
Telephone: (605) 224-8803

CERTIFICATE OF SERVICE

Mollie M. Smith, of Fredrikson & Byron, P.A., hereby certifies that on the 9th day of March, 2018, a true and correct copy of the Crocker Wind Farm, LLC's First Set of Data Requests to Intervenors and this Certificate of Service were served electronically on the Parties listed below:

Reece M. Almond
Davenport, Evans, Hurwitz & Smith. LLP
206 West 14th Street
Sioux Falls, SD 57101
ralmond@dehs.com

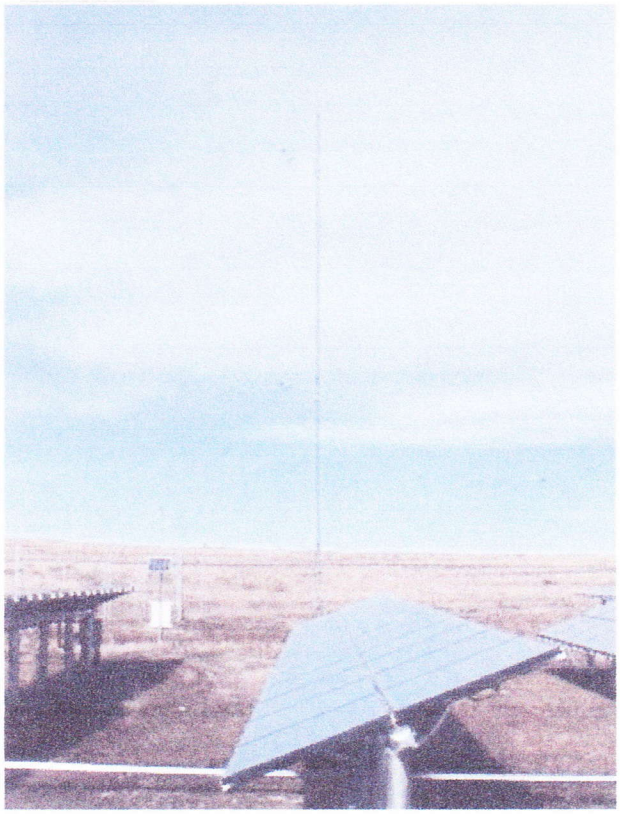
/s/ Mollie M. Smith
Mollie M. Smith

Ag Plane Crash Leads to $6.7 Million Wrongful Death Verdict

Family of ag pilot killed in 2011 vindicated by judge's ruling.

By Stephen Pope September 25, 2014

0 Comments



MET Tower
Meteorological Evaluation Towers

When Steve Allen, a highly respected Northern California ag pilot with 26,000 accident free hours, crashed his Rockwell S-2R into a whisper-thin, barely visible galvanized steel wind observation tower on January 11, 2011, a dark and sickening secret about personal greed and avarice was exposed for all the world to see.

The $6.7 million wrongful death settlement the aviator's family was awarded this month will hopefully help ensure other similar tragedies won't happen in the future.

The tower, measuring just inches under 200 feet, was hastily erected in 2009 by wind energy interests "prospecting" for the perfect site for a new wind farm in Contra Costa

County east of San Francisco. The odd height of the tower is central to the case — any tower under 200 feet doesn't need to be lighted or reported to the FAA. But because these towers can pop up almost anywhere and are nearly impossible to see in flight, they pose a special danger to aerial application aircraft.

Allen, 58, was spreading winter wheat for a local farm when he flew his single-engine turboprop into the unlit, unmarked tower. According to the National Transportation Safety Board accident report, the pilot was never told about its existence and never saw it.

The meteorological evaluation towers, known as METs and equipped with small anemometers, have been cropping up all across the country as investors seek to cash in on the wind energy craze. By keeping them just below 200 feet, wind farm entrepreneurs save the money, time and hassle of registering them with the FAA — while putting ag pilot's lives at risk.

"No amount of money is ever going to compensate the Allen family for the loss of Mr. Allen," said Roger Dreyer, the family's lawyer. "He was an exceptional pilot, father and husband. We can only hope that those individuals in the wind industry, agricultural field and those who manufacture and install these MET towers understand that their failure to mark them adequately with lights and obstruction warning devices puts aviators, like Mr. Allen, at risk of losing their lives when there is absolutely no reason for taking that risk."

We welcome your comments on flyingmag.com. In order to maintain a respectful environment, we ask that all comments be on-topic, respectful and spam-free. All comments made here are public and may be republished by Flying.

Tags:

- Aviation News

windAction
The WindAction Group (www.windAction.org)
Facts, analysis, exposure to industrial wind energy's real impacts

APR
4
2017

Editorial

Wind Energy and Aviation Safety, Fatalities

Lisa Linowes - April 4, 2017

Safety *Injury* *USA*

...few realize that in the U.S. alone at least ten people have lost their lives in fatal aviation accidents involving collisions with U.S. sited wind turbines and meteorological (MET) towers.

Earlier this year, a single engine plane collided with a wind turbine (http://www.windaction.org/posts/46271-propeller-plane-crashes-into-wind-turbine-killing-pilot#.WLcww_krluU) in Germany killing the pilot and shattering the aircraft. The appalling tragedy was reported as a rare occurrence, but few realize that in the U.S. alone at least ten people have lost their lives in fatal aviation accidents involving collisions with U.S. sited wind turbines and meteorological (MET) towers.

The table below lists these accidents, six in all.

Date	Location	Fatality	Activity	Information
Dec 15, 2003	Vansycle, OR	Yes, 2	Transport (MET)	NTSB Accident ID SEA04LA027 (https://app.ntsb.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20031222X020
May 19, 2005	Ralls, TX	Yes, 1	Ag Spray (MET)	NTSB Accident ID DFW05LA126 (http://dms.ntsb.gov/pubdms/search/)
Jan 10, 2011	Oakley, CA	Yes, 1	Ag Spray (MET)	NTSB Accident ID WPR11LA094 (http://dms.ntsb.gov/pubdms/search/)
Aug 5, 2013	Balko, OK	Yes, 1	Ag Spray (MET)	NTSB Accident ID CEN13FA465 (http://dms.ntsb.gov/pubdms/search/)
Apr 27, 2014	Highmore, SD	Yes, 4	Transport (Turbine)	NTSB Accident ID CEN14FA224 (https://www.ntsb.gov/_layouts/ntsb.aviation/brief2.aspx?ev_id=20140428X10808&ntst
Aug 19, 2016	Ruthton, MN	Yes, 1	Ag Spray (MET)	NTSB Accident ID CEN16LA326 (https://app.ntsb.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20160819X117

Wind and Collisions

The most widely reported incident occurred the night of April 27, 2014, just ten miles south of the airport in Highmore, South Dakota. All four passengers, including the pilot, were killed when their plane struck an operating wind turbine owned by NextEra. According to the National Transportation Safety Board (NTSB) report (https://www.ntsb.gov/_layouts/ntsb.aviation/brief2.aspx?ev_id=20140428X10808&ntsbno=CEN14FA224&akey=1), the facility was not marked on the sectional charts (http://www.windaction.org/posts/40404-could-the-turbine-aircraft-collision-have-been-avoided#.WLdMLvkrluU) covering the accident location.

NTSB also reported that the light on the turbine tower was not operational at the time of the accident, and the outage was not documented in a notice to airmen (NOTAM)[2]. NTSB investigators opined that "[i]f the pilot observed the lights from the surrounding wind turbines, it is possible that he perceived a break in the light string between the wind turbines as an obstacle-free zone."

The other five incidents involved collisions with wind project meteorological (MET) towers. MET towers are erected at proposed wind energy sites for assessing wind speed and direction. The towers, made from galvanized tubing 6-8 inches in diameter and secured with guy wires, can be erected in a matter of hours and, in many cases, without notice to the local aviation community. Their rapid deployment means the navigable airspace of an area could quickly become hazardous for low-flying aircraft. Generally, the towers stand under 200-feet, thus below the threshold for requiring FAA notification, are unlit and usually devoid of any markings, so they are difficult to see.

In the three fatalities from 2003, 2005, and 2011, final NTSB reports cited the unmarked towers and the inability of the pilot to see the towers as the probable causes for the accidents. In the 2013 fatality, the MET tower was marked but sun glare impaired the pilot's ability to avoid the tower.

NTSB Recommendations and FAA Delays

The NTSB is well aware of the hazards these towers pose. On May 15, 2013, the agency filed the following safety recommendations with the FAA related to MET tower aviation risks: [3]

- Amend 14 [CFR] Part 77 to require that all [METs] **be registered, marked, and—where feasible—lighted**.
- **Create and maintain a publicly accessible national database** for the required registration of all [METs].

The FAA delayed acting on its MET-tower safety recommendations claiming limited resources and competing priorities so it wasn't until December 2015 [4] before updated rules for marking MET towers were released. Still, the FAA stopped short of mandating them. Eight months later (August 2016), a 6th fatality occurred (http://www.keloland.com/news/article/news/pilot-killed-while-spraying-crops-in-southwest-minnesota) when a pilot collided with an unmarked MET tower in Minnesota.

Following FAA's delays, Congress acted by passing the "FAA Extension, Safety, and Security Act of 2016 (http://www.agaviation.org/Files/eNewsletters/2016/Jul/2016_FAA_Extension.pdf)," which mandates that towers between 50 and 200-feet having an above-ground base of 10-feet or less in diameter be marked. Specific provisions in the bill explain the types and location of towers for which the law applies. The FAA is again tasked with creating rules to implement the regulation [5] but with a deadline of July 2017.

Encroachment and Fatal Risks

Other aviation fatalities have happened involving wind turbines but without direct collisions and where blame was attributed to the pilot. One such incident occurred on February 8, 2008 when Philip Ray Edgington, an experienced American Airlines pilot, was flying his vintage Cessna 140 airplane near Grand Meadow, Minnesota, at an elevation between 300 and 600 feet above ground level (agl).

On that fatal day, Mr. Edgington came upon an array of 400-foot tall turbines, whereupon "the airplane made a 90-degree course change (https://app.ntsb.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20080222X00232&AKey=1&RType=Summary&IType=LA%20.), which was followed by a figure-8 turn at varying altitudes between 800 and 1,500 feet agl." The NTSB reported that the craft "impacted terrain in a nose-low, left-wing-down attitude. The 300-foot-long debris path and fragmentation of the airplane were consistent with a high-speed impact."

The probable cause of the accident according to the NNTSB was "The pilot's continued visual flight into an area of known instrument meteorological conditions in an airplane not equipped for instrument flight, and his failure to maintain control of the airplane while maneuvering at low altitude."

Pilot error may be the strict legal explanation for the accident, but there should be no question the wind turbines played a role.

Wind turbines and associated MET towers are encroaching on aviation air space, and safety concerns are growing worldwide. In September 2015, Royal Air Force pilots produced a catalogue (http://www.windaction.org/posts/43548-documented-aircraft-near-misses-with-wind-turbines#.WLcyrfkrluU) of near misses with wind farms in the United Kingdom. Recreational and light-craft pilots are also sounding the alarm. According to microlight aircraft instructor Colin MacKinnon (http://www.express.co.uk/news/uk/609743/Pilots-warn-of-a-disaster-as-wind-farms-flourish) in the UK, millions have been spent "to investigate the impact and guarantee the safety of commercial aviation" but "very little has been done for the general aviation sector which is us." The general aviation sector is the primary user of low-elevation flight space.

