

Wind Power GeoPlanner™

AM and FM Radio Report

Deuel Harvest North



Prepared on Behalf of
Invenergy LLC

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COMSEARCH
A CommScope Company

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1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Deuel Harvest North wind energy project in Deuel County, South Dakota.

2. Summary of Results

AM Radio Analysis

Comsearch found seven database records¹ for AM stations within approximately 30 kilometers of the project, as shown in Table 1 and Figure 1. These records represent three distinct licensed stations: KMSD, which broadcasts out of Milbank, South Dakota, to the north of the project area, and KSDR and KWAT, out of Watertown, to the west. All three stations are licensed separately for daytime and nighttime operations.

ID	Call Sign	Status ²	Frequency (kHz)	Transmit ERP ³ (kW)	Operation Time	Latitude (NAD 27)	Longitude (NAD 27)	Required Separation Distance ⁴ (km)	Distance to Project AOI (km)
1	KMSD	LIC	1510	5.0	Daytime	45.194444	-96.639167	0.20	23.08
2	KMSD	LIC	1510	0.014	Nighttime	45.194444	-96.639167	0.20	23.08
3	KMSD	LIC	1510	1.0	Critical Hrs.	45.194444	-96.639167	0.20	23.08
4	KSDR	LIC	1480	1.0	Daytime	44.932778	-97.105278	0.20	26.00
5	KSDR	LIC	1480	0.05	Nighttime	44.932778	-97.105278	0.20	26.00
6	KWAT	LIC	950	1.0	Daytime	44.870000	-97.113611	3.00	26.69
7	KWAT	LIC	950	1.0	Nighttime	44.870000	-97.113611	3.00	26.69

Table 1: AM Radio Stations within 30 Kilometers of Project Area

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf. The coordinates provided for AM station KVWC were adjusted slightly based on aerial imagery.

² LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

³ ERP = Transmit Effective Radiated Power.

⁴ The required separation distance is based on the lesser of 10 wavelengths or 3 kilometers for directional antennas and 1 wavelength for non-directional antennas.

