

Wind Power GeoPlanner™

Off-Air TV Analysis

TGE Illinois 181



Prepared on Behalf of
Tri Global Energy, LLC

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Table of Contents

1. Introduction	- 1 -
2. Summary of Results	- 1 -
3. Impact Assessment	- 6 -
4. Recommendations	- 6 -
5. Contact	- 7 -

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 TGE Illinois 181 wind project in Woodford County, 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.

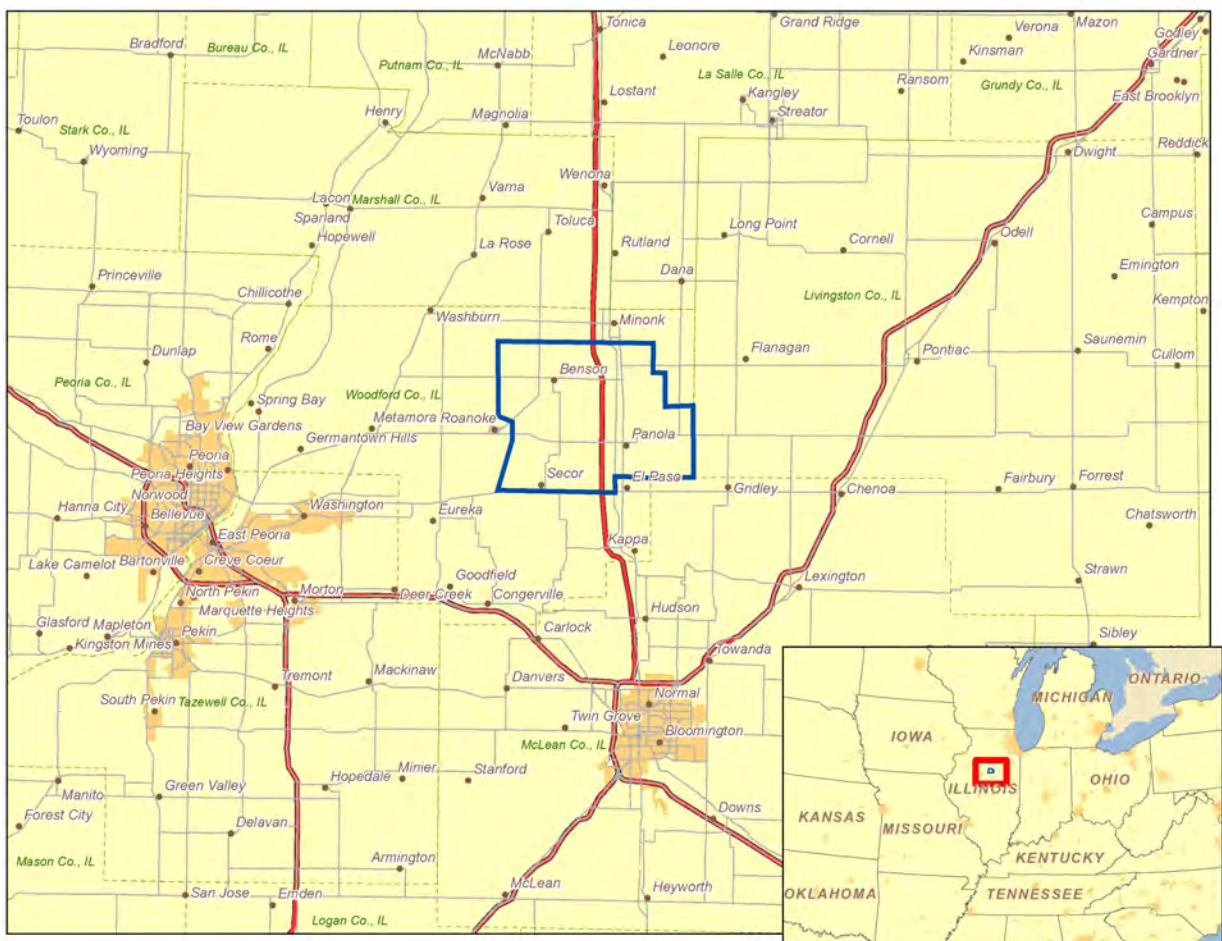


Figure 1: Wind Farm Project Area and Local Communities

To begin the analysis, Comsearch compiled all off-air television stations¹ 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, below, and a plot depicting their locations is provided in Figure 2. There are a total of 101 database records for stations within approximately 150 kilometers of the proposed turbines. Of these stations, only 33 stations are currently licensed and operating, 25 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.

