Wind Power GeoPlanner™

Off-Air TV Analysis

GSG Repower

Prepared on Behalf of
GSG Wind, LLC

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COMSEARCH®
A CommScope Company

Table of Contents

1. Introduction

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those off-air stations whose service could potentially be affected by the proposed GSG Repower wind project in Lee and LaSalle Counties, Illinois. Comsearch then examined the coverage of the stations and the communities in the area that could potentially have degraded television reception due to the location of the proposed wind turbines.

2. Summary of Results

The proposed wind energy project area and local communities are depicted in Figure 1, below.

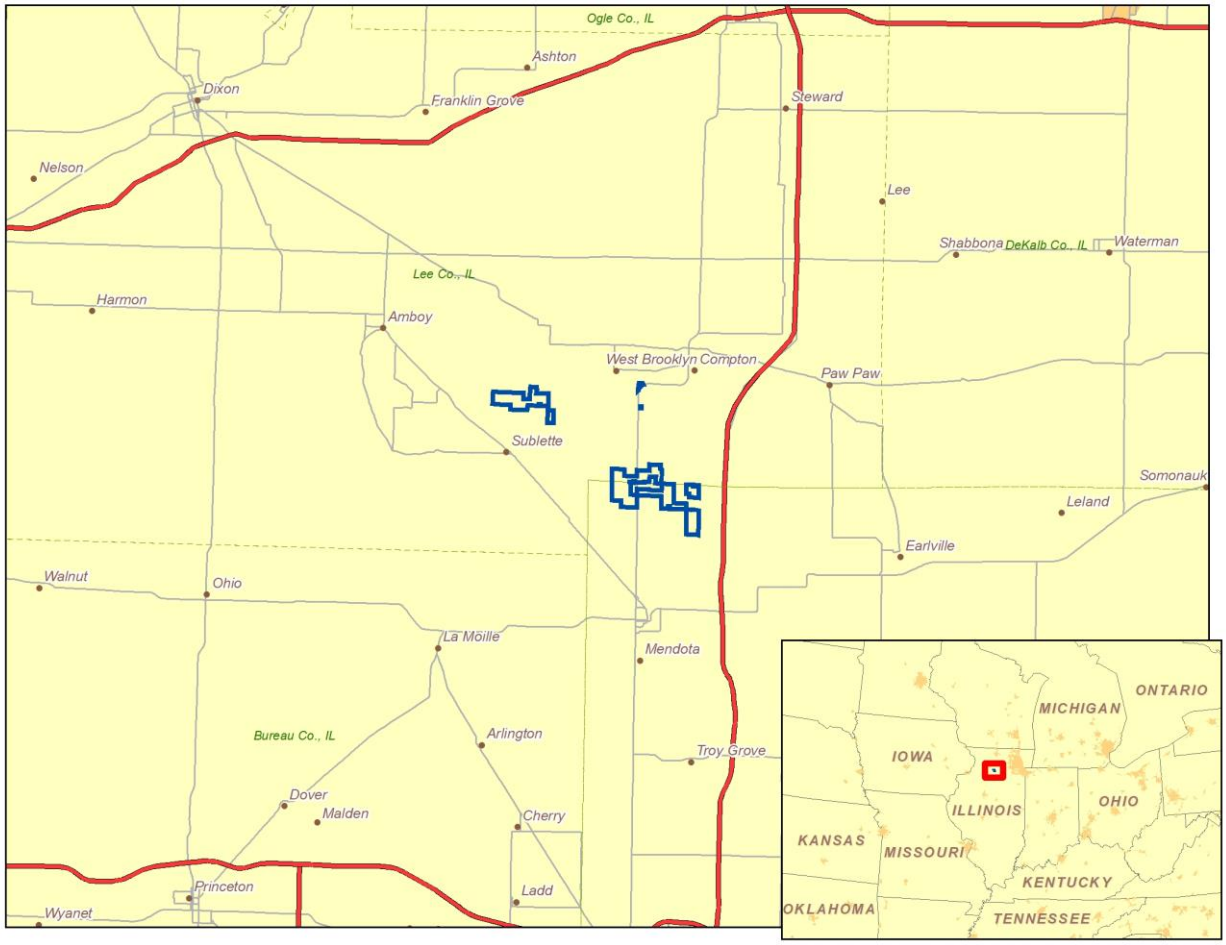

Figure 1: Wind Farm Project Area and Local Communities

To begin the analysis, Comsearch compiled all off-air television stations[1] within 150 kilometers of the proposed turbines. TV stations at a distance of 150 kilometers or less are the most likely to provide off-air coverage to the project area and neighboring communities. These stations are listed in Table 1, on the next page, and a plot depicting their locations is provided in Figure 2. There are a total of 104 database records for stations within approximately 150 kilometers of the proposed turbines. Of these stations, only 65 stations are currently licensed and operating, 22 of which are low-power stations or translators. Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