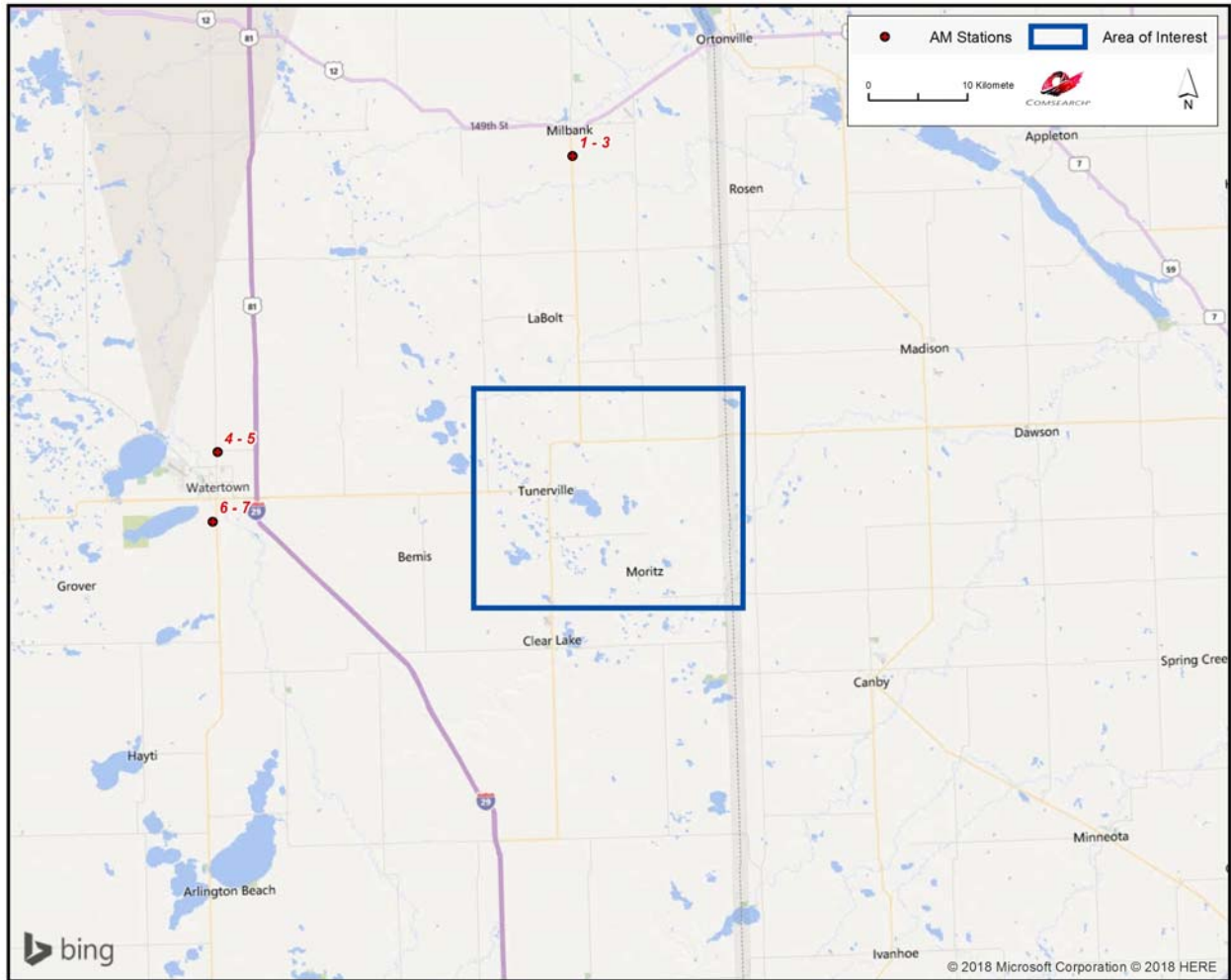


Figure 1: AM Radio Stations within 30 Kilometers of Project Area

FM Radio Analysis

Comsearch determined that there were seventeen database records for FM stations within 30 kilometers of the Deuel Harvest North wind energy project, as shown in Table 2 and Figure 2. Only fifteen of these stations are currently licensed and operating, six of which are translators that broadcast with limited range.

ID	Call Sign	Status ⁵	Service ⁶	Frequency (MHz)	Transmit ERP ⁷ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Project AOI (km)
1	KJSD	LIC	FM	90.3	10.5	45.019389	-96.945194	13.83
2	KXLG	LIC	FM	99.1	37.0	45.019444	-96.945278	13.84
3	KDBX	LIC	FM	107.1	9.8	44.612222	-96.678056	18.52
4	KLQP	LIC	FM	92.1	25.0	45.026389	-96.191389	19.84
5	K263AL	LIC	FX	100.5	0.25	45.132778	-96.285833	20.11
6	KDBX	CP	FM	107.1	9.9	44.593611	-96.663889	20.59
7	KPHR	LIC	FM	106.3	100.0	45.104722	-96.988056	21.24
8	K252FB	LIC	FX	98.3	0.25	45.194444	-96.639167	23.08
9	K236CU	CP	FX	95.1	0.25	45.195000	-96.638056	23.14
10	K262CK	LIC	FX	100.3	0.25	45.220278	-96.649722	25.95
11	KPGT	LIC	FM	89.1	0.2	44.899167	-97.105000	26.00
12	K220IT	LIC	FX	91.9	0.079	44.906389	-97.105556	26.04
13	K211EC	LIC	FX	90.1	0.1	44.860556	-97.106667	26.15
14	K278BK	LIC	FX	103.5	0.25	44.871111	-97.109444	26.36
15	KKSD	LIC	FM	104.3	100.0	45.175000	-96.987222	26.73
16	KSDR-FM	LIC	FM	92.9	100.0	45.175278	-96.987500	26.77
17	KIXX	LIC	FM	96.1	100.0	45.175278	-96.987500	26.77

Table 2: FM Radio Stations within 30 Kilometers of Project Area

⁵ LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

⁶ FM = FM broadcast station; FX = FM translator station; FL = Low-power FM station; FS = FM auxiliary (backup) station; FB = FM booster station.

⁷ ERP = Transmit Effective Radiated Power.

