

Appendix C-2: RF Impact Report (September 9, 2011)



**ENGINEERING REPORT
CONCERNING THE EFFECTS UPON
FCC LICENSED RF FACILITIES
DUE TO CONSTRUCTION OF THE
STONERAY WIND ENERGY PROJECT
In
PIPESTONE & MURRAY COUNTIES, MINNESOTA**

Prepared for:

**enXco Development Corporation
Minneapolis, MN**

September 9, 2011

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I. INTRODUCTION

This engineering report describes the results of a study and analysis to determine the locations of federally-licensed (FCC) point-to-point microwave and fixed station radio frequency facilities that may be adversely impacted as a result of the construction of the Stoneray wind energy project in Pipestone and Murray Counties, Minnesota. This document describes impact zones and any necessary mitigation procedures, along with recommendations concerning individual wind turbine siting. All illustrations, calculations and conclusions contained in this document are subject to on-site verification¹.

Frequently, wind turbines located on land parcels near RF facilities can cause more than one mode of RF impact, and may require an iterative procedure to minimize adverse effects. This procedure is necessary in order to ensure that disruption of RF facilities either does not occur or, in the alternative, that mitigation procedures will be effective. The purpose of this study is to facilitate the siting of turbines to avoid such unacceptable impact.

The Stoneray wind project involves the construction of approximately 67 wind turbines located about 10 miles east of Pipestone, in Pipestone and Murray Counties, Minnesota. The wind turbine models proposed to be erected have a hub height of 80 meters above ground and a blade radius of 46.25 meters for a total maximum tip height of 126.25 meters AGL

Using industry standard procedures and FCC databases, a search was conducted to determine the presence of any existing microwave paths crossing the subject property, or land mobile or broadcast RF facilities within or adjacent to the identified area. A specific turbine layout has not

¹ The databases used in creating the attached tables and map are generally accurate, but anomalies have been known to occur. An on-site verification survey is suggested as part of the due diligence process.



been submitted for analysis. Accordingly, this report will address the blackout areas within which turbine siting should be avoided.

With respect to the broadcast facilities, pertinent TV, FM and AM stations were reviewed, and the potential impact to the service areas of those broadcast facilities is discussed herein.

The following tabulation and analysis consists of four sections:

1. Microwave point-to-point path analysis²
2. Land mobile, public safety and other communications tower sites
3. Airport, Cellular and Radar
4. Broadcast television and radio analysis
5. NTIA Notification

The attached figures were generated based upon the operating parameters of the FCC-licensed stations as contained in the FCC station database.

The following analysis examines the pertinent FCC licensed services in the area for impact. This analysis assumes that all licensed services have been designed and constructed according to FCC requirements and good engineering practice. If this is not the case, the impacted facility must share responsibility with the wind project developer for the costs of any mitigation measures³.

Each of the RF analyses is described separately in the sections that follow.

II. ANALYSIS OF MICROWAVE LINKS

An extensive analysis was undertaken to determine the likely effect of the new wind turbine farm upon the existing microwave paths, consisting of a Fresnel x/y axis study. The microwave paths have been overlaid on Google Earth™ maps, and the images of the microwave paths and the proposed turbines also available as KMZ and GIS shape files.

Important Note: Microwave path studies are based upon third party and FCC databases that normally exhibit a high degree of accuracy and reliability. Although Evans performs due diligence to ensure that all existing microwave facilities are represented, we cannot be

² Only point-to point microwave facilities were considered (for instance, a study of earth station facilities is not included).

³ For instance, some microwave paths may have insufficient ground clearances as they are presently configured.



responsible for errors in FCC databases that may lead to incomplete results. However, should such situations occur, Evans would perform an engineering analysis to determine how the additional facilities can be accommodated or, if wind turbine structures are already built, determine a method to re-direct the offending beam path. It is recommended that a qualified communications engineer visit the site to visually check for anomalies.

For this microwave study, *Worst Case Fresnel Zones* (WCFZ) were calculated for each microwave path. The mid-point of a microwave path is the location where the widest (or worst case) Fresnel zone occurs. Possible geographic coordinate errors must be added to the Fresnel zone clearance numbers⁴. The radius R of the Worst Case Fresnel Zone, in meters, is calculated for each path using the following formula:

$$R \cong 8.65 \sqrt{\frac{D}{F_{\text{GHz}}}}$$

where D is the microwave path length in kilometers and F_{GHz} is the frequency in gigahertz.

In general, the WCFZ is defined by the cylindrical area whose axis is the direct line between the microwave link endpoints and whose radius is R as calculated above. This is the zone where the siting of obstructions should be avoided. Evans Engineering Solutions has identified and tabulated 17 licensed microwave links existing in the FCC database, listed in Table 1, that traverse or come close to the project area. The links that traverse the project area are highlighted in yellow.

⁴ Many microwave facilities were built before accurate methods were available to establish exact geographic coordinates (such as GPS). It is not unusual for database errors of up to 4 or 5 seconds to occur, which can effect the positioning of critical turbines located near Fresnel paths.