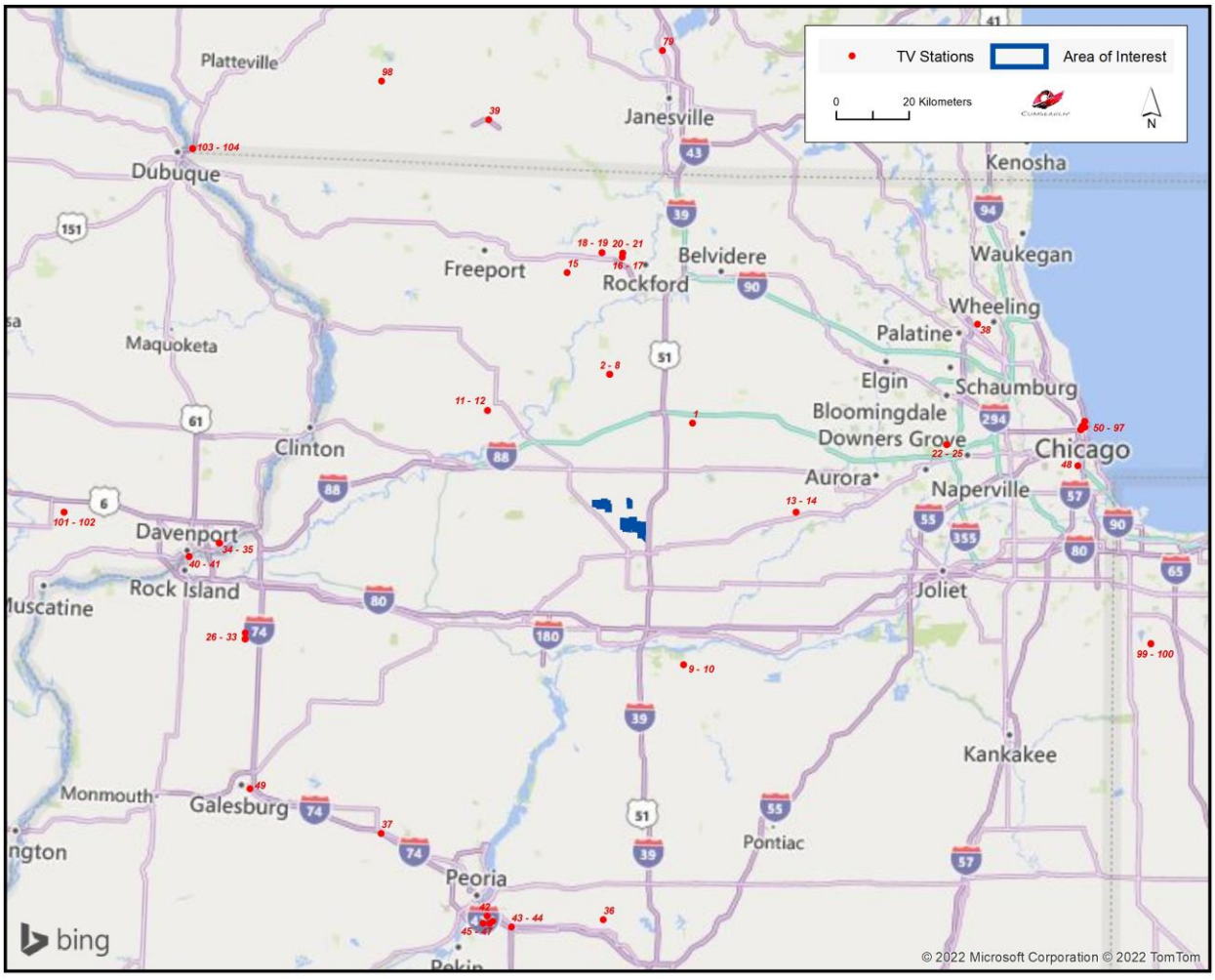

Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Proposed Turbines

[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 TV station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
1	WYCH-LD	LIC	LPD	11	3.0	41.880028	-88.924889	31.40
2	WDXN-LD	CP	LPD	6	0.3	41.996111	-89.203056	35.10
3	WMKB-LD	CP	LPD	18	9.0	41.996111	-89.203056	35.10
4	WMKB-LP	LIC	LPA	25	39.8	41.996111	-89.203056	35.10
5	WBKM-LD	CP	LPD	25	1.0	41.996111	-89.203056	35.10
6	WRDH-LP	CP	LPD	26	1.0	41.996111	-89.203056	35.10
7	W34EM-D	CP	LPD	34	15.0	41.996111	-89.203056	35.10
8	WBKM-LP	LIC	LPA	46	35.5	41.996111	-89.203056	35.10
9	WAOE	APP	DTV	10	30.0	41.281833	-88.936417	37.77
10	WAOE	LIC	DTV	10	24.0	41.281833	-88.936417	37.77
11	W19CX	LIC	LPX	19	9.5	41.897778	-89.605556	39.11
12	W27EJ-D	LIC	LPD	27	15.0	41.897861	-89.606056	39.15
13	WAUR-LD	LIC	LPD	29	15.0	41.665278	-88.576111	42.55
14	WSPY-LD	LIC	LPD	30	10.8	41.665278	-88.576111	42.55
15	W35DY-D	LIC	LPT	35	3.44	42.245250	-89.353639	63.86
16	WTVO	LIC	DTV	16	196.0	42.287222	-89.170833	67.51
17	WQRF-TV	LIC	DTV	36	910.0	42.287222	-89.170833	67.51
18	WREX	CP	DTV	13	30.0	42.296667	-89.239444	68.51
19	WREX	LIC	DTV	13	18.0	42.296667	-89.239444	68.51
20	WFBN-LD	LIC	LPD	23	15.0	42.296667	-89.170833	68.56
21	WIFR-LD	LIC	LPD	28	15.0	42.296667	-89.170833	68.56
22	WAUR-LD	CP	LPD	29	12.2	41.838417	-88.080250	86.85
23	WWTO-TV	LIC	DTV	32	15.0	41.838417	-88.080250	86.85

[2] Definitions of service and status codes:
ACA - Analog Class A
DCA - Digital Class A
DRT - Digital Replacement Translator
DT - ETL testing
DTS - Distributed Transmission System
DTV - Full Service Television
DTX - Digital TV Auxiliary
LPA - Low Power Analog TV
LPD - Low Power Digital TV
LPT - Digital TV Translator
LPX - Analog TV Translator
TS - Legacy Service for Analog TV Auxiliary
TV - Analog TV legacy

LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational
STA – Special transmit authorization, usually granted by FCC for temporary operation
AMD - Amendment