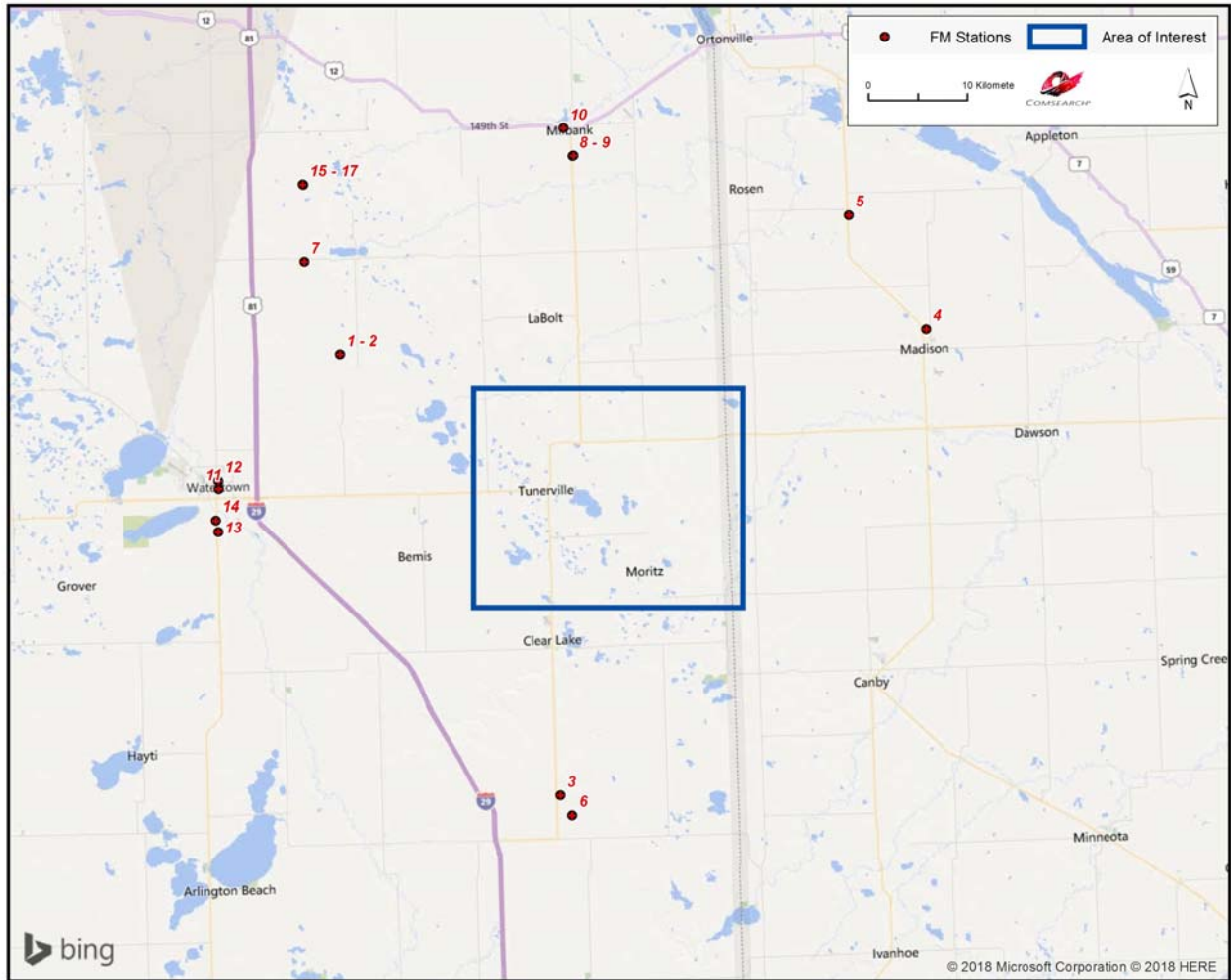


Figure 2: FM Radio Stations within 30 Kilometers of Project Area

3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from wind turbine towers. The closest AM station to the Deuel Harvest North wind energy project, KMSD, is more than 23.0 kilometers from limit of the project area. As there were no stations found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by wind turbines, especially when large objects, such as wind turbines, are sited in the *far field* region of the radiating FM antenna in order to avoid the risk of distorting the antenna's radiation pattern. The closest operational FM station to the Deuel Harvest North wind energy project, KJSD, is approximately 13.8 kilometers from the project area. At this distance, there should be adequate separation to avoid radiation pattern distortion.

4. Recommendations

Since no impact on the licensed and operational AM or FM broadcast stations was identified in our analysis, no recommendations or mitigation techniques are required for this project.

5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

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