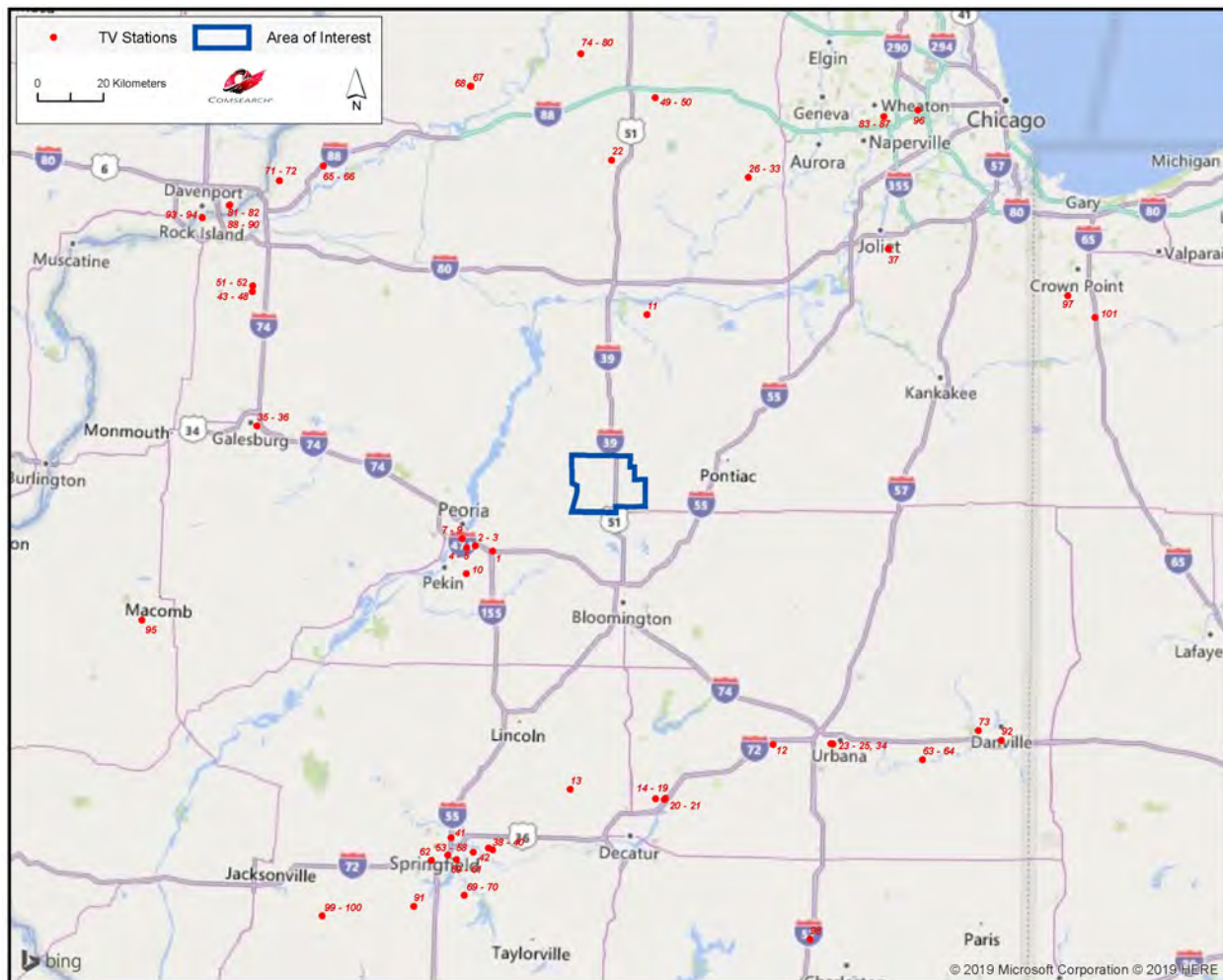


Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Proposed Turbines

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	W27EQ-D	CP	LD	27	15.000	40.621944	-89.476667	26.92
2	WMBD-TV	CP	DT	26	822.000	40.635000	-89.538611	31.10
3	WMBD-TV	LIC	DT	30	800.000	40.635000	-89.538611	31.10
4	WTVP	CP	DT	35	155.000	40.628889	-89.570000	33.82
5	WTVP	CP	DX	46	165.000	40.628889	-89.570000	33.82
6	WKMh-LD	LIC	LD	16	1.000	40.653056	-89.587222	34.38
7	WHOI	CP MOD	DT	24	625.000	40.653056	-89.587222	34.38
8	W35DE-D	LIC	LD	35	6.000	40.653056	-89.587222	34.38
9	WDLF-LD	LIC	LD	14	5.000	40.653083	-89.587306	34.38
10	W32EF-D	LIC	LD	32	6.000	40.558083	-89.568139	37.18
11	WAOE	CP MOD	DT	10	24.000	41.281833	-88.936417	43.55
12	WCIA	CP MOD	DT	34	1000.000	40.105833	-88.450000	82.53
13	WCQA-LD	LIC	LD	12	3.000	39.971056	-89.174361	84.84
14	WLCF-LD	CP	LD	17	15.000	39.950833	-88.868056	88.28
15	WLCF-LD	CP	LD	21	15.000	39.950833	-88.868056	88.28
16	WLCF-LD	CP	LD	21	15.000	39.950833	-88.868056	88.28
17	WLCF-LD	CP	LD	21	15.000	39.950833	-88.868056	88.28