[3] ERP = Transmit Effective Radiated Power

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
24	WLPD-CD	LIC	DCA	32	15.0	41.838417	-88.080250	86.85
25	WWTO-TV	STA	DTV	35	15.0	41.838417	-88.080250	86.85
26	KGCW	LIC	DTV	21	1000.0	41.327500	-90.379444	102.62
27	WMWC-TV	APP	DTV	8	39.0	41.312361	-90.379500	103.28
28	WMWC-TV	STA	DTV	8	5.3	41.312361	-90.379500	103.28
29	WMWC-TV	LIC	DTV	8	23.0	41.312361	-90.379500	103.28
30	WQPT-TV	LIC	DTV	23	664.0	41.312361	-90.379500	103.28
31	KLJB	LIC	DTV	30	1000.0	41.312361	-90.379500	103.28
32	WQAD-TV	LIC	DTV	31	1000.0	41.312361	-90.379500	103.28
33	KQIN	LIC	DTV	34	199.5	41.312361	-90.379500	103.28
34	WHBF-TV	LIC	DTV	4	33.7	41.546944	-90.476389	104.00
35	KWQC-TV	LIC	DTV	17	1000.0	41.546889	-90.477167	104.07
36	WYZZ-TV	LIC	DTV	28	1000.0	40.645833	-89.179167	106.63
37	W19ES-D	LIC	LPT	19	1.62	40.843389	-89.911083	107.49
38	WRJK-LP	LIC	LPA	22	1.4	42.137139	-87.982556	107.80
39	W35DY-D	CP	LPT	35	2.0	42.617056	-89.631389	109.47
40	WHBF-TV	CP	DRT	19	0.25	41.510278	-90.574167	112.71
41	WHBF-TV	LIC	DRT	47	2.3	41.510278	-90.574167	112.71
42	WAOE	LIC	DRT	18	15.0	40.648056	-89.557222	113.08
43	W27EQ-D	LIC	LPD	27	15.0	40.621944	-89.476667	113.82
44	WMBD-TV	LIC	DTV	26	822.0	40.635000	-89.538611	113.99
45	WHOI	LIC	DTV	24	402.0	40.629444	-89.548056	114.82
46	WEEK-TV	LIC	DTV	25	536.0	40.629444	-89.548056	114.82
47	WTVP	LIC	DTV	35	155.0	40.628889	-89.570000	115.44
48	WUVI-LD	LIC	LPD	3	3.0	41.788694	-87.645361	121.10
49	W51DT	LIC	LPX	51	17.8	40.942778	-90.344167	123.08
50	WMEU-CD	LIC	DCA	18	15.0	41.878917	-87.636167	123.69
51	WGN-TV	LIC	DTV	19	645.0	41.878917	-87.636167	123.69
52	WGN-TV	CP	DTV	19	803.0	41.878917	-87.636167	123.69
53	WWME-CD	LIC	DCA	20	15.0	41.878917	-87.636167	123.69
54	WCIU-TV	LIC	DTV	23	1000.0	41.878917	-87.636167	123.69
55	WFLD	CP	DTV	24	1000.0	41.878917	-87.636167	123.69
56	WYCC	LIC	DTV	25	250.0	41.878917	-87.636167	123.69
57	WTTW	LIC	DTV	25	250.0	41.878917	-87.636167	123.69
58	WEDE-CD	LIC	DCA	28	2.84	41.878917	-87.636167	123.69
59	WMAQ-TV	LIC	DTV	29	350.0	41.878917	-87.636167	123.69
60	WSNS-TV	LIC	DTV	29	350.0	41.878917	-87.636167	123.69
61	WFLD	LIC	DTV	31	1000.0	41.878917	-87.636167	123.69
62	WPWR-TV	LIC	DTV	31	1000.0	41.878917	-87.636167	123.69
63	WMAQ-TV	CP	DTV	33	398.0	41.878917	-87.636167	123.69
