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

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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
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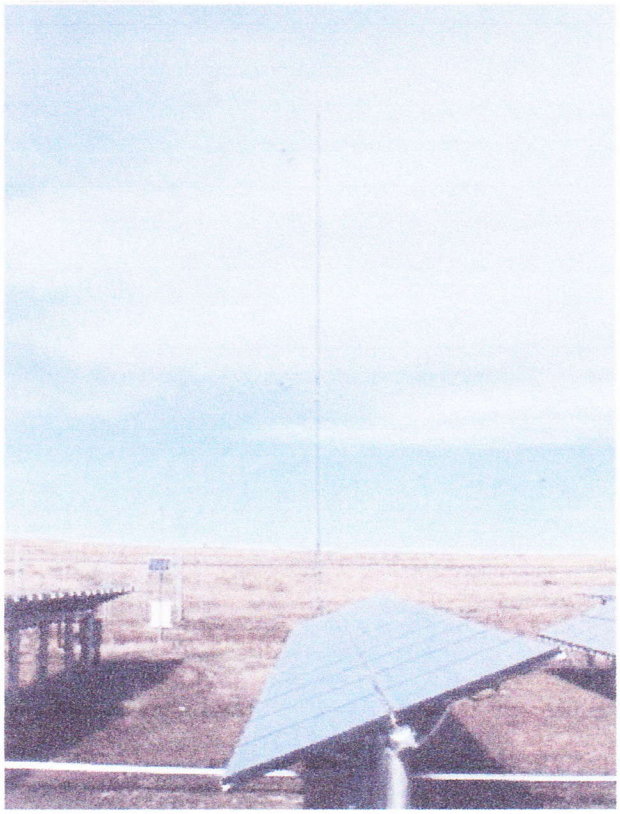
/s/ Mollie M. Smith
Mollie M. Smith

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."

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windAction

The WindAction Group (www.windAction.org)

Facts, analysis, exposure to industrial wind energy's real impacts

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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.

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[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

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Providing the Energy Industry Expert Advice for the Past 30 Years

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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