Recommendations:

As the Trump Administration undertakes its review of existing agency rules, we recommend the following actions be considered in order to secure the safety of our airspace for all aviators.

- FAA quickly adopt new rules governing the safe siting of wind MET towers; Mandate that rules apply immediately to all new *and* existing MET towers unless specifically exempted by law;
- Mandate full review and update of SkyVector sectional charts to ensure wind turbine installations and MET towers are correctly represented;
- Follow the NTSB recommendation to create and maintain a national database of wind-related towers with full public access;
- Institute periodic review and enforcement to ensure all FAA required turbine safety equipment including lighting is operating properly. Apply punitive fines for developers who fail to maintain all safety equipment.

---

[1] We note that the NTSB preliminary report makes no mention of the met tower, only the guy wire.

[2] NOTAM: a written notification issued to pilots before a flight, advising them of circumstances relating to the state of flying.

[3] Special Investigation Report on the Safety of Agricultural Aircraft Operations NTSB/ SIR-14/01 PB2014-105983 Notation 8582 Adopted May 7, 2014 (http://www.ntsb.gov/investigations/AccidentReports/Reports/SIR1401.pdf) (Recommendations were also filed with the American Wind Energy Association (AWEA), Department of the Interior (DOI), U.S. Department of Agriculture (USDA), Department of Defense (DOD), 46 states, 5 territories, and the District of Columbia.)

[4] Advisory Circular U.S. Department of Transportation Federal Aviation Administration, Obstruction Marking and Lighting December 4, 2015 (https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_.pdf), AC No: 70/7460-1L

[5] NAAA Newsletter: Everything You Need to Know About New Tower Marking Requirements (http://news.agaviation.org/naaa/issues/2016-11-10/1.html).

http://www.windaction.org/posts/46562-wind-energy-and-aviation-safety-fatalities

EVA's DECOMMISSIONING ESTIMATE FOR PLEASANT RIDGE WIND FARM

Prepared for
Phillip A. Luetkehans, Esq
Schirott, Luetkehans & Garner, LLC
Itasca, IL

Prepared by
Thomas A. Hewson, Jr.
Jacob R. Levine
Energy Ventures Analysis, Inc.
Arlington, VA

Energy Ventures Analysis

Providing the Energy Industry
Expert Advice for the Past 30 Years

Published January 6, 2015

UCLC
EXHIBIT
/14

Summary

Energy Ventures Analysis completed an independent analysis of the decommissioning cost for the proposed 250 MW Pleasant Energy Ridge Energy Project in Livingston County. In addition to the EVA factored cost estimate, EVA received an independent bid for completing the project decommissioning from Vissering Construction Company of Streator, Illinois. This project would be comprised of 136 new wind turbines spread throughout a 58,300 acre project site.

The decommissioning project cost is highly sensitive to the defined scope of work for returning the site to its original use. For example, including access road demolition (not included in the landowner easement agreements) could add more than $6 million to the decommissioning cost. The timing of when a wind turbine should be taken down (when it stops operation versus at the end of the project lifetime after all turbines have stopped operating) also can have major implications on cost from difference in mobilization/demobilization efficiencies and economies of scale. In addition, a portion of the demolition costs could be offset from the sale of scrap steel and copper materials that would be created. The scrap values can and will vary significantly by area and are sensitive to changes in the market conditions. For example, if all the turbines were scrapped at once, the large steel scrap volumes created could flood the market and drive down local scrap prices.

As shown in Exhibit 1, EVA estimated that the current net decommissioning costs (after subtracting for scrap value) would cost between $14-32 million dollars. The EVA estimate excludes some cost elements that the Board may want to consider including such as: (a) repair of local roads (Stantec estimate $757,000), (b) electric tie-in and poles (Stantec estimate $199,500), and (c) primary transformer demo (no specs or layout provided). This range is significantly higher than the $5 million net cost estimate provided by Stantec Consulting Services of De Pere, Wisconsin. A full detailed cost estimate is provided in Appendix A and B. The project decommissioning costs will likely continue to increase in the future as labor wages and scrap market conditions change.

Evaluation of Stantec, EVA and Vissering Cost Estimates

Energy Ventures Analysis (EVA) has evaluated the Pleasant Ridge Energy Project Decommissioning Plan (October 8, 2014) located in Livingston County, Illinois. EVA estimates that $14,093,255 ($103,627 per turbine) must be on hand in order to fully decommission the site. EVA concludes that the estimate proposed by Stantec severely understates the total net decommissioning costs and overstates the potential revenues from salvageable materials for the project. Stantec proposes the total net cost to be $5,025,860 ($36,955 per turbine). Vissering Construction Company, provided two independent quotes for the project. The first quote (November 25, 2014) estimates the asynchronous removal of the turbines which posits total net cost of $31,769,946 ($233,432 per turbine). The second assessment (January 5, 2015) assumes all

turbines are removed simultaneously and proposes a total net cost of $25,166,524 ($185,048 per turbine). A summary of the four studies can be found below in Exhibit 1.

Exhibit 1: Net Decommissioning Summary Comparison

Exhibit 1: Net Decommissioning Summary Comparison	Stantec	EVA	Vissering (11/25/14)	Vissering (1/5/15)
Decommissioning Expenses	$ 19,890,500	$ 20,641,655	$ 44,719,870	$ 36,710,282
Potential Revenue - salvage value of turbine components and recoverable materials	$ (14,864,640)	$ (6,548,400)	$ (8,569,500)	$ (8,643,000)
Net Decommissioning Cost	$ 5,025,860	$ 14,093,255	$ 36,150,370	$ 28,067,282
Per Turbine Decommission Cost (based on 136 Turbines)	$ 36,955	$ 103,627	$ 265,812	$ 206,377

Engineering, planning and permitting: Stantec underestimates the quantity of capital required for general overhead (engineering, planning, contracting, management and permitting) in addition to the assembly and disassembly of crane pads and access roads. Stantec states that $500,000 would be required for overhead and management related fees. EVA has extensive experience estimating the costs of general overhead, management and planning in order to decommission wind projects and estimates that these costs are $1,675,520. Vissering Construction Co posits it would require $6,596,544 for the entire project if the turbines were to be removed individually. Moreover, they assert that it would cost $2,577,867 if taken down simultaneously. A comparison of each studies' assertion can be found below in exhibit 2. It is highly likely that some turbines may fail earlier than the assumed 20 year life cycle and may require sporadic removal. If the turbines are removed intermittently, the costs would increase substantially due to increased permitting, planning and mobilization and demobilization costs.

Exhibit 2: Comparison of Overhead and Management Costs

Exhibit 2: Comparison of Overhead and Management Costs Company	Cost per Unit	Total Cost
Stantec	$ 3,676	$ 500,000
Energy Ventures Analysis	$ 12,320	$ 1,675,520
Vissering Construction Co. (11/25/14)	$ 48,504	$ 6,596,544
Vissering Construction Co. (1/5/15)	$ 18,955	$ 2,577,867

Wind Turbine Demolition: The single largest decommissioning cost is the demolition of the wind turbines and the foundations. These costs are highly sensitive to the sizing requirements for shipping pieces to the scrap yard. The smaller the pieces, the more labor and supplies are required for torching the thick tower pieces. The thickness of the tower materials are also important. The main disparity between Vissering Construction Co and EVA's estimate for total decommissioning expenses is the cost of torching the turbines into smaller pieces. Their local industry experience estimates the dismantling costs to be approximately $14.5 million more expensive. EVA recommends that the Board require a performance bond in order to hedge the risk of potential costs associated with the deconstruction of turbine components into easily transportable pieces.

revenues obtained. To protect the community, EVA would recommend the Board require Pleasant

Written Findings of the Clark County Board of Adjustment
Hearing for Conditional Use Permit – Crocker Wind Farm, LLC
CU1-17

The Board of Adjustment finds and rules as follows:

1. That Crocker Wind Farm, LLC, has properly submitted a written application to obtain a Conditional Use Permit for a Wind Energy System (WES).

2. That all information required for the granting of the permit has been submitted to Board of Adjustment pursuant to Section 4.21.03(15) of the Clark County Zoning Ordinance.

2. That proper notice of the request for the Conditional Use Permit and the time and place of public hearing was properly provided to adjacent landowners.

3. That notice of the public hearing was properly published in the Clark County Courier.

4. That the Board of Adjustment is empowered under Section 4.21 of the Clark County Zoning Ordinance to grant a Conditional Use Permit for applicant to construct and operate a Wind Energy System.

5. That it appears the project as detailed will have the capacity to meet or exceed all standards and regulations of the Federal Aviation Administration and all South Dakota state statutes, as well as those of other federal and state agencies having regulatory oversight of Wind Energy Systems.

6. That the project as detailed properly addresses all mitigation requirements, including but not limited to questions of site clearance, topsoil protection, soil compaction, livestock protection, and fencing concerns.

7. That the project as detailed properly addresses identification of state, county, and township "haul roads" and notification to the respective governmental bodies.

8. That the project as detailed properly addresses the necessity of proper repair and maintenance of "haul roads" and the entry of agreements with the state, county, and townships to mandate the repair, maintenance, and other conditions under written haul road agreements.

9. That the project as detailed provides for the minimization of turbine access roads, the constructions of the roads in a manner allowing passage of farm machinery, and the construction with materials as required by the zoning ordinance.

10. That the project as detailed provides for proper repair to private roads, if damaged.

11. That the project as detailed provides for the proper control of construction dust.

12. That all necessary soil erosion and sediment control plans will be properly submitted to the County prior to construction.

13. That based upon the size and scope of the project, related footprint minimization, and testimony from landowners impacted by a current wind farm located in the county and sited with setbacks of 1,000 feet from existing off-site residences, the proper setback for this WES shall be ¾ of mile from existing off-site, non-participating residences, measured from the wall line of the neighboring principal building to the base of the WES tower.

14. That based upon testimony from those concerned with the peace and tranquility of local cemeteries and the remains of loved ones, the proper setback from cemeteries shall be one mile.

15. That all other ordinance setbacks will be met or exceeded by the applicant.

16. That private property considerations necessitate that the setback distances may be less than established by these findings if adjoining landowners agree to lesser setbacks and such agreement is recorded and filed with Clark County Administration Official.

17. That applicant has conducted a third-party telecommunications study and any electromagnetic interference disruptive of microwave, television, radio, or navigation signals is unlikely.

18. That testimony provided by Interstate Telecommunications Cooperative does necessitate that applicant make agreement with the cooperative, specifically incorporating the terms and conditions contained in a Resolution proposed by Interstate Telecommunications Cooperative which resolution is a part of the file in this matter.