ID	Call Sign	Name Site 1	Name Site 2	Freq.(MHz)	Licensee	WCFZ (m)
5	WQAW725	Slayton	Chandler	6615	State of Minnesota	15.2
6	WQGD798	RTR HS	Holland RPT	10795	Trillion Partners Inc.	11.7
7	WQGD800	Holland RPT	RTR ES	17800	Trillion Partners Inc.	5.8
8	WQGD800	Holland RPT	RTR HS	11285	Trillion Partners Inc.	11.4
9	WQGD800	Holland RPT	Woodstock RPT	18000	Trillion Partners Inc.	6.6
10	WQGD808	Woodstock RPT	Edgerton HS	18080	Trillion Partners Inc.	7.9
11	WQGD808	Woodstock RPT	Holland RPT	19560	Trillion Partners Inc.	6.4
12	WQGD808	Woodstock RPT	Pipestone Schools	10795	Trillion Partners Inc.	11.5
13	WQGE405	RTR ES	Holland RPT	19360	Trillion Partners Inc.	5.6
14	WQGF430	Edgerton HS	Woodstock RPT	19640	Trillion Partners Inc.	7.6
15	WQGK770	Pipestone Schools	Woodstock RPT	11285	Trillion Partners Inc.	11.2
16	WQJV218	Chandler	Slayton	6775	State of Minnesota	15
17	KIN51	Pipestone	Chandler	947.5	Wallace Christensen	51.4
19	WPJF922	Pipestone	Chandler	946.5	Wallace Christensen	51.5
20	WPNE586	Ivanhoe	Chandler	7025	West Central MN Educ TV Corp	26.4
21	WPNE587	Chandler	Ivanhoe	6875	West Central MN Educ TV Corp	26.6
22	WPNN681	Chandler	Pipestone	951.375	Wallace Christensen	51.3

Table 1 – Licensed Microwave Links in and near Wind Project Area

Each of the links listed above is paired with one other link in the list along a common path but transmitted in the opposite direction. Thus, there are seven unique microwave paths traversing the project area.

The following Figure 1 shows the project area, along with the microwave paths.