18	WLCF-LD	CP	LD	21	15.000	39.950833	-88.868056	88.28
19	WLCF-LD	CP	LD	21	15.000	39.950833	-88.868056	88.28
20	WAND	CP MOD	DT	20	1000.000	39.952389	-88.832389	88.65
21	WBUI	LIC	DT	22	325.000	39.948889	-88.836917	88.96
22	WAUR-LD	LIC	LD	29	1.000	41.705278	-89.079722	90.45
23	WBXC-CD	CP MOD	DC	18	15.000	40.111111	-88.243056	91.97
24	WBXC-CD	LIC	DC	46	2.500	40.111111	-88.243056	91.97
25	W39BH	LIC	TX	39	12.500	40.109472	-88.235028	92.55
26	WAUR-LD	CP	LD	18	12.000	41.665278	-88.576111	92.56
27	WAUR-LD	CP	LD	18	12.000	41.665278	-88.576111	92.56
28	WAUR-LD	CP	LD	18	12.000	41.665278	-88.576111	92.56

² Definitions of service and status codes:

- TV – Analog television broadcast station
- DT – Digital television broadcast station
- DX – Digital auxiliary (backup) facility
- DS – Digital special temporary authority (STA)
- LP – Low power analog television broadcast station
- LD – Low power digital television broadcast station
- CA – Class A analog television broadcast station
- DC – Class A digital television broadcast station
- TX – Translator station
- 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