64	WRJK-LP	STA	LPD	11	0.4	41.878889	-87.635556	123.74
65	WRJK-LP	AMD	LPD	11	0.09	41.878889	-87.635556	123.74

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
66	WBBM-TV	CP	DTV	12	10.9	41.878889	-87.635556	123.74
67	WBBM-TV	LIC	DTV	12	8.0	41.878889	-87.635556	123.74
68	WJYS	LIC	DTV	21	140.0	41.878889	-87.635556	123.74
69	WLS-TV	STA	DTV	22	908.0	41.878889	-87.635556	123.74
70	WLS-TV	CP	DTV	22	1000.0	41.878889	-87.635556	123.74
71	WRJK-LP	CP	LPD	24	15.0	41.878889	-87.635556	123.74
72	WRJK-LP	AMD	LPX	24	5.9	41.878889	-87.635556	123.74
73	WFLD	STA	DTV	24	435.5	41.878889	-87.635556	123.74
74	WCPX-TV	LIC	DTV	34	400.0	41.878889	-87.635556	123.74
75	WXFT-DT	LIC	DTV	44	1000.0	41.878889	-87.635556	123.74
76	WLS-TV	LIC	DTV	44	1000.0	41.878889	-87.635556	123.74
77	WCHU-LD	LIC	LPD	7	3.0	41.889083	-87.626667	124.71
78	WDCI-LD	LIC	LPD	30	15.0	41.885028	-87.621583	125.02
79	WISC-TV	APP	DRT	22	15.0	42.800556	-89.054444	125.12
80	WFLD	STA	DTV	31	1000.0	41.898778	-87.623250	125.24
81	WOCK-CD	LIC	DCA	4	3.0	41.898917	-87.623111	125.26
82	WRME-LD	LIC	LPD	6	3.0	41.898917	-87.623111	125.26
83	WRME-LD	STA	LPD	6	3.0	41.898917	-87.623111	125.26
84	WRME-LP	LIC	LPA	6	3.0	41.898917	-87.623111	125.26
85	WFLD	AMD	DTV	24	1000.0	41.898917	-87.623111	125.26
86	WFLD	STA	DTV	24	737.0	41.898917	-87.623111	125.26
87	WFLD	STA	DTV	24	1000.0	41.898917	-87.623111	125.26
88	WFLD	AMD	DTV	24	1000.0	41.898917	-87.623111	125.26
89	WPVN-CD	LIC	DCA	26	15.0	41.898917	-87.623111	125.26
90	W27EB-D	LIC	DCA	27	15.0	41.898917	-87.623111	125.26
91	WDCI-LD	CP	LPD	30	0.85	41.898917	-87.623111	125.26
92	WFLD	STA	DTV	31	1000.0	41.898917	-87.623111	125.26
93	W31EZ-D	LIC	LPD	31	15.0	41.898917	-87.623111	125.26
94	WESV-LD	LIC	LPD	31	15.0	41.898917	-87.623111	125.26
95	WLPD-CD	CP	DCA	32	15.0	41.898917	-87.623111	125.26
96	WGBO-DT	LIC	DTV	35	635.0	41.898917	-87.623111	125.26
97	WRJK-LD	CP	LPT	36	5.1	41.898917	-87.623111	125.26
98	K17OO-D	CP	LPD	17	3.0	42.704167	-89.995000	130.17
99	WYIN	LIC	DTV	17	300.0	41.348889	-87.400556	143.33
100	WYIN	STA	DTV	17	300.0	41.349806	-87.399472	143.40
101	K20KF-D	LIC	LPD	20	15.0	41.606111	-90.993333	146.29
102	K33QA-D	CP	LPD	33	15.0	41.606111	-90.993333	146.29
103	KFXB-TV	LIC	DTV	14	580.0	42.519167	-90.619722	147.68
104	KRIN	APP	DRT	18	2.0	42.519167	-90.619722	147.68