19. That the project as detailed requires all towers to be marked and lighted as required the FAA; however, the peace and tranquility of county residents requires that the applicant shall make a good faith effort to employ an Aircraft Detection Lighting System designed to turn blinking lights atop wind turbines on or off, based on the presence or absence of aircraft in the vicinity of the WES, and that it shall as soon as practicable, commission a study to determine the feasibility of such a system, including pros, cons, and estimated costs, with the study being presented to the Board of Adjustment and the Board of Adjustment reserving the right to mandate such a system after review of the feasibility study.

20. That the project as detailed calls for turbine spacing of a minimum of three rotor diameters.

21. That the project, having a ¾ mile setback, will comply with all footprint minimization requirements.

22. That the project as detailed meets the minimum requirements for all collector and feeder lines.

23. That applicant will submit a decommissioning plan within 120 days of completion of construction and has the ability to meet all other decommissioning requirements, including the decommissioning of any abandoned towers, if any.

24. That all turbine models under consideration by the applicant meet county requirements with respect to height from ground surface and color and finish and shall be singular, tubular design.

25. That evidence presented at the hearing indicates that that with a ¾ mile setback, noise levels will not exceed 50dBA, as defined in the zoning ordinance, at the perimeter of the principal and accessory structures of existing off-site residences, businesses, and buildings owned or maintained by a governmental entity.

26. That questions relating to entrance and exit to affected property and proposed structures thereon have been adequately addressed with reference to automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe.

27. That there are no questions or concerns with respect to off-street parking and loading areas, and any questions or concerns with respect to economic impact, noise, glare or other effects on adjoining properties and other properties in the district have been addressed.

28. That there are no questions with respect to utilities, refuse and service areas relating to location, availability and character.

29. That there are no questions relating to screening and buffering.

30. That there are no questions with respect to required yards and other open spaces.

31. That evidence presented at the hearing was sufficient to prove that the granting of the conditional use would not adversely affect the public interest.

32. That the evidence presented at the hearing was sufficient to prove that the conditional use is generally compatible with adjacent properties and other property in the district.

33. That the Conditional Use Permit was approved with the following conditions:

> The setback distance from existing off-site, non-participating residences shall be 3/4 mile measured from the wall line of the neighboring principal building to base of the WES tower, unless otherwise negotiated pursuant to the zoning ordinance.

The construction and operation of the WES shall be done in a manner so as to not interfere with the maintenance and operation of other utility and telecommunication lines, specifically incorporating the terms and conditions contained in a Resolution proposed by Interstate Telecommunications Cooperative which resolution is a part of the file in this matter.

The applicant shall make a good faith effort to employ an Aircraft Detection Lighting System designed to turn blinking lights atop wind turbines on or off, based on the presence or absence of aircraft in the vicinity of the WES and shall, as soon as practicable, commission a study to determine the feasibility of such a system, including pros, cons, and estimated costs, with the study being presented to the Board of Adjustment.

The applicant is required to meet or exceed all standards and regulations of the Federal Aviation Administration, the State of South Dakota, and any other agency of the federal or state government with the authority to regulate Wind Energy Systems.

The applicant shall make all reasonable efforts to protect county and township roads and shall enter into road haul agreements with Clark County and all affected townships. The applicant shall employ an on-site contact person to deal with any county or township road issues or complaints during construction of the WES.

The applicant shall, at a minimum, meet all standards dictated in the zoning ordinance or proposed in its application if more stringent than the zoning ordinance, including but not limited to the following categories: Mitigation Measures; Roads, Setbacks, Electromagnetic Interference; Lighting; Turbine Spacing; Footprint Minimization; Collector Lines; Feeder Lines; Decommissioning; Abandoned Turbines; Height from Ground Surface; Tower Design; Noise; Permit Expiration Limitation of three years; and any other conditions the Board of Adjustment deems necessary.

The setback shall be at least one mile from cemeteries.

The applicant shall provide an updated project map showing accurate project area boundaries, the movement of tower 56, the elimination of tower 58 (potentially affecting a private airstrip), and updated setbacks.

The approval of this conditional use permit is subject to and shall become final only upon the Board of Adjustment's approval of written findings mandated by the zoning ordinance which findings will be presented for approval at the next scheduled meeting of the Board of Adjustment.

34. Approval was based upon the following vote:

Voting Yes on the motion to approve said permit were:

Bob Bjerke, Francis Hass, Richard Reints, Violet Wicks

Voting No on the motion to approve said permit was:

Chris Sass

Violet Wicks Chairperson

Violet Wicks
Chairperson, Board of Adjustment

**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	* * * * * * * *	**STAFF'S FIRST SET OF DATA REQUESTS TO CROCKER WIND FARM, LLC** **EL17-055**

Below, please find Staff's First Set of Data Requests to Crocker Wind Farm, LLC. Please submit responses within 10 business days, or promptly contact Staff to discuss an alternative arrangement. In addition, please specify the responder when answering each interrogatory. Should any response have subparts answered by more than one individual, identify the respondent by subpart.

1-1) **Provide copies of all data requests submitted by other parties to Crocker Wind Farm, LLC in this proceeding and copies of all responses provided to those data requests. Provide this information to date and on an ongoing basis.**

Melissa Schmit: No data requests have been received to date. Crocker will provide this information to the PUC as they are received.

1-2) **Refer to Page 135 of the Application, Table 12-1, and ARSD 20:10:22:05. Does the column labeled "Status" on Table 12-1 refer to when the permit will be filed? Please explain.**

Melissa Schmit: This column refers to the timeframe an approval/permit is anticipated to be obtained.

1-3) **Refer to Page 2 of the Application. When does the Applicant anticipate receiving approval from the USFWS to use the 14 USFWS grassland easements? Please explain.**

Melissa Schmit: The USFWS would issue the permits to allow construction and operation on grassland and wetland easements shortly after the completion of the NEPA process. These permits are anticipated to be received in the second quarter of 2018. This process is further described in Section 9.5.3 of the Application.

1-4) **Refer to Page 16 of the Application. The applicant states, "At 400 MW, the Project would benefit landowners in the Project Area with average annual lease payments of approximately $2.3 million for the first 20 years totaling approximately $46**

million." Please provide a detailed calculation to support the claim of approximately $2.3 million in annual lease payments to landowners.

Jay Hesse: The wind lease landowner payments are summarized in the table below. Crocker requests the detailed information provided regarding landowner payments remains confidential and only for the use of the SD PUC. During the construction and operational phases of the wind farm, signed wind leases will be paid primarily through calculating wind turbine rent based on the megawatts (MWs) of turbine capacity installed on the property and acreage rent calculated based on the signed acres in the operational wind lease. Landowners are also paid for the permanent met towers installed as listed in the table below.

*Please note the wind lease table has been redacted from this version.

1-5) Refer to Page 16 of the Application. The applicant states, "wind energy infrastructure will also provide an additional source of revenue in to the State, school districts, county and townships in which the Project is sited. This same size project is estimated to pay approximately $1.8 million per year in wind farm capacity and production taxes, totaling approximately $36 million over 20 years."

a) Please provide a detailed calculation to support the claim of approximately $1.8 million per year in wind fam capacity and production taxes.

Melissa Schmit/Jay Hesse/Mollie Smith: The yearly tax projection is based on the Wind Farm Production and Capacity tax defined in SD Codified Law (SDCL) Chapter 10-35. The taxes are calculated as follows:

- Nameplate Capacity Tax – An annual tax equal to $3.00 multiplied by the nameplate capacity (in kilowatts) of the wind farm. SDCL § 10-35-18 (2017).
- Electricity Production Tax – An annual tax of $.00045 per kilowatt hour of electricity produced by the wind farm. SDCL § 10-35-19.1 (2017).

Both taxes are deposited in a renewable facility tax fund. SDCL § 10-35-20 (2017). All of the nameplate capacity tax, and 20% of the electricity production tax, deposited in the renewable facility tax fund are distributed to the county treasurer where the wind farm is located. SDCL § 10-35-21 (2017). Upon receipt of the taxes, the county auditor apportions the taxes as follows:

- 50% to the school district where each wind tower is located;
- 15% to the organized township where each wind tower is located (if there is not an organized township, this amount goes to the county); and
- 35% to the county.

SDCL § 10-35-21 (2017). All remaining revenue (the other 80% of the electricity production tax) in the renewable facility tax fund is deposited in the state general fund. SDCL § 10-35-21 (2017).

The estimates in the Application are based on Crocker operating 400 MW's of nameplate capacity and conservative production numbers.

- Nameplate Capacity Tax – $3.00 x 400,000 kW = $1,200,000 annually.
- Electricity Production Tax – $.00045 x ~1,334,000,000 kilowatt hours = ~$600,000 annually.

The actual amount paid will be based on current law and real operations of the year in question.

Of these amounts, allocations to taxing jurisdictions based on the percentages in SDCL § 10-35-21 (80% of roughly $600,000 in production tax will go to the State, with the remainder distributed to the County in the proportions noted above) are projected below with conservative production measures:

- State of South Dakota: Approximately $480,000 per year totaling $9.6 million over 20 years
- Clark County: Approximately $462,000 per year totaling $9.24 million over 20 years
- Townships: Approximately $198,000 per year totaling $3.96 million over 20 years
- School Districts: Approximately $660,000 per year totaling $13.2 million over 20 years
    - NOTE: Per SDCL Chapter 13-13, after the fifth year of wind farm production, the amount of the wind energy tax revenue that is considered "local effort" in the State school funding formula will increase by 20 percent each year until year 10 of production. After year 10, 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. However, 100 percent of the wind tax revenue allocated to the school districts will still be received by the school districts in all years the Project is operational.

Details are also provided on pages 114-115 of the Application (Section 9.7.1.2).

1-6) Refer to Pages 19-20 of the Application. The applicant states, "To accommodate this final micrositing, Crocker requests that the permit allow turbines to be shifted within 1,000 feet of their current proposed location, so long as specified noise and shadow flicker thresholds at occupied residences are not exceeded, cultural resources and sensitive species habitat are avoided, and wetland impacts are avoided to the extent practicable. If turbine shifts are greater than 1,000 feet, exceed the noted thresholds, or do not meet the other limitations specified, Crocker would either not use the turbine location or obtain Commission approval of a proposed turbine location change."

a) Please provide a detailed and thorough explanation as to why 1,000 feet was selected as the appropriate distance a turbine could be shifted without obtaining Commission approval.

Melissa Schmit/Mollie Smith: Based on the results of Class III cultural resource field surveys obtained in late November 2017, Crocker determined that turbine shifts of up to 1,000 feet would be required to avoid impacts to identified cultural resources. Therefore, in its Application Crocker requested the ability to shift turbines 1,000 feet to allow sufficient flexibility to avoid unanticipated cultural resources identified during construction, as well as to account for the other factors noted in Section 4.2 of the Application (e.g., geotechnical survey results).

b) Refer to Docket EL17-028, the Applicant's Motion to Reconsider filed on November 9, 2017, Argument 2, the revised layout. The Applicant stated "Applicant intends to introduce evidence at hearing intended to lead to the Commission granting a condition allowing non-material shifts in turbine locations of less than 325' without further Commission action." Please explain why the Applicant changed its proposed criteria for triggering further Commission action regarding turbine location changes from 325 feet to 1,000 feet. Please include specific evidence in your explanation.