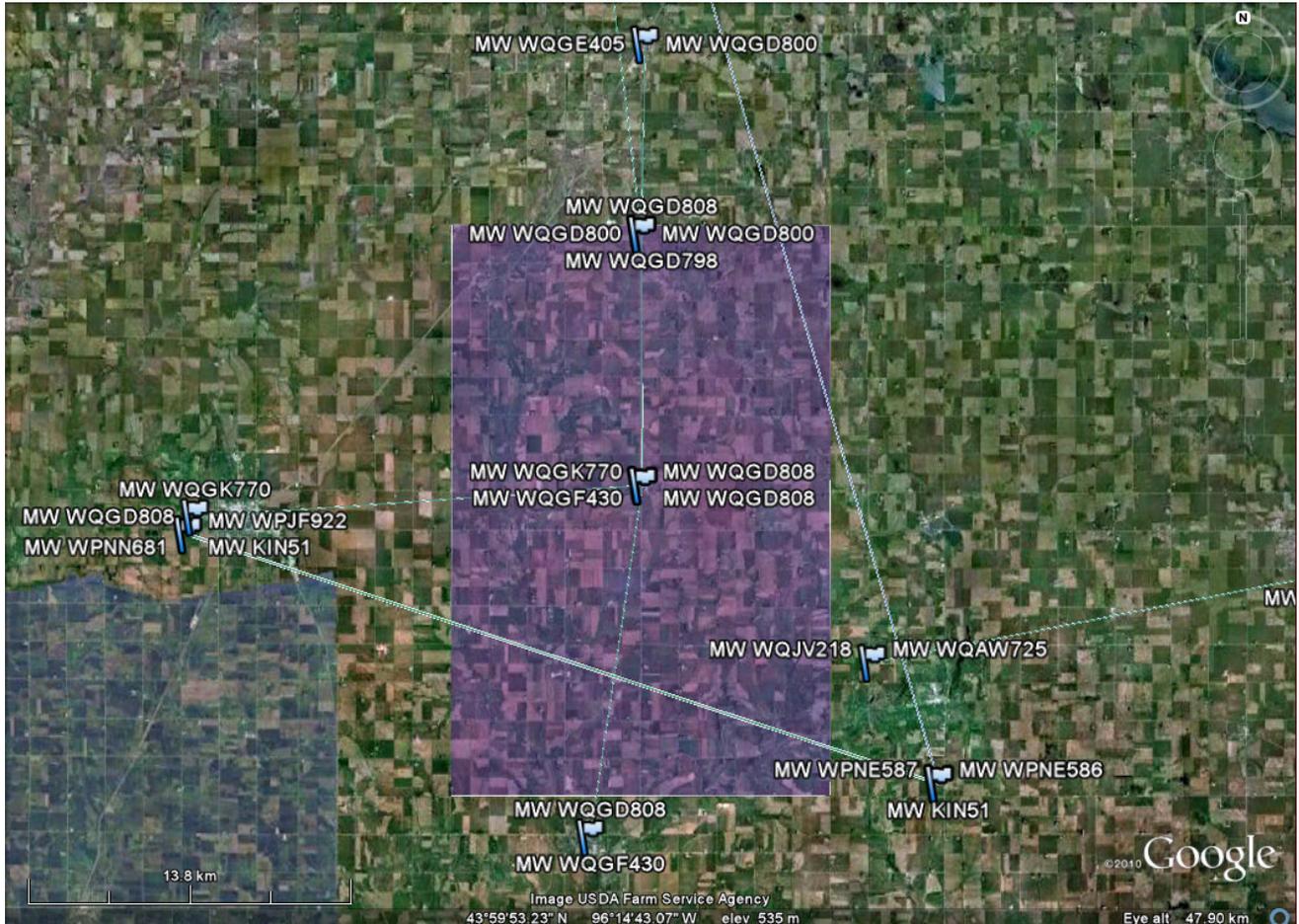


Figure 1 – Licensed Microwave Paths in and near Stoneray Project Area

The microwave paths that cross the project area create “blackout” zones within which no turbines should be constructed. No turbine should be spaced less than a distance equal to the WCFZ radius of the nearby microwave path plus the rotor radius from the microwave path centerline, as measured horizontally from the center of the turbine tower footprint to the center of the microwave path.

The reader is referred to the provided KMZ and GIS shape files for more magnification and closer inspection.



III. ANALYSIS OF FIXED RADIO FACILITIES

3.1 Land Mobile & Public Safety Facilities

There are 36 land mobile and/or public safety stations identified from the FCC's database that fall within the search area (within about two miles beyond the project boundaries). The list of land mobile sites is shown in Table 2 below and mapped in Figure 2. Land mobile or public safety stations whose transmitters are within 400 meters of a planned turbine would normally be analyzed in detail for turbine disturbances to signal transmissions. There appears to be 14 licensed land mobile stations inside the project area, which are highlighted in yellow.



Call Sign	Latitude (NAD-83)	Longitude (NAD-83)	Ant. Ht. (m AGL)	Freq. (MHz)	Licensee
KAD529	43.94275	95.98170	36/52	154.665	State of Minnesota
KAN306	43.94164	95.98919	61	155.67	County of Murray
KBM451	43.87914	96.13364	24	155.22	Independent School District 581
KGT505	43.94275	95.98197	60	151.115	State of Minnesota
KNAQ463	44.02847	95.98114	15	153.185	Mcbeth Farms
KNFE837	43.96942	95.99197	18	154.145	City of Chandler
KNFJ347	43.93339	96.24325	30.4	151.025	County of Pipestone
KNID470	44.01580	96.10558	18	154.49	Aleanor Kruisselbrink
WNFN460	43.94275	95.98197	38	160.95	State of Minnesota
WNIW915	43.99858	96.08781	13	452.075	Raymond Pierson
WNJP700	44.10219	96.13614	20	451.975	Arvin H Pater
WNJX283	43.88775	96.22447	27	463.9	Gary Griebel
WNLY585	43.87941	96.13447	12	153.125	Four County Cooperative
WNLY985	44.08303	96.18364	43	461.425	Bornhoft Concrete, Inc.
WNMY505	44.12053	96.12086	51	463.725	M & H 2 Way Radio Inc
WNSA556	43.90775	95.99780	24	463.575	Rahn Farms
WNVJ315	43.92886	96.10030	17	151.58	Dale Schuld
WNVN273	43.96942	95.99197	41	154.145	County of Murray
WNYR677	43.90581	96.14197	15	173.3375	Lincoln Pipestone Rural Water System
WPFY642	44.09081	96.18586	41	155.925	County of Pipestone
WPGV229	43.99386	96.14391	15	173.3375	Lincoln Pipestone Rural Water System
WPHK374	44.06580	96.23197	12	159.585	John Griebel
WPHK374	43.96247	96.19947	12	159.585	John Griebel
WPPX829	44.10830	96.24197	40	153.605	Lincoln Pipestone Rural Water System
WPSS407	43.94283	95.98209	60.1	855.9875	State of Minnesota
WPTN695	44.12055	96.12056	38	151.235	County of Pipestone
WPTN695	43.93339	96.24325	82.3	151.235	County of Pipestone
WPXF291	44.00000	96.13333	25.4	44.58	BNSF Railway Co
WPXG310	43.94028	96.20472	21	463.2	Marc Nikkle
WPZN322	44.09014	96.19286	27.4/36.6	160.59	BNSF Railway Co
WQJL984	44.06464	96.05936	60.7	464.85	Iberdrola Renewables
WQKZ777	43.93347	96.24355	60.9	851.45	State of Minnesota
WQKZ777	43.94333	95.98222	57	851.425	State of Minnesota
WQKZ777	44.12111	96.12156	60.9	851.75	State of Minnesota
WQLY996	43.90614	96.14161	12.1	159.855	Lincoln Pipestone Rural Water System
WQMY793	43.88550	96.10403	12	463.8875	Corey Van Stelten