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)
29	WAUR-LD	CP	LD	18	12.000	41.665278	-88.576111	92.56
30	WAUR-LD	CP	LD	18	12.000	41.665278	-88.576111	92.56
31	WAUR-LD	CP	LD	29	15.000	41.665278	-88.576111	92.56
32	WSPY-LD	CP	LD	30	12.000	41.665278	-88.576111	92.56
33	WSPY-LD	LIC	LD	32	11.100	41.665278	-88.576111	92.56
34	W39BH	CP	LD	27	5.000	40.109361	-88.234889	92.56
35	W51DT	CP	LD	19	1.400	40.942778	-90.344167	96.64
36	W51DT	LIC	TX	51	17.800	40.942778	-90.344167	96.64
37	-	CP	LD	41	0.100	41.474444	-88.057500	101.34
38	WICS	CP MOD	DT	15	350.000	39.804167	-89.461111	105.82
39	WRSP-TV	CP MOD	DT	16	360.000	39.804167	-89.461111	105.82
40	WRSP-TV	LIC	DT	44	335.000	39.799111	-89.446139	106.10
41	W08DP	CP	TX	8	0.006	39.828889	-89.595611	106.24
42	WCIX	CP	DT	11	5.000	39.790944	-89.514722	108.31
43	WQPT-TV	CP	DT	23	664.000	41.312361	-90.379500	109.71
44	KLJB	CP MOD	DT	30	1000.000	41.312361	-90.379500	109.71
45	WQAD-TV	CP MOD	DT	31	1000.000	41.312361	-90.379500	109.71
46	KQCT-LP	CP MOD	LD	32	15.000	41.312361	-90.379500	109.71
47	KWQC-TV	LIC	DT	36	1000.000	41.312361	-90.379500	109.71
48	WQAD-TV	LIC	DT	38	1000.000	41.312361	-90.379500	109.71
49	WYCH-LD	CP	LD	11	2.000	41.880028	-88.924889	109.90
50	WYCH-LD	LIC	LD	47	0.100	41.880028	-88.924889	109.90
51	KGCW	CP MOD	DT	21	1000.000	41.327500	-90.379444	110.42
52	KGCW	APP	DT	21	1000.000	41.327500	-90.379444	110.42
53	W33AY-D	CP	LD	31	15.000	39.780889	-89.605056	111.55
54	W33AY-D	LIC	LD	33	4.000	39.780889	-89.605056	111.55
55	W33AY-D	CP	LD	33	0.500	39.780889	-89.605056	111.55
56	WEAE-LD	CP	LD	21	15.000	39.780861	-89.605000	111.55
57	WBDI-LD	LIC	LD	14	3.000	39.780806	-89.605444	111.57
58	W41DP-D	LIC	LD	41	3.000	39.780806	-89.605444	111.57
59	WBDI-LD	CP	LD	5	3.000	39.769639	-89.574778	111.97
60	W41DP-D	CP	LD	23	15.000	39.769639	-89.574778	111.97
61	WEEJ-LD	CP	LD	27	15.000	39.769639	-89.574778	111.97
62	W24EV-D	CP	LD	24	12.700	39.765556	-89.663056	114.79
63	WICD	LIC	DT	32	1000.000	40.069444	-87.912778	114.83
64	WCCU	CP MOD	DT	36	125.000	40.069444	-87.912778	114.83
65	WUEB-LD	LIC	LD	24	6.000	41.665083	-90.137472	116.60
66	WODF-LD	LIC	LD	40	6.000	41.665083	-90.137472	116.60
67	W19CX	LIC	TX	19	9.500	41.897778	-89.605556	117.00
68	W48CK-D	LIC	LD	27	15.000	41.897861	-89.606056	117.02
69	W19EE-D	CP MOD	LD	19	6.000	39.671528	-89.542222	121.74
70	W25EW-D	CP MOD	LD	25	1.000	39.671528	-89.542222	121.74