Melissa Schmit/Mollie Smith: At the time the Motion to Reconsider was filed, Crocker believed 325 feet would allow sufficient flexibility to shift turbines to avoid later-identified cultural resources. However, after the Motion to Reconsider was filed, Crocker received the results of the Class III cultural resource field surveys and determined that 325 feet was insufficient to enable avoidance of cultural resources; instead, up to 1,000 feet was needed. As a result, in its current Application, Crocker requested the ability to shift turbine locations up to 1,000 feet to ensure sufficient flexibility to avoid unanticipated discoveries during construction, as well as to account for the other factors noted in Section 4.2 of the Application (e.g., geotechnical survey results).

c) Please describe what the Applicant envisions as the process to obtain Commission approval of a proposed turbine location change.

Mollie Smith: With respect to the approval of a turbine location change, Crocker proposes the following process:

- Crocker would file with the Commission a request for approval of the change that includes:
    1. An affidavit describing the proposed change, the reason for the change, the reason the change does not comply with one or more turbine flexibility proposal limitations set forth in the Application, and the documentation referenced below;
    2. A map showing both the approved location and the proposed change (in different colors);

3. Documentation demonstrating compliance with local zoning requirements, including setbacks from existing off-site residences, non-participating property lines, and cemeteries, and the noise requirement at existing off-site residences;
4. Documentation demonstrating compliance with voluntary commitments regarding cultural resources, wetlands, and sensitive species habitat;
5. Documentation of compliance with, or a waiver by participating landowners of, voluntary commitments regarding noise and shadow flicker.

- Once received, the information would be reviewed by Commission Staff, and a recommendation regarding the request provided to the Commission.
- The Commission would then issue a decision regarding Crocker's request at its next regularly scheduled Commission meeting.

It should be noted that for any turbine location shifts that comply with the turbine flexibility parameters set forth in the Application, Crocker would provide similar documentation describing the shift and demonstrating compliance with the noted limitations prior to implementing the turbine change. The only difference would be that approval of the change would not be required.

1-7) Refer to Page 24 of the Application. The applicant states, "Crocker is in the process of identifying the best haul route to the Project site and where existing road improvements may be required. Crocker will work with the appropriate Federal, State, and/or local agencies to obtain the permits required for these improvements."

a) When does the Applicant anticipate finishing the process of identifying the best haul route to the Project?

Melissa Schmit: Identifying the best haul routes will occur in conjunction with road agreements through coordination with road authorities. Crocker expects to have road agreements executed by the second quarter of 2018.

b) Please provide the best haul route when finalized.

Melissa Schmit: Planned haul routes will be provided when finalized.

1-8) Refer to Page 38 of the Application. The applicant states, "The sale of the electricity may take the form of a power purchase agreement or a sale of the Project to a utility. Crocker's target completion for the initial phases of this sale is in the first quarter of 2018. This sale will drive the timelines for many of the major financial commitments such as equipment procurement and construction contracting improvements." Since the time schedule may be modified based on the sale of the electricity, please provide updates on the sale of the electricity and modifications to the time schedule as information becomes available.

Melissa Schmit: Updates on the sale of electricity and modifications to the time schedule will be provided as requested. At this time, Crocker's target completion for the initial phases of the sale remains the first quarter of 2018.

1-9) Refer to Page 46 of the Application regarding the Clark County Conditional Use Permit.

a) Provide the Clark County Conditional Use Permit obtained in April 2017.

Melissa Schmit: See attached.

b) Please summarize the permit terms that the Applicant is seeking clarification in Circuit Court.

Melissa Schmit: Crocker has requested the Clark County Board of Adjustment clarify terms of the following conditions (numbers 1, 2, 6) to accurately represent the intent of the Board. The condition and summary of amendment requested follows.

Condition #1: The *setback distance from existing off-site, non-participating residences shall be ¾ mile measured from the wall line of the neighboring principal building to base of the WES tower, unless otherwise negotiated pursuant to the zoning ordinance.*

- Certain terms in this condition are not defined in the Clark County Zoning Ordinance for a Wind Energy System or in the CUP. As a result, Crocker has requested clarification from the County as to those residences intended to be included within the setback.

Condition #2: *The construction and operation of the WES shall be done in a manner so as to not interfere with the maintenance and operation of other utility and telecommunications lines, specifically incorporating and terms and conditions contained in the Resolution proposed by Interstate Telecommunications Cooperative which resolution is part of the file in this matter.*

- The Resolution provided by the ITC at the hearing on March 7, 2017 contains provisions that require further negotiation. Crocker is working with the ITC to reach agreeable terms and has requested that the Board accept the revised Resolution once these negotiations are finalized.

Condition #6: *The applicant shall, at a minimum, meet all standards in the zoning ordinance or proposed in its application if more stringent than the zoning ordinance, including but not limited to the following categories: Mitigation measures; Roads, Setbacks, Electromagnetic Interference; Lighting; Turbine Spacing; Footprint Minimization; Collector Lines; Feeder Lines; Decommissioning; Abandoned Turbines; Height from Ground Surface; Tower Design; Noise; Permit Expiration Limitation of three years; and any other conditions the Board of Adjustment deems necessary.*

- As directed by the First District Association of Local Governments in Watertown (which advises regarding matters of local government within the First District), Crocker requested in its CUP application immediate approval of the CUP with the condition that the three-year term commence once all conditions in the permit were met. Given this request and the wording of Condition #6, the intent regarding whether the Project must commence on-site construction within three years of issuance is unclear. Therefore,

Crocker has requested clarification that the Permit Expiration Limitation of three years will commence once all conditions have been met.

c) Provide the status and timeline of the pending litigation in Circuit Court regarding the Clark County Conditional Use Permit. Please consider this an ongoing request and provide updates as information becomes available.

Brett Koenecke: The Clark County litigation is pending and on hold. The Project has advised the County that the setbacks are no longer at issue. The parties continue dialogue between them in order to finally resolve the remaining issues. There is no timeline at present.

1-10) Refer to ARSD 20:10:22:13 regarding environmental information. Please identify any irreversible changes which are anticipated to remain beyond the operating lifetime of the facility.

Melissa Schmit: No irreversible changes are anticipated to remain beyond the operating lifetime of the Project. At the end of commercial operation, the Project will be decommissioned and restored as detailed in Section 5.0 of the Application.

1-11) Refer to ARSD 20:10:22:33 regarding decommissioning. Please provide the estimated amount of land irretrievably committed.

Melissa Schmit: No land will be irretrievably committed. While some project facilities will be removed to a depth of 48 inches and left in place (foundation or collection), the excavation will be filled with clean subgrade material of quality comparable to the immediate surrounding area. A four-foot depth of removal ensures foundation or collection will not interfere with farming, root zones of crops typically grown within the Project Area, or the construction of roads and the installation of utilities.

1-12) Refer to SDCL 49-41B-5.2 regarding the notification of area landowners by mail. Specifically, "The applicant shall notify, in writing, the owner of record of any land that is located within one-half mile of the proposed site where the facility is to be constructed. For purposes of this section, the owner of record is limited to the owner designated to receive the property tax bill sent by the county treasurer. The notice shall be mailed by certified mail. The notice shall contain a description of the nature and location of the facility. Any notification required by this section shall state the date, time, and location of the public hearing and shall be made no later than thirty days prior to the date of the public hearing."

a) Provide a proof of mailing that the public hearing notice was mailed via certified mail to the individuals within one-half mile of the proposed site no later than 30 days prior to the date of the public hearing.

Brett Koenecke: Proof of mailing is or soon will be filed in the docket by Project counsel.

b) Provide a list of the individuals provided the mailed notice.

Brett Koenecke: A list is attached. It is the same list which was used for the prior Crocker docket.

c) Confirm or deny that all individuals provide in 4-1b received the mailing via certified return receipts.

Brett Koenecke: The mailing went by certified mail, return receipt requested, pursuant to law. It was sent to all on the list. Some accepted it, some rejected it, some were forwarded, and some returned.

d) Provide a copy of the letter sent to landowners.

Brett Koenecke: A copy is attached.

1-13) Provide the status of the study required by Clark County on the feasibility of installing an aircraft detection lighting system (ADLS) on the Crocker Wind Farm. Provide the study when completed.

Melissa Schmit: To determine the feasibility of implementing ADLS, Crocker was required to refile the Project turbine locations with the FAA to ensure implementation of the technology at the site will satisfy the FAA requirements for ADLS as described in the Advisory Circular 70/7460-1L Chapter 14: Aircraft Detection Lighting Systems.[1] On December 15, 2017, Crocker received "Determinations of No Hazard" responses for proposed turbine locations up to 499 feet with ADLS technology. Crocker has been working with vendors and a study has been prepared. The study will be provided to Clark County by the end of January and Crocker will provide the study to the PUC once it has been transmitted to the county.

1-14) In Section 2.3.2, Applicant asserts that 250 jobs are anticipated at peak. When is peak construction anticipated to occur, and what is the anticipated duration of peak construction?

Jay Hesse: Crocker anticipates peak construction jobs to occur when construction is in process simultaneously for the various wind farm and transmission facilities. Peak construction jobs are anticipated through June, July, and August of 2019. The timing of peak construction would be subject to change based on the final construction schedule, the turbine selected, weather, procurement schedule or other factors.

1-15) Clark County hosts natural gas transmission facilities that may require regular fly-overs. Has Applicant coordinated with the operator of those facilities, Northern Border Pipeline Company, to ensure this can be done in a safe manner?

[1] Technical requirements for radar activated control of obstruction lighting are described in FAA Advisory Circular AC/70/7460-1L, Chapter 14 at: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_.pdf.

Jay Hesse: Crocker has coordinated with Northern Border Pipeline Company. Due to the setback from the pipeline they do not anticipate any problems with fly-overs. The Project design includes wind farm facility setbacks from the pipeline that are consistent with other projects developed by Geronimo Energy that are now successfully operating with Northern Border Pipeline facilities going through the project.

1-16) How will Applicant ensure that field tile is protected during construction and/or any damage corrected after construction?

Jay Hesse: Crocker has been coordinating with project landowners on the location of their field tile and, overall, the Crocker Project Area has very limited field drain tile. Crocker will continue coordination with landowners, including field visits with landowners as needed, ahead of construction activities to identify tile locations. The Project will use commercially reasonable efforts to avoid impacts when possible and Crocker will ensure that tile is repaired if impacted by construction or operation. Crocker will have a qualified contractor undertake all tile repair work.

Melissa Schmit: Updated agency correspondence from Western Area Power Administration and the National Telecommunications and Information Administration are also attached to this Data Request.

Dated this 17th day of January 2018.