Table 2 – Land Mobile Stations in and Near Wind Project Area

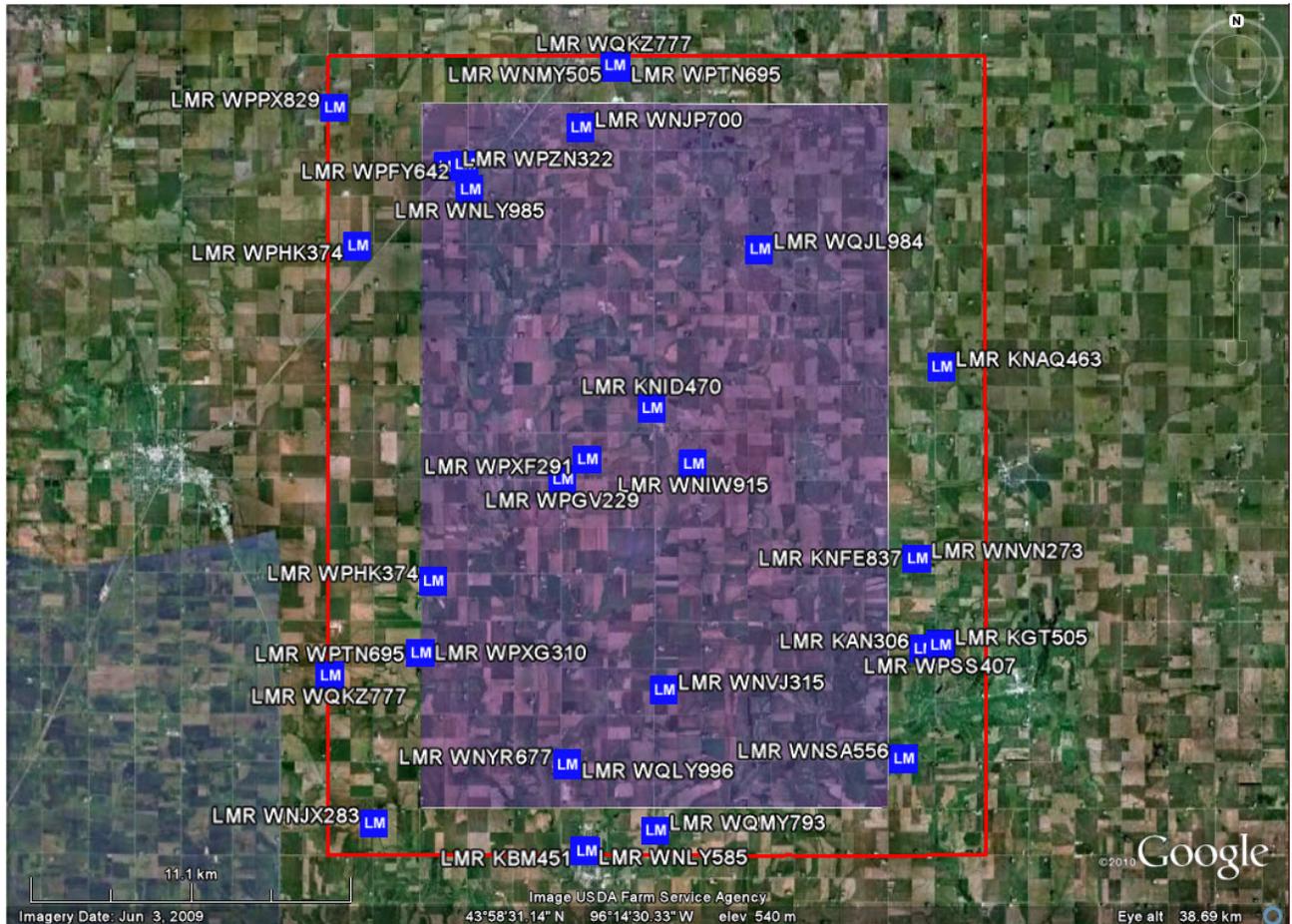


Figure 2 – Land Mobile Stations in and Near Wind Project Area

No adverse impact is expected to be caused to land mobile or public safety stations that are at least 400 meters from the land mobile sites. If a turbine must be within 400 meters of a confirmed land mobile site, the potential for interference should be investigated in more detail.

It is recommended that the locations and operational status of potentially-affected land mobile stations be verified through a site visit.



3.2 Other Communications Sites

A search of the FCC antenna structure database revealed the following other communications sites which have not been identified in the microwave and land mobile sections of this report:

FCC Registr. #	Owner	Location	Coordinates	Height AGL (m)
1023797	Midwest Wireless Comm.	Pipestone, MN	43-58-50.6; 96-12-28.4	143.3
1244683	Midwest Wireless Comm.	Edgerton, MN	43-51-53.0; 96-08-07.2	80.8
1272698	Skyway Towers	Lake Wilson, MN	43-59-40.0; 95-58-19.0	96.0

Table 3 – Other Communications Towers in Vicinity of Project Area

The above structures, although located outside the project area, might contain microwave antennas that are unlicensed and thus would not be uncovered in the microwave analysis in Section II of this report. It is highly recommended that an on-site visit be done to examine these and other sites for unlicensed microwave antennas that might impact wind turbine siting in the project area.