ID	Call Sign	Status	Service ²	Channel	Transmit ERP ³ (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
71	WUEB-LD	CP	LD	26	5.000	41.619444	-90.296389	122.58
72	WODF-LD	CP	LD	28	15.000	41.619444	-90.296389	122.58
73	W31BX-D	LIC	LD	23	12.100	40.151611	-87.713556	122.76
74	WRDH-LP	LIC	TX	7	3.000	41.996111	-89.203056	122.87
75	WCRD-LP	CP	LD	9	3.000	41.996111	-89.203056	122.87
76	WMKB-LP	CP	LD	18	9.000	41.996111	-89.203056	122.87
77	WMKB-LP	LIC	TX	25	39.800	41.996111	-89.203056	122.87
78	WBKM-LP	CP	LD	25	1.000	41.996111	-89.203056	122.87
79	W34EM-D	CP	LD	34	15.000	41.996111	-89.203056	122.87
80	WBKM-LP	LIC	TX	46	35.500	41.996111	-89.203056	122.87
81	KQCT-LP	LIC	TX	61	5.800	41.547472	-90.474833	129.55
82	WHBF-TV	LIC	DT	4	33.700	41.546944	-90.476389	129.62
83	WLPD-CD	CP MOD	DC	32	15.000	41.838417	-88.080250	129.65
84	WWTO-TV	CP	DT	35	15.000	41.838417	-88.080250	129.65
85	WLPD-CD	CP	DC	35	15.000	41.838417	-88.080250	129.65
86	WLPD-CD	CP	DC	35	7.500	41.838417	-88.080250	129.65
87	WWTO-TV	CP	DT	35	15.000	41.838417	-88.080250	129.65
88	KWQC-TV	CP MOD	DT	17	1000.000	41.546889	-90.477167	129.67
89	KWQC-TV	CP	DT	17	160.000	41.546889	-90.477167	129.67
90	KWQC-TV	CP	DT	36	23.000	41.546889	-90.477167	129.67
91	WEEJ-LD	LIC	LD	49	6.000	39.636944	-89.721944	129.94
92	W31BX-D	LIC	LD	31	3.080	40.125000	-87.630278	130.32
93	WHBF-TV	CP	LD	19	0.250	41.510278	-90.574167	134.37
94	WHBF-TV	APP	LD	19	0.250	41.510278	-90.574167	134.37
95	WMEC	CP	DT	36	100.000	40.398333	-90.731944	135.46
96	W40CN-D	CP MOD	DC	27	5.000	41.858364	-87.954508	137.78
97	WYIN	CP	DT	17	300.000	41.349806	-87.399472	141.10
98	WEIU-TV	CP	DT	30	174.000	39.570833	-88.307083	141.52
99	WSEC	CP MOD	DT	18	93.500	39.602556	-90.046500	145.19
100	W40CV-D	LIC	LD	29	15.000	39.602556	-90.046500	145.19
101	KPDS-LD	CP	LD	9	3.000	41.289917	-87.299917	146.36

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 TGE Illinois 181 wind project, it was determined that six of the full-power digital stations, identified below in Table 2, along with low-power digital station W35DE-D, 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 ⁴	Channel	Transmit ERP ⁵ (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
3	WMBD-TV	LIC	DT	30	800.0	40.635000	-89.538611	31.10
8	W35DE-D	LIC	LD	35	6.0	40.653056	-89.587222	34.38
21	WBUI	LIC	DT	22	325.0	39.948889	-88.836917	88.96
40	WRSP-TV	LIC	DT	44	335.0	39.799111	-89.446139	106.10
48	WQAD-TV	LIC	DT	38	1000.0	41.312361	-90.379500	109.71
63	WICD	LIC	DT	32	1000.0	40.069444	-87.912778	114.83
82	WHBF-TV	LIC	DT	4	33.7	41.546944	-90.476389	129.62

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

⁴ Definitions of service and status codes:

DT – Digital television broadcast station
LD – Low-power digital television broadcast station
DX – Digital auxiliary (backup) facility
LIC – Licensed and operational station

⁵ ERP = Transmit Effective Radiated Power



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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