Melissa Schmit

**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	* * * * * * * *	**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

**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	* * * * * * * *	**CROCKER WIND FARM, LLC'S RESPONSES TO STAFF'S THIRD SET OF DATA REQUESTS** **EL17-055**

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

3-1) Please provide a final and complete report of Tetra Tech's Vegetation Community Quality Classification as referenced in the Application. Further, if not documented in the final report, please provide:

Melissa Schmit: As outlined in table 7-1 of the Application, the Natural Community Inventory is approximately 78% complete and will be completed this spring once field conditions allow. Therefore, a final report is not available and results of the ongoing survey are outlined below.

i) How the vegetation and plant species were sampled (i.e. study method);

Apryl Jennrich: The relative abundance of plant species observed within the survey corridor was estimated based on the percent aerial cover within the survey corridor. Dominant/common plant species (those with at least 20% aerial cover) were identified and recorded. Many low aerial cover (less than 20%) species were also identified and recorded; however, not all plant species within the survey corridor were documented.

ii) A detailed map of the study area;

Apryl Jennrich: The vegetation community survey was conducted within the environmental survey corridor. Refer to the attached map, which shows the survey corridor, areas where surveys are complete, and areas that will be surveyed in Spring 2018.

iii) When the classification was conducted;

Apryl Jennrich: The Applicant completed the majority of the survey in early October 2016 and early September 2017; a small survey effort for re-routes/minor shifts was also conducted in early December 2017.

iv) How grazing intensity was assessed;

Apryl Jennrich: Gazing intensity was based on the estimated percentage of vegetated area with noticeable/significant grazing (i.e., vegetation grazed close to the ground). Areas were identified as heavily grazed if more than 50 percent of the vegetation was significantly grazed. Moderately

grazed areas were areas where between 25 percent and 50 percent of the vegetation was significantly grazed. In lightly grazed areas less than 25 percent of the vegetation was significantly grazed.

v) What constituted high, medium, and low plant diversity; and

Apryl Jennrich: Low plant diversity was defined as an area that had less than 10 species observed; medium diversity had between 10 and 20 species observed; high diversity had more than 20 species observed. However, not all species observed were identified or recorded.

vi) What plant species were found.

Apryl Jennrich:

Scientific Name	Common Name
Acer negundo	ash-leaf maple
Achillea millefolium	common yarrow
Ambrosia artemisiifolia	annual ragweed
Andropogon gerardii	big bluestem
Apocynum cannabinum	indianhemp
Artemisia absinthium	common wormwood
Artemisia biennia	biannual wormwood
Artemisia ludoviciana	white sagebrush
Asclepias incarnata	swamp milkweed
Asclepias syriaca	common milkweed
Bouteloua curtipendula	Sideoats grama
Bromus inermis	smooth brome
Carex sp.	sedges
Cirsium arvense	Canada thistle
Conyza Canadensis	Canadian horseweed
Eleocharis sp.	spikerush
Elymus repens	quackgrass
Euphorbia virgate	leafy spurge
Glycyrrhiza lepidota	American licorice
Grindelia suarrosa	curlycup gumweed
Hesperostipa spartea	porcupinegrass
Hordeum jubatum	foxtail barely
Juncus sp.	rush
Juniperus virginiana	eastern red cedar
Medicago lupulina	black medic
Medicago sativa	alfalfa
Melilotus officinalis	sweet clover
Nassella viridula	green needlegrass
Onosmodium molle	false gromwell
Panicum virgatum	switchgrass
Pascopyrum smithii	western wheatgrass
Persicaria sp.	smartweed

Scientific Name	Common Name
Phalaris arundinacea	reed canary grass
Phleum pretense	timothy
Pinus resinosa	red pine
Poa compressa	flat-stem bluegrass
Populus deltoides	eastern cottonwood
Prunus sp.	plum
Quercus sp.	oak
Ratibida columnifera	upright prairie coneflower
Rudbeckia hirta	black-eye Susan
Rumex crispus	curly dock
Salix sp.	willows
Schizachyrium scoparium	little bluestem
Schoenoplectus tabernaemontani	soft stem bulrush
Scirpus atrovirens	green bulrush
Setaria pumila	yellow foxtail
Solidago canadensis	Canada goldenrod
Solidago gigantea	giant goldenrod
Sonchus oleraceus	common sowthistle
Sorghastrum nutans	Indiangrass
Spartina pectinata	prairie cordgrass
Sporobolus heterolepis	prairie dropseed
Symphoricarpos occidentalis	western snowberry
Symphyotrichum pilosum	hairy white oldfield aster
Taraxacum officinale	common dandelion
Trifolium pratense	red clover
Trifolium repens	white clover
Typha sp.	cattail
Ulmus pumila	Siberian elm
Urtica dioica	stinging nettle
Verbena stricta	hoary vervain
Xanthium strumarium	rough cocklebur

3-2) **Referring to page 128 of the Application, when does the Applicant plan on completing the assessment of the 10 Native American isolated finds?**

Adam Holven: The Applicant anticipates completing shovel testing at these 10 Native American isolated finds in the spring of 2018.

Further, please explain how each of these 10 sites were determined to be an "isolated find" given that no further testing has been conducted.

Adam Holven: The use of "isolated find" is a temporary assignment used for planning purposes. The Applicant has committed to avoidance of all confirmed archaeological sites. The 10 "isolated finds" are isolated surface finds, mostly within agricultural cropland, that will be shovel tested in spring 2018 to determine if additional archaeological material is present in the

subsurface. If no additional archaeological material is recorded during shovel testing, then the location will be formally recommended as an isolated find. If additional archaeological material is recorded during shovel testing, then the location will be formally recommended as a site.

3-3) **Will any portion of 39CK0048 be located within the permanent utility right-of-way? If so, what measures will be taken to ensure the site is not negatively impacted by construction and/or on-going maintenance activities?**

Adam Holven: Yes, the eastern 75 feet of Site 39CK0048 will be located in the transmission line right-of-way. Site 39CK0048 is a former farmstead with the former farmhouse being located west of the transmission line right-of-way. At this time, the Applicant does not plan to locate transmission line poles within the known extent of Site 39CK0048; therefore, permanent impacts to the site will be avoided. The Applicant also plans to drive around the site within the 49th Avenue right-of-way; therefore, temporary impacts to the site will also be avoided.

3-4) Have efforts been made to consult with the Tribal Historic Preservation Officers (THPO) or local American Indian tribes? If so, please explain the extent of those consultations.

Melissa Schmit: The USFWS initiated consultation under Section 106 of the National Historic Preservation Act (NHPA) with federally-recognized tribes for the Project. Consultation letters were sent to tribes and THPOs on January 24, 2018 requesting responses by April 2, 2018.

3-5) A number of pre-contact sites have been identified in the study area, but not the survey area. Have the THPOs or local American Indian tribes been given an opportunity to identify areas that may be sensitive their tribe?

Melissa Schmit: As outlined in Section 9.5.3 of the Application, Crocker has proposed Project infrastructure on USFWS easements, which will require an easement exchange if approved by the USFWS. This is Federal Action under the National Environmental Policy Act (NEPA) and Crocker has prepared an Environmental Assessment (EA) that tiers from the Upper Great Plains Programmatic Environmental Impact Statement (PEIS). As outlined in the PEIS, the USFWS scope of review is limited to easement land within the Project. Therefore, Section 106 consultation is also limited to survey corridor with the USFWS grassland easement land and any portion of the survey corridor that intersects a protected basin within USFWS wetland easement land. The Level III Cultural Resources report for the entire Project will be submitted to SHPO once surveys are complete and will be accessible to interested tribes. Also, please see response to Data Request 3-4.

3-6) If sensitive areas have been identified, what measures will be taken to avoid or minimize potential direct and indirect effects?

Melissa Schmit: The layout presented in the Application reflects avoidance of known environmentally sensitive areas identified through field surveys, such as cultural resources and sensitive species habitat. Following the completion of field surveys, Crocker has requested the

ability to shift turbines within 1,000 feet in order to adequately avoid and minimize impacts to any new resources identified.

3-7) When does Crocker anticipate submitting the Level III Intensive Survey to SHPO for review?

Adam Holven: At this point, the Applicant plans on submitting the Level III Intensive Survey for USFWS and SHPO review in late summer/early fall 2018.

Dated this 15th day of March, 2018.

Melissa Schmit

**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	* * * * * * * *	**CROCKER WIND FARM, LLC'S RESPONSES TO STAFF'S FOURTH SET OF DATA REQUESTS** **EL17-055**

Below, please find Crocker Wind Farm, LLC's ("Crocker) Responses to Staff's Fourth Set of Data Requests.

4-1) Please refer to Mr. David Hessler's direct testimony, Page 4, line 10 through Page 5, line 19. For the eighteen participating residences that are predicted to exceed a 45 dBA sound level in Crocker's noise study:

i. Did the easements signed by these residents contain any specific provisions relating to noise or sound? If yes, please provide.

Mollie Smith: This request calls for a legal conclusion. That said, while the leases do not specifically address noise or sound, they do include a waiver of all setback requirements.

ii. Please explain how Crocker has educated and informed these residents so that they have the appropriate expectations about the predicted sound levels at their residence.

Jay Hesse/Melissa Schmit: Crocker prepared responses to frequently asked questions regarding sound, which were made available to landowners. In addition, Crocker responded to individual questions that landowners had regarding sound/noise.

iii. Has Crocker offered to take these residents to an operating wind facility so that the residents could experience the sound at similar setbacks? If not, would Crocker be willing to take these residents to an operating wind facility? Explain.

Jay Hesse/Melissa Schmit: Since there are two operating wind farms in the area, as well as other wind farms operating in nearby counties, the landowners within the Project have been exposed to operating turbines. In addition, some landowners have gone to operating wind farms on their own to experience being near the turbines first-hand. For these reasons, Crocker did not offer to take the landowners to an operating wind farm as a

group. However, if a landowner wanted to go to an operating wind farm, Crocker would help facilitate that opportunity.

4-2) Are participating residents prohibited from filing a complaint before the South Dakota Public Utilities Commission or any other governmental entity regarding noise or any other concern due to language in their easement? Explain.

Mollie Smith: This request calls for a legal conclusion. That said, the leases do not specifically prohibit landowners from complaining to the Commission, but the leases do obligate participating landowners to cooperate with Crocker to obtain and maintain permits for the Project.

4-3) Please provide the name, address, and distance to the closest turbine of non-participating residences that are within the following distance from the closest turbine to their residence:

i. 3,960 ft. to 1 mile;

Melissa Schmit: Please see the attached chart. Please note that the name and address information was provided by Clark County in 2017, so may not be up-to-date.

ii. 1 mile to 2 miles; and

Melissa Schmit: Please see the attached chart. Please note that the name and address information was provided by Clark County in 2017, so may not be up-to-date. In addition, the list includes only those residences for which Crocker has information, and is not intended as a comprehensive list.

iii. 2 miles to 3 miles.

Melissa Schmit: Please see the attached chart. Please note that the name and address information was provided by Clark County in 2017, so may not be up-to-date. In addition, the list includes only those residences for which Crocker has information, and is not intended as a comprehensive list.

As requested by Staff, Crocker is submitting responses to Staff Data Request No. 4-3 confidentially.

Dated this 24th day of April, 2018.