A search in the FCC’s database for individually licensed cellular base stations was also conducted. These sites are not registered in the FCC antenna structure database. Rather than being listed in this report, they can be found in the associated KMZ file. Like the registered towers listed in Table 3, undocumented microwave antennas might be collocated on these cell sites, and these sites should be visited and examined for that possibility.

Not all communications towers less than 200 feet are registered with the FCC, and not all cellular base station towers are individually licensed by the FCC. It is recommended that undocumented communications towers, as well as undocumented microwave antennas that might be on them, be searched for during the physical site visits.



Figure 3 shows the locations of the registered towers and the licensed cellular base station sites. The registered towers are shown as round markers and the cell sites are shown as square markers.

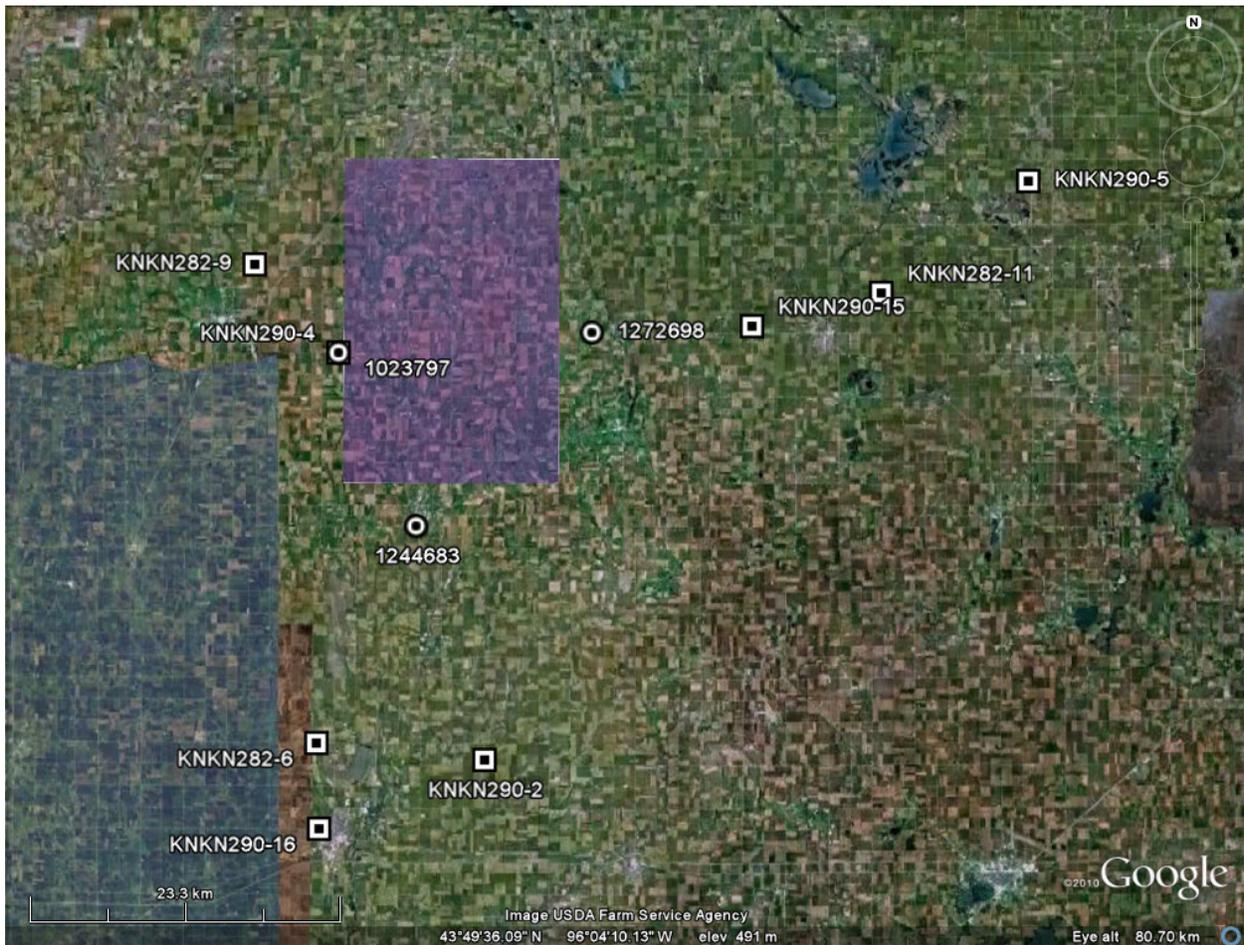


Figure 3 – Registered Towers & Licensed Cell Sites near Wind Project Area



IV. AIRPORT, CELLULAR & RADAR

4.1 Airports Near Project Area

The following airports are within 20 nautical miles from the geographical center of the Stoneray project area:

Airport ID	Name	Location	Coordinates	Dist. (NMi)	Azimuth (°T)
PQN	Pipestone Municipal	Pipestone, MN	43-58-55.7; 96-18-01.5	8.57	262.4
DVP	Slayton Municipal	Slayton, MN	43-59-12.5; 95-46-57.4	13.95	93.6
63Y	Tyler Municipal	Tyler, MN	44-17-29.9; 96-09-01.1	17.56	353.5

Table 4 – Airports near Wind Project Area

The 7460-1 evaluation process is the final determination of the impact, if any, to airspace navigation.