Table 1: Off-Air TV Stations within 150 Kilometers of Proposed Turbines

3. Impact Assessment

Based on a contour analysis of the licensed stations within 150 kilometers of the GSG Repower wind project, it was determined that nine of the full-power digital stations, identified below in Table 2, along with three low-power digital stations, may have their reception disrupted in and around the project. The areas primarily affected would include TV service locations within 10 kilometers of the turbines that have clear line-of-sight (LOS) to a proposed wind turbine but not to the respective station. After the wind turbines are installed, communities and homes in these locations may have degraded reception of these stations. This is due to multipath interference caused by signal scattering as TV signals are reflected by the rotating wind turbine blades and mast.

ID	Call Sign	Status	Service	Channel	Transmit ERP (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
10	WAOE	LIC	DTV	10	24.0	41.281833	-88.936417	37.77
12	W27EJ-D	LIC	LPD	27	15.0	41.897861	-89.606056	39.15
13	WAUR-LD	LIC	LPD	29	15.0	41.665278	-88.576111	42.55
14	WSPY-LD	LIC	LPD	30	10.8	41.665278	-88.576111	42.55
16	WTVO	LIC	DTV	16	196.0	42.287222	-89.170833	67.51
17	WQRF-TV	LIC	DTV	36	910.0	42.287222	-89.170833	67.51
19	WREX	LIC	DTV	13	18.0	42.296667	-89.239444	68.51
31	KLJB	LIC	DTV	30	1000.0	41.312361	-90.379500	103.28
32	WQAD-TV	LIC	DTV	31	1000.0	41.312361	-90.379500	103.28
34	WHBF-TV	LIC	DTV	4	33.7	41.546944	-90.476389	104.00
35	KWQC-TV	LIC	DTV	17	1000.0	41.546889	-90.477167	104.07
36	WYZZ-TV	LIC	DTV	28	1000.0	40.645833	-89.179167	106.63

Table 2: Licensed Off-Air TV Stations Subject to Degradation

4. Recommendations

While TV signals are reflected by wind turbines, which can cause multipath interference to the TV receiver, modern digital TV receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that signal scattering from wind farms will cause interference to digital TV reception.

Nevertheless, signal scattering could still impact certain areas currently served by the TV station mentioned above, especially those that would have line-of-sight to at least one wind turbine but not to the station antenna. In the unlikely event that interference is observed in any of the TV service areas, it is recommended that a high-gain directional antenna be used, preferably outdoors, and oriented towards the signal origin in order to mitigate the interference.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbine facility and may be offered to those residents who can show that their off-air TV reception has been disrupted by the presence of the wind turbines after they are installed.

5. Contact

For questions or information regarding the Off-Air TV Analysis, please contact:

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