Melissa Schmit

63866393.1

**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	* * * * * * * *	**STAFF'S FIFTH SET OF DATA REQUESTS TO CROCKER WIND FARM, LLC** **EL17-055**

Below, please find Crocker Wind Farm, LLC's ("Crocker") Responses to Staff's Fifth Set of Data Requests.

5-1) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 1, Line 31, through Page 2, Line 3. Mr. MaRous states he is in the process of completing a market impact study for another wind project in South Dakota. Please provide the name of that wind project, when the market impact study will be completed, and all findings determined to date with the appropriate support.

Michael MaRous: The Market Impact Analysis for the Dakota Range Wind Project was submitted to the South Dakota Public Utilities Commission on April 6, 2018. The other study work is underway and a completion date has not been set.

Mollie Smith: At this time, Crocker does not intend to submit market analyses for other projects in this docket; however, Mr. MaRous may offer additional information into the record in support of his analysis for Dakota Range, if appropriate.

5-2) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 2, Lines 22-24. Mr. MaRous states, "When I use the phrase "proximity to wind turbines," I generally mean turbines within three to five times the hub height of a wind turbine."

a) Based on the Crocker Wind Farm project proposed turbines, please provide the range Mr. MaRous considers to be within proximity to the proposed wind turbines.

Michael MaRous: As an initial matter, I note that the quoted portion of my testimony has a typographical error: "hub height" should be "tip height," generally 1,500 to 2,500 feet. Based on the Project's proposed turbines, the range I consider to be within proximity to the proposed wind turbines is 1,500 feet – 2,500 feet.

b) Is Mr. MaRous asserting that residences and agricultural land that are at a distance of more than five times the hub height of wind turbine away from a wind turbine do not need to be analyzed for any potential property value impact associated with the Project? Please explain.

Michael MaRous: Based on my years of appraisal experience, the values of residences and agricultural properties that are located more than five times the tip height away from a wind turbine are unlikely to be affected. That does not mean they should not be considered in a market analysis. I viewed all properties and residences in the Project area within Clark County and concluded that there was no market evidence that the value of distant properties and residences would be affected by the Project.

c) What is the basis for selecting three to five times the hub height of a wind turbine as the definition of proximity?

Michael MaRous: As clarified above, I meant to say "tip height," not "hub height." I defined "proximity" as three to five times the tip height of a wind turbine based on my experience as detailed in response to DR 5-2(b).

5-3) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 4, Line 19. How did visiting the Project area in Clark County assist in conducting your market value analysis?

Michael MaRous: Visiting the Project area in Clark County, including Crocker, allowed me to get acquainted with the market area and demographics, as well as the physical characteristics of the Project footprint. This familiarity was helpful in conducting the market analysis.

My extensive experience has taught me that a thorough inspection of the subject and subject area is extremely helpful when preparing an accurate report. I have participated in the last several publications of *The Appraisal of Real Estate*, the foremost recognized publication concerning real estate appraisal. A thorough site and area inspection is always considered part of "best practice." My visit to the Project area in Clark County allowed me to observe the physical characteristics of the area (such as gravel roads, rolling topography, existence of numerous prairie potholes, wire fences in need of maintenance, older homes and out buildings, existing windfarms, small lakes, and limited non-agricultural uses). It also showed the suitability for agricultural pasture and hunting type uses. I viewed residential properties (on my way to and from the Project area) and I also viewed the planted shelterbelts around a large majority of the smaller "farmette" parcels. I could view and observe the proximity to amenities, services, and infrastructure of the area. The inspection also provided a confirmation of issues that I had found with

reviewing the other technical expert reports, as well as published and historical information in the area, which aided me in preparing my market value analysis.

5-4) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 5, Lines 9 – 16. Mr. MaRous states, "I reviewed sales transactions in seven east-river counties in South Dakota with operating wind farms to try to identify matched paired sales to use for comparison, meaning sales of similar rural residential properties where one property was near a wind farm and one property was not. However, of the sales reviewed, only one rural residential property sale was near a wind farm, and that property, located in Brookings County, South Dakota, was nearly four miles away from a turbine. As a result, the sale was not close enough to a wind turbine to use in a proximate/not proximate paired sales comparison."

a) How close to a wind turbine would a property sale need to be to be included in a paired sales analysis? Explain.

Michael MaRous: Ideally, a property sale included in a paired sales analysis would be located within 5 times the turbine tip height (approximately 2,500 feet) of a wind turbine.

b) Explain the review process Mr. MaRous conducted to ensure he reviewed all sales transactions near operating wind farms.

Michael MaRous: Using the wind farms associated with the assessor's survey, we went to real estate websites (such as Zillow, Trulia, Redfin, etc.) and the Northeast South Dakota Association of Realtors ("NESD") Multiple Listing Service ("MLS") to look for all sales in the immediate area. We then contacted any relevant brokers to confirm our findings.

5-5) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 6, Lines 1 – 6.

a) Describe the qualifications and experience of each of the six South Dakota County assessors surveyed by the Applicant.

Michael MaRous: The statutorily required qualifications for county assessors in South Dakota (also called "Directors of Equalization") are contained in Title 10, Chapter 10-3 of the South Dakota Codified Laws, titled "County Directors of Equalization."

b) Are the duties and responsibilities of an assessor and an appraiser the same? If no, please explain.

Michael MaRous: An assessor is working for a county or public body and an appraiser is working for an individual client. The ultimate goal of both an assessor and an appraiser is to estimate market value as of a specific date.

c) Are the education requirements for an assessor and an appraiser the same? If no, please explain.

Michael MaRous: They have similar course requirements, but appraisers' course requirements are generally more rigorous and extensive.

d) Please explain the difference between an assessed value and an appraised value.

Michael MaRous: "Appraised value" is market value and "assessed value" can be adjusted for level of assessment and equalization factors. Further, in South Dakota, crop and pasture land is assessed on productivity and residential properties are assessed on market value.

e) Does an assessor consider the view from an individuals' property when determining an assessed value for taxation purposes? Please explain.

Michael MaRous: View and any factors that affect value should be considered by the assessor when estimating market value and translating into assessed value.

f) Please provide the objective measures that each of the six South Dakota county assessors consider when determining an assessed value.

Michael MaRous: It is my understanding that they are looking at productivity factors and crop values when valuing agricultural land. When valuing residential properties, they are looking at sales transactions, sales volume, market conditions, location, paved roads, land size, building sizes, amenities, and condition. They are also looking at desirability of location, economic viability, and future trends. Further, they will also consider the views of and from subject property.

5-6) Refer to the rebuttal testimony of Mr. Mike MaRous, Page 6, Lines 12 – 30.

a) On lines 11 – 12, Mr. MaRous stated there have been no reduction in assessed valuations due to proximity to wind turbines. Does the Applicant know how many reductions in assessed valuations there have been in the Counties surveyed during the requested survey time period, and the reasons for each reduction?

Michael MaRous: No.

b) On lines 18 – 20, Mr. MaRous states "Further, county assessors repeatedly stated that county revenues and revenues to individual farms outweighed any initial concerns that residents had about the wind farms joining their communities."

i. Referring to "revenues to individual farms," does "individual farms" refer to participating landowners in the Project? If no, please explain.

Michael MaRous: We understood the county assessors to be referring to participating landowners, but the assessors did not use that phrase in our surveys.

ii. **Referring to "initial concerns that residents had about wind farms," does "residents" refer to non-participating landowners to the Project? If no, please explain.**

Michael MaRous: In this portion of my testimony I was referring to all landowners, participants and non-participants, in the Project area.

iii. **Please explain the County Assessors role and how they are qualified to issue an opinion on how the increased revenues associated with the Project outweighed any concerns.**

Michael MaRous: Assessors set the market value of properties in their jurisdictions. An assessor's determination of market value is used by the County to assess property taxes, and the assessor's determination of market value would be what is being challenged in a property tax protest/appeal. Assessors analyze economic factors and sales transactions to estimate market value. They also receive input on factors influencing value, and know of complaints from parties protesting the assessor's opinion of market value.

The minimum qualifications for county assessors are set by statute. A county assessor must obtain the Certified Appraiser Assessor designation from the South Dakota Department of Revenue. (SD Laws 10-3-1.1; SD Laws 10-3-1.2; SD Admin. Rules 64:02:01:14). To be eligible for this certification, they must have "at least one year of full-time experience in the assessing and appraising field, have completed and passed the required training prescribed in § 64:02:01:16, and ha[ve] passed the certification examination." (SD Admin. Rules 64:02:01:05.) Appraisers routinely and reasonably rely upon information provided by assessors to prepare market analyses and appraisals.

5-7) **Please provide Mr. Mike MaRous' appraiser work file for this docket.**

Michael MaRous: See enclosed documents, CROCKER000572-CROCKER000888.

5-8) **Refer to Mr. MaRous's Market Analysis. Since Mr. MaRous could not identify any sales of property within the proximity of wind turbine, is the only analysis specific to South Dakota a survey of County Assessors? Please explain.**

Michael MaRous: We included the Brookings County comparison as a South Dakota-specific analysis to reinforce the data we received from the assessors. There was also an analysis of recent residential and land sales of properties that were near the Project, but the analysis was unable to consider proximity to turbines because there were no sales with turbines in proximity to residences.

a) **Is the South Dakota Public Utilities Commission sole purpose in evaluating sound or noise associated with a wind energy facility to review for compliance with a County ordinance? If yes, please cite the appropriate codified laws or administrative rules?**

Mollie Smith: This question calls for a legal conclusion. Crocker will address this issue to the extent necessary in briefing.

b) **In Mr. Duncan's professional opinion, do County officials use any judgment in selecting the appropriate noise limit for a wind energy facility? If yes, what type of factors do government officials consider in setting an appropriate noise limit?**

Eddie Duncan: I am without knowledge of the factors that counties in general or Clark County in particular used in establishing sound limits for wind energy facilities.

5-11) **Refer to the rebuttal testimony of Mr. Eddie Duncan, Page 1, Lines 25-26. Please explain the Applicant's understanding is of the "applicable requirements of the South Dakota Public Utilities Commission" associated with the noise of the wind energy facility during operation.**

Eddie Duncan: I was referencing Crocker's burden of proof as set forth in SDCL 49-41B-22.

5-12) **Please explain why the South Dakota Public Utilities Commission should not, or cannot, consider a different noise requirement than what is required by the County.**

Mollie Smith: This question calls for a legal conclusion. Crocker will address this issue to the extent necessary in briefing.

5-13) **Since Crocker's noise modeling indicates noise levels of 40 dBA or lower at non-participating residences, will Crocker agree to a condition that sets a maximum limit of 45 dBA at non-participating residences? Please explain.**

Mollie Smith/Melissa Schmit: This issue is a matter of negotiations with PUC Staff regarding permit conditions. Crocker is open to establishing a sound limit for non-participating residences. Crocker would request that the sound limit be specifically defined in the context of the specific modeling to be used. As noted in Mr. Duncan's rebuttal testimony, pages 3 and 4, the limit Mr. Hessler proposes does not include conservative assumptions Crocker included in its modeling.

5-14) **Refer to the rebuttal testimony of Ms. Melissa Schmit, Page 9, Lines 4-9.**

a) Please explain how the request for turbine flexibility is compliant with ARSD 20:10:22:33.02 based on the Commission's interpretation of the rule in Docket EL17-028.