4.2 Cellular Reception

There is no credible evidence known by this writer to suggest that cell phone reception has been a problem in and around wind turbines. Thus, further study on this issue is not warranted. Since cell phone service is mobile by design, the transmissions should theoretically not be significantly affected. In addition, cellular antennas employ diversity and multiple receivers to compensate for any disruptions at any one location. Based on the best information available on existing similar wind projects, the impact to cellular phone operation is not likely to be significant for this project.



4.3 DoD Radar Concerns

The Department of Defense (DoD) and the Department of Homeland Security *Long Range Radar Joint Program Office* “JPO” has adopted a “pre-screening tool” to evaluate the impact of wind turbines on air defense long-range radar. This tool was applied to the Stoneray project area and the results are shown in Figure 4. However, a definitive determination is obtained only after formal study by the DoD, which is triggered by the FAA 7460-1 notification process.

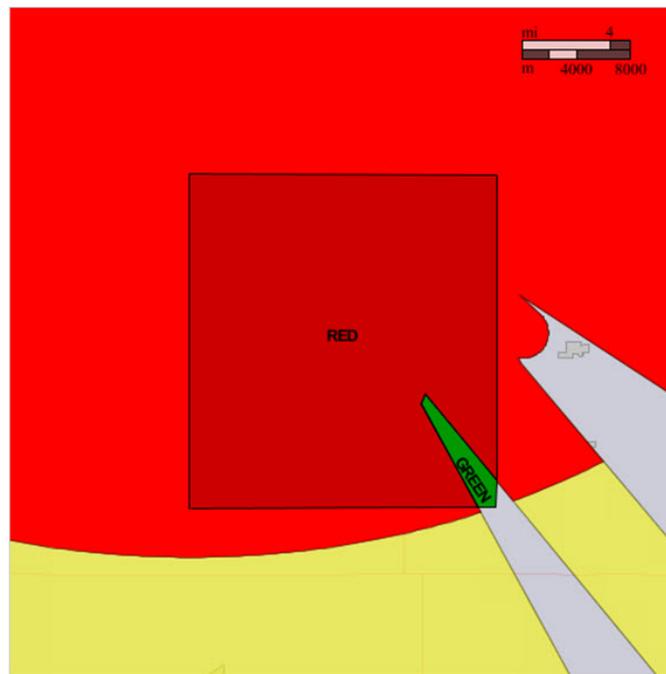


Figure 4 – Long-Range Radar Screening for Stoneray Wind Project Area

Green: No anticipated impact to Air Defense and Homeland Security radars.

Yellow: Impact likely to Air Defense and Homeland Security radars. Aeronautical study required.

Red: Impact highly likely to Air Defense and Homeland Security radars. Aeronautical study required.⁵

⁵ Map legend references from the FAA’s screening tool.



4.4 NEXRAD

A pre-screening tool has been developed to evaluate the potential impact of obstructions to the NEXRAD Weather Surveillance Doppler Radar Stations. This tool was applied to the Stoneray project area and the results are shown in Figure 5. However, a definitive determination is obtained only after the NTIA review process.

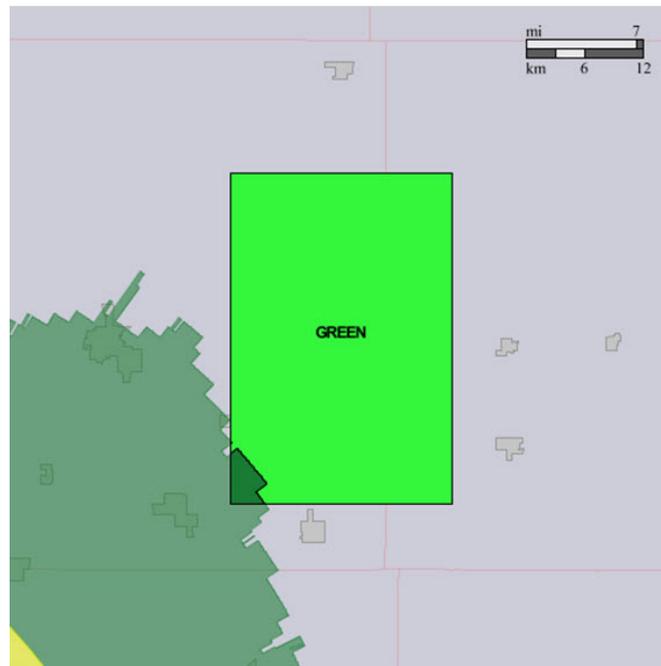


Figure 5 – NEXRAD Weather Radar Screening for Stoneray Project Area

Green: No Impact Zone. Impacts not likely. NOAA will not perform a detailed analysis but would still like to know about the project.