Mollie Smith: The rule cited is an application content requirement (as noted by the PUC's Order Granting Motion to Deny and Dismiss Crocker Wind Farm's Application, dated November 1, 2017), and, therefore, is not determinative of the final conditions of the permit issued. Further, said order does not address turbine shifts.

b) Please explain why shifts of turbines of up to 1,000 ft. should not be considered a new configuration of wind turbines.

Mollie Smith: See response DR 5-14(a).

Dated this 30th day of April, 2018.

Melissa Schmit

Melissa Schmit

From: Henry, Joyce <JHenry@ntia.doc.gov>
Sent: Friday, January 12, 2018 11:08 AM
To: Melissa Schmit
Cc: 'faslist@osmmail.ntia.doc.gov'
Subject: **Wind Turbine Response Letter** Crocker Wind, Rev. 1: Clark County, SD
Attachments: Crocker Wind Rev.1_R.pdf

Dear Melissa:

Please see attached the NTIA Response Letter for the Crocker Wind Farm, Revision 1, located in Clark County, South Dakota.

After a 45+ day period of review, we received responses from **DOA (Agriculture), DOC (Commerce), DOJ (Justice), and DON (Navy),** stating **No Harmful Interference Anticipated (NHIA).**

In the event that an agency has expressed concerns, ***we encourage you to work with the agency representatives directly to resolve all issues***. If issues cannot be resolved, you may contact our office via phone or e-mail for resolution.

Joyce C. Henry
DOC/NTIA/OSM HQ
Admin
202-482-2215
jhenry@ntia.doc.gov

"He who hesitates is lost"

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

JAN 11 2018

Ms. Melissa Schmit
Senior Permitting Specialist
GERONIMO ENERGY
7650 Edinborough Way, Suite 725
Edina, MN 55435

Re: Crocker Wind, Rev. 1: Clark County, SD

Dear Ms. Schmit:

In response to your request on November 16, 2017, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Crocker Wind Farm, Revision 1, located in Clark County, South Dakota.

After a 45+ day period of review, no agencies had issues with turbine placement in this area.

While the 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,

Peter A. Tenhula
Deputy Associate Administrator
Office of Spectrum Management

Melissa Schmit

From: Johnson, Scott <SJohnson@WAPA.GOV>
Sent: Friday, January 12, 2018 11:23 AM
To: Melissa Schmit
Subject: RE: [EXTERNAL] Crocker Wind Farm - WAPA Microwave Path Review

Melissa,

Happy New Year, I trust you had a good one.

I am just trying to close the loop on a few of my open items regarding Crocker. I have provided all I have to Basin and ERC on this and have not received any further concerns or feedback. I am guessing that they have found no problems with interference, so I believe moving forward should not be an issue. If you hear anything to the contrary, please let me know.

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: Melissa Schmit [mailto:melissa@geronimoenergy.com]
Sent: Friday, December 01, 2017 12:18 PM
To: Johnson, Scott
Subject: RE: [EXTERNAL] Crocker Wind Farm - WAPA Microwave Path Review

Scott,
Thank you for your review. I will keep an eye out for further information from Basin and ERC.

Have a good weekend!

Melissa Schmit
Senior Permitting Specialist
Main: 952.988.9000
Direct: 612.259.3095
Geronimo Energy

GERONIMO ENERGY

From: Johnson, Scott [mailto:SJohnson@WAPA.GOV]
Sent: Friday, December 01, 2017 12:23 PM
To: Melissa Schmit <melissa@geronimoenergy.com>
Subject: RE: [EXTERNAL] Crocker Wind Farm - WAPA Microwave Path Review

Melissa,

Attached is the GIS aerial of the Crocker Wind Farm (and the Groton wind farm just north of it) with respect to our Clark Repeater (south) and Bristol Substation (north). I am still awaiting feedback regarding further analysis as required for Basin and ERC, I will let you know if either foresees this project as an issue. This project will not cause problems for WAPA.

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

wapa.gov

From: Johnson, Scott
Sent: Thursday, November 30, 2017 7:36 AM
To: 'Melissa Schmit'
Subject: RE: [EXTERNAL] Crocker Wind Farm - WAPA Microwave Path Review

Melissa,

Thank you for the information on the Crocker project, it is in the hands of our GIS folks now to get uploaded alongside our telecommunications systems. I should be able to provide you some answers in relatively short order depending on how quickly the upload occurs. We will also be looking at the impact on systems owned by Basin Electric and East River Electric in that area, at their request. I will provide you the results of our analysis as soon as it is completed.

Please contact me with any questions or concerns.

Regards,

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

wapa.gov

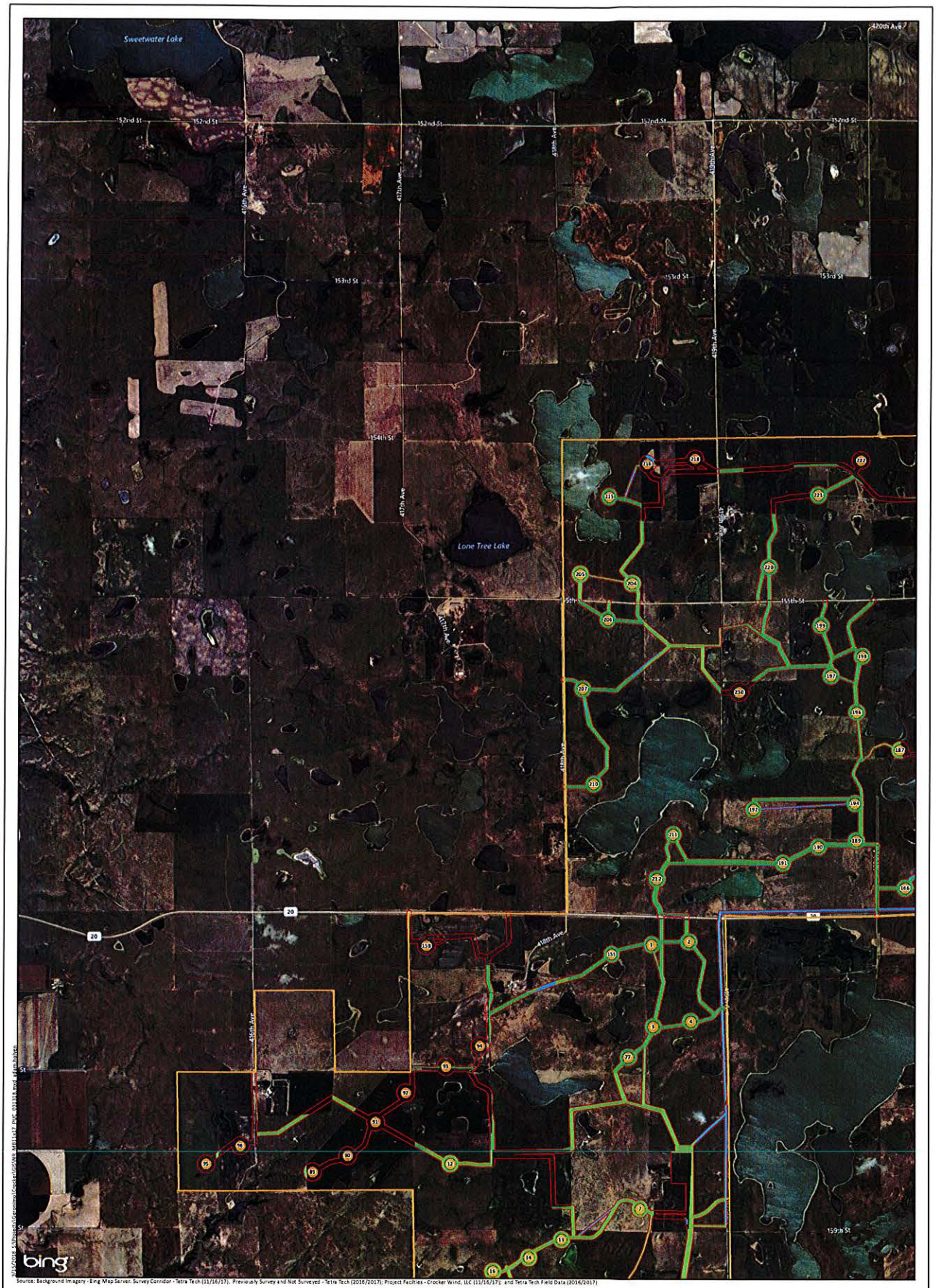
From: Melissa Schmit [mailto:melissa@geronimoenergy.com]
Sent: Wednesday, November 29, 2017 4:13 PM
To: Johnson, Scott
Subject: [EXTERNAL] Crocker Wind Farm - WAPA Microwave Path Review

Hello Scott,
Thank you for the call earlier this week on WAPA's process for evaluating microwave paths. As we discussed, I have attached shapefiles of the Crocker Wind Farm (located in Clark County, SD) preliminary turbine locations and a KMZ of the project boundary. Turbine locations have the potential to shift within 500 feet or so pending the completion of environmental studies. The maximum rotor diameter for the turbines would be 136 meters.

Please let me know if you foresee any issues with the three paths that cross the project boundary from the Clark Repeater.

Thank you,

Melissa Schmit
Senior Permitting Specialist
7650 Edinborough Way, Suite 725
Edina, MN 55435
Main: 952.988.9000
Direct: 612.259.3095
Cell: 952.237.3656
Geronimo Energy



Source: Background Imagery - Bing Map Server. Survey Corridor - Tetra Tech (11/16/17). Previously Survey and Not Surveyed - Tetra Tech (2016/2017); Project Facilities - Crocker Wind, LLC (11/16/17); and Tetra Tech Field Data (2016/2017)

Tetra Tech Vegetation Quality Classification

- Low (3-4)
- Medium (5-7)
- High (8-9)

Those parts of the survey corridor without a vegetation quality classification designation are cultivated cropland with no natural vegetation or have not been surveyed.

- Project Area Boundary

Survey Status

- Survey Corridor
- Not Surveyed

Project Layout

- Proposed Turbine

0 0.25 0.5 0.75 1 Miles

N

Map A1

Vegetation Community Quality Classification Interim Results
Crocker Wind Farm
Clark County, SD

CROCKER WIND FARM

Source: Background Imagery - Bing Map Server. Survey Corridor - Tetra Tech (11/16/17). Previously Survey and Not Surveyed - Tetra Tech (2016/2017); Project Facilities - Crocker Wind, LLC (11/16/17); and Tetra Tech Field Data (2016/2017)

Tetra Tech Vegetation Quality Classification

- Low (3-4)
- Medium (5-7)
- High (8-9)

Those parts of the survey corridor without a vegetation quality classification designation are cultivated cropland with no natural vegetation or have not been surveyed.

- Project Area Boundary

Survey Status

- Survey Corridor
- Not Surveyed

Project Layout

- Proposed Turbine

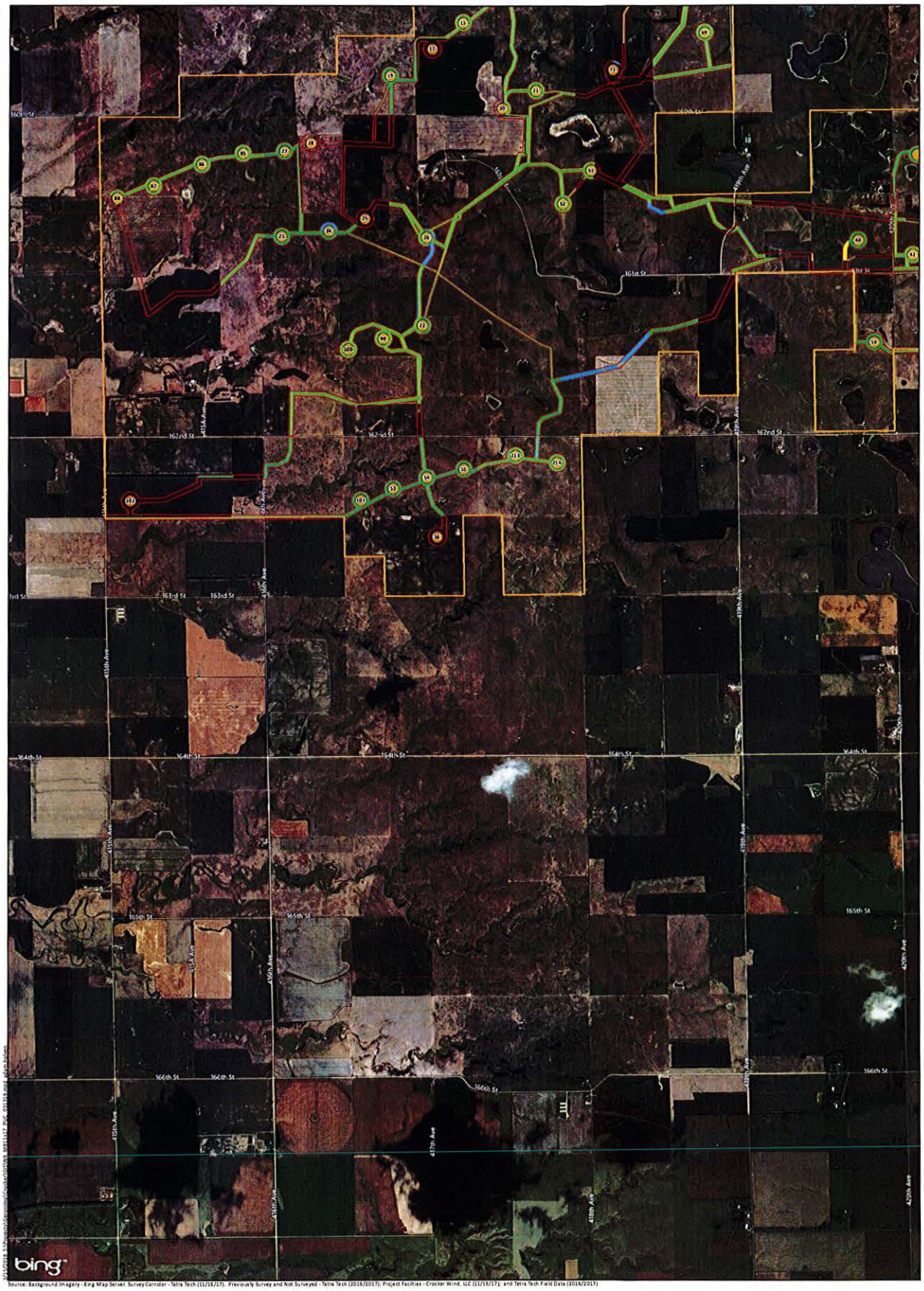
0 0.25 0.5 0.75 1 Miles

N

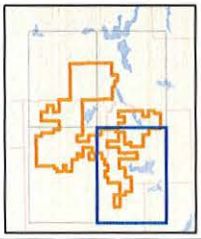
Map A2

Vegetation Community Quality Classification Interim Results
Crocker Wind Farm
Clark County, SD

CROCKER WIND FARM


bing
Source: Background Imagery - Bing Map Server. Survey Corridor - Tetra Tech (11/16/17); Previously Survey and Not Surveyed - Tetra Tech (2016/2017); Project Facilities - Crocker Wind, LLC (11/16/17); and Tetra Tech Field Data (2016/2017)
Tetra Tech Vegetation Quality Classification
Low (3-4)
Medium (5-7)
High (8-9)
Those parts of the survey corridor without a vegetation quality classification designation are cultivated cropland with no natural vegetation or have not been surveyed.
Project Area Boundary
Survey Status
Survey Corridor
Not Surveyed
Project Layout
Proposed Turbine
0 0.25 0.5 0.75 1
Miles
N
Map B1
Vegetation Community
Quality Classification
Interim Results
Crocker Wind Farm
Clark County, SD
CROCKER WIND FARM

Source: Background Imagery - Bing Map Server. Survey Corridor - Tetra Tech (11/16/17). Previously Survey and Not Surveyed - Tetra Tech (2016/2017). Project Facilities - Crocker Wind, LLC (11/16/17); and Tetra Tech Field Data (2016/2017)



Tetra Tech Vegetation Quality Classification

- Low (3-4)
- Medium (5-7)
- High (8-9)

Those parts of the survey corridor without a vegetation quality classification designation are cultivated cropland with no natural vegetation or have not been surveyed.

- Project Area Boundary

Survey Status

- Survey Corridor
- Not Surveyed

Project Layout

- Proposed Turbine

0 0.25 0.5 0.75 1 Miles

N

Map B2

Vegetation Community Quality Classification Interim Results
Crocker Wind Farm
Clark County, SD

CROCKER WIND FARM

SOUTH DAKOTA DEPARTMENT OF HEALTH

600 East Capitol Avenue | Pierre, SD 57501 P605.773.3361 F605.773.5683

Office of the Secretary

October 13, 2017

Public Utilities Commission Staff
SD Public Utilities Commission
Capitol Building, 1st floor
500 East Capitol Avenue
Pierre, SD 57501-5070

Re: PUC Docket EL17-028 - 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

Dear PUC Staff:

The South Dakota Department of Health has been requested to comment on the potential health impacts associated with wind facilities. Based on the studies we have reviewed to date, the South Dakota Department of Health has not taken a formal position on the issue of wind turbines and human health. A number of state public health agencies have studied the issue, including the Massachusetts Department of Public Health[1] and the Minnesota Department of Health[2]. These studies generally conclude that there is insufficient evidence to establish a significant risk to human health. Annoyance and quality of life are the most common complaints associated with wind turbines, and the studies indicate that those issues may be minimized by incorporating best practices into the planning guidelines.

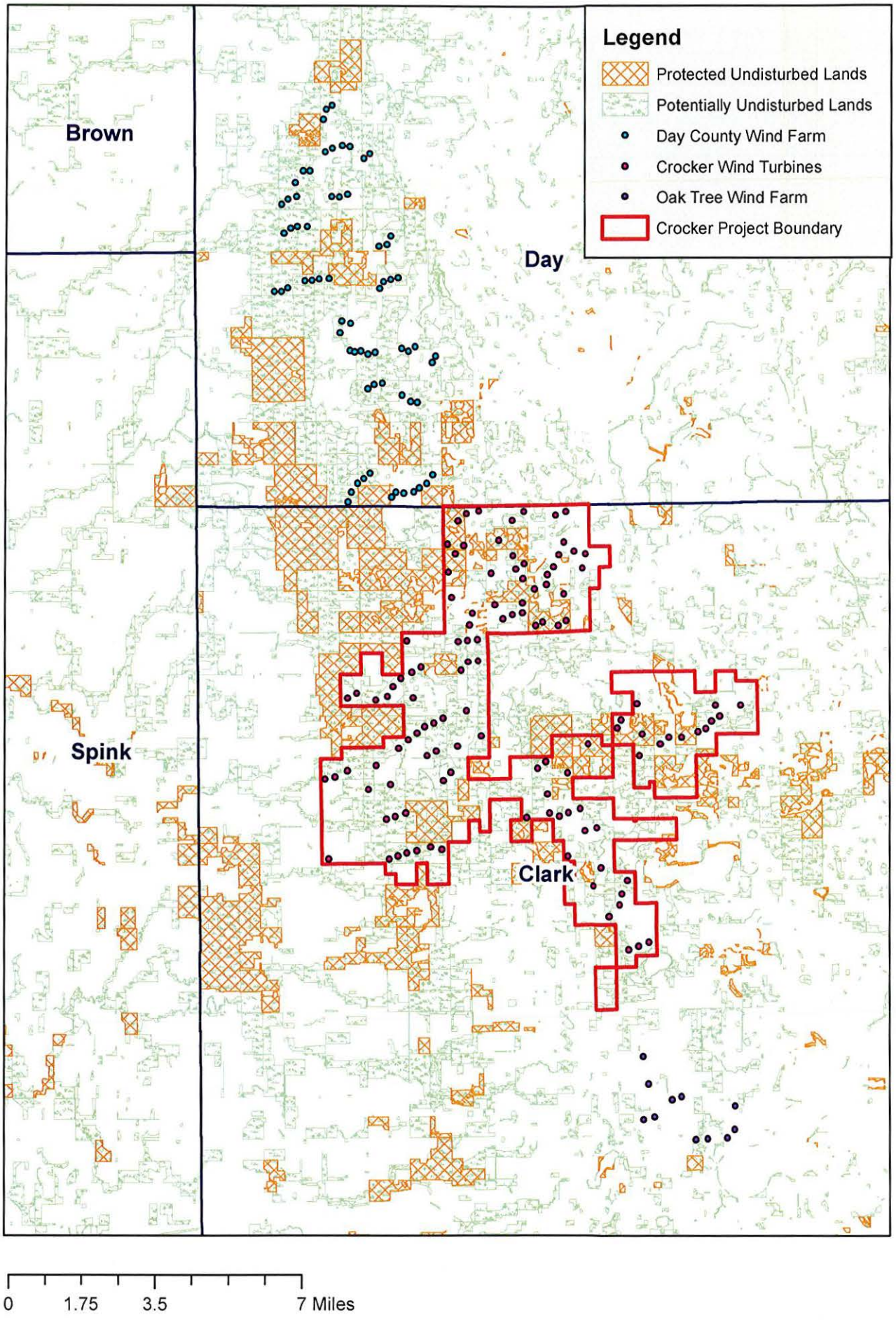
Sincerely,

Kim Malsam-Rysdon

Kim Malsam-Rysdon
Secretary of Health

[1] http://www.mass.gov/eea/docs/dep/energy/wind/turbine-impact-study.pdf

[2] www.health.state.mn.us/divs/eh/hazardous/topics/windturbines.pdf


Legend
Protected Undisturbed Lands
Potentially Undisturbed Lands
Day County Wind Farm
Crocker Wind Turbines
Oak Tree Wind Farm
Crocker Project Boundary
Brown
Day
Spink
Clark
0
1.75
3.5
7 Miles