Dark Green: Notification Zone. Some impacts possible. Consultation with NOAA is optional, but NOAA would still like to know about the project.⁶

The NOAA will be notified of the project through the NTIA notification process.

⁶ Map legend references from the FAA's screening tool.



V. ANALYSIS OF BROADCAST FACILITIES

5.1 HDTV Broadcast Facilities

The rotating blades of a wind turbine have the potential to disrupt over-the-air broadcast TV reception within a few miles of the turbine, especially when the direct path from the viewer's residence is obstructed by terrain. This is manifest in an analog TV picture by a flickering or tearing of the image in time with the blade rotation, which is caused by signals reflected by the blades arriving at the viewer's TV antenna at the same time as the direct signal. This is known as "multipath interference." However, as turbine manufacturers have replaced all-metal blades with blades constructed of mostly nonmetallic materials⁷, this effect has been reduced. Also, the new generation of HDTV receivers is better equipped to deal with minor multipath interference (which is manifested by "pixilating" or "freezing" of the digital picture) than analog TV sets, as special circuitry is employed to suppress the reflected signal. Occasionally, however, multipath interference from one or more turbines can cause video failure in HDTV receivers, especially if the receiver location is in a valley or other place of low elevation.

The authority to transmit analog TV signals ended on June 12, 2009. For this reason, analog facilities have not been considered in these analyses.

Pipestone and Murray Counties are in the Sioux Falls (Mitchell), SD Designated Market Area (DMA) as defined by Nielsen Media Research. About half of the full service digital TV facilities in the Sioux Falls DMA, at their final authorized DTV transmitting facilities, have been determined to place a predicted FCC primary service signal over the turbine area. These full-power stations are listed in Table 5.

⁷ Modern turbine blades are usually constructed from glass-reinforced plastic (GRP), although they usually contain some metal for strengthening, balance and grounding.



Call Sign	Network Affiliate	Channel	City of License	Power (KW)	Ant. Height (m HAAT)	Dist. (km)	Azimuth (°T)
KTTW	Fox	7	Sioux Falls, SD	7.5	217.6	66.7	214.6
KESD-TV	PBS	8	Brookings, SD	15.0	229	97.4	293.0
KELO-TV	CBS	11	Sioux Falls, SD	30	610	63.8	213.1
KSFY-TV	ABC	13	Sioux Falls, SD	22.7	610	63.8	213.1
KSMN*	PBS	15	Worthington, MN	200	290	17.0	132.2
KCSD-TV	PBS	24	Sioux Falls, SD	80.9	75	64.9	223.3
KWSD**	CW	36	Sioux Falls, SD	36.9	230	66.7	214.6
KDLT-TV	NBC	47	Sioux Falls, SD	1000	608	66.0	213.6

*Has CP to increase power to 1000 KW ERP.

**Has CP to increase power to 400 KW ERP.

Table 5 – HDTV Stations Serving Wind Project Area

There is some possibility of signal disruption for residences that have to point their outdoor antennas through the turbine area, or that utilized “rabbit ear” antennas, or that utilized older HDTV receivers. Most of this effect should be dissipated for locations three or more miles from a turbine, but some residual problems could be noted for HDTV receivers that are located below the grade level at the turbine base. Usually, a rule of thumb is that approximately 10% of the receiver locations are affected to some extent within three miles of a large turbine. The usual effect is intermittent “pixilation” or freezing of the digital TV picture. This estimate is based upon Evans Engineering Solutions’ experience with similar wind energy projects.

If the Stoneray wind project should cause disruptions to TV viewing, methods to resolve them are available, and include the following:

1. Relocation of the household antenna to receive a better signal
2. Installation of a better outside antenna, or one with a higher gain
3. Installation of satellite or cable TV

Mitigation would consist of the installation of a rooftop high-gain antenna in the nominal case, and providing a satellite receiver dish or cable hookup in the worst case. The cost of a high-gain TV antenna, installed, would be about \$200. The annual cost of a satellite TV subscription is about \$400 (for 50 or more channels including local stations) and the annual cost of a basic cable TV package is about \$200.



According to this engineer’s calculations, there are about 1,600 households within an area likely to be affected.⁸ This assumes that the entire Stoneray project area is populated with wind turbines. It is conservatively estimated that at least 40% of the households in the area are served by cable or satellite TV and thus would not be affected by wind turbine disruption. Based on the 10% criteria described previously, under a worst-case scenario, up to 96 TV households may be affected. This estimate is based on worst-case assumptions with the actual turbine locations not taken into account.

5.2 FM Facilities

The full-service FM stations that place a predicted primary signal over at least part of the project area are listed in the following Table 6.

Call Sign	Format	Freq. (MHz)	City of License	Power (KW)	Ant. Height (m HAAT)	Dist. (km)	Azimuth (°T)
KRSW	Classical	89.3	Worthington, MN	100	169	19.2	132.8
KNSW	News/Talk	91.7	Worthington-Marshall, MN	99	243	19.2	132.8
KELO-FM	AC	92.5	Sioux Falls, SD	100	555	63.8	213.1
KWOA-FM	Classic Hits	95.1	Worthington, MN	100	198	53.7	139.9
KNWC-FM	Christian	96.5	Sioux Falls, SD	100	488	63.8	213.1
KMXC	AC	97.3	Sioux Falls, SD	100	256	84.5	249.4
KISD	Oldies	98.7	Pipestone, MN	100	309	17.0	132.2
KKCK	Hot AC, Rock	99.7	Marshall, MN	100	282	35.7	331.3
KLQL	County & Western	101.1	Luverne, MN	100	162	23.1	200.9
KTWB	Country	101.9	Sioux Falls, SD	34	177	69.0	246.6
KKLS-FM	CHR	104.7	Sioux Falls, SD	100	299	84.6	249.5
KARL	Hot Country	105.1	Tracy, MN	45	153	40.6	27.1
KJOE	Country	106.1	Slayton, MN	13	296	17.0	132.2
KARZ	Classic Rock	107.5	Marshall, MN	15	131	40.6	27.1
KXQL	Oldies	107.9	Flandreau, SD	21	232	57.6	266.4

AC is Adult Contemporary, CHR is Contemporary Hits Radio

Table 6 – FM Stations Serving Wind Project Area

Because of the “capture effect” supported by the “discriminator” in FM receivers, significant disruptions to the above facilities are not expected. Although the received signal may vary with the blade rotation at some receive locations in the immediate area, good quality FM receive radios will most likely factor out such time-varying signals. In those relatively few cases where

⁸ This calculation should be revisited when the turbine locations have been determined.



significant impact is caused, home FM radios could be connected to the rooftop TV receive antennas to pull in a stronger direct signal.

5.3 AM Facilities

A search of the FCC's database revealed no AM facilities within the required notification distance of 3 kilometers beyond the wind project boundaries.

There should therefore be no reasonable expectations of disruptions in transmitted radiations on the AM band due to the presence of the turbines. Occasionally, depending upon ground conditions, local AM receivers may experience slight signal changes due to local effects, but such anomalies are not recognized by the FCC or the standards of good engineering practice.

VI. NTIA NOTIFICATION

Operation of RF frequencies for federal government use is managed by the National Telecommunication Information Agency (NTIA), which is part of the U.S. Department of Commerce. The technical specifications for most government facilities are unavailable to the public. In order to avoid the derailment of the wind energy project due to late objections from a government agency, the NTIA should be notified of the proposed project during pre-construction planning. The NTIA has set in place a review process, wherein the Interdepartmental Radio Advisory Committee (IRAC), consisting of representatives from various government agencies, reviews new proposals for wind turbine projects for impact on government frequencies. In almost all cases, no adverse impact is found, and IRAC usually issues a determination in 45 to 60 days.

On September 9, 2011, this office sent a notification of the proposed Stoneray wind project to the NTIA, and a determination is expected by the beginning of November, 2011.



VII. CONCLUSIONS AND RECOMMENDATIONS

1. There are seven FCC-licensed microwave path that would create a blackout zone in the Stoneray wind project area (see Section II of this report).
2. If an excessive amount of time goes by before the turbines are to be constructed (six months or more), it is recommended that the microwave study be updated in case new paths have been added to the FCC's database.
3. According to the FCC database, there are 14 land mobile transmitter sites located inside the project area. No land mobile stations are expected to be adversely affected if no turbines are placed less than 400 meters from a land mobile station.
4. TV interference due to operating wind turbines could occur at up to 96 households, assuming that the entire project area is populated with turbines. This estimate should be refined when the turbine layout has been determined.
5. Mitigation measures are expected to be available for all broadcast reception anomalies, with satellite or cable service installation providing the worst-case solution.
6. An on-site inspection of the Stoneray wind project area should be done to determine the existence of any undocumented communications towers and antennas, including microwave and cellular, and to confirm the locations of potentially affected land mobile and microwave stations.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "B. Benjamin Evans".

B. Benjamin Evans, P.E.
RF Impact Consultant,

September 12, 2011

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

NOV - 9 2011

Mr. B. Benjamin Evans
Sr. Engineer & Consultant
Evans Engineering Solutions
216 N. Green Bay Road, Ste. 205
Thiensville, WI 53092-1905

Re: Stoneray Project: Pipestone & Murray Counties, MN

Dear Mr. Evans:

In response to your request on September 9, 2011, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Stoneray Wind Energy Project, located in Pipestone & Murray Counties, Minnesota.

After a 45 day period of review, no federal agencies identified any concerns regarding blockage of their radio frequency transmissions.

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,

Edward M. Davison
Deputy Associate Administrator
Office of Spectrum Management