

Exhibit Z
Off-Air TV Analysis
Westwood
March 4, 2021

Wind Power GeoPlanner™

Off-Air TV Analysis

Grover Hill Wind Project



Prepared on Behalf of
Westwood Professional
Services, Inc.

March 4, 2021



COMSEARCH
A CommScope Company

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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 Grover Hill Wind Project wind project in [] County, [state]. 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.

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



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 82 database records for stations within approximately 150 kilometers of the proposed turbines. Of these stations, only 57 stations are currently licensed and operating, 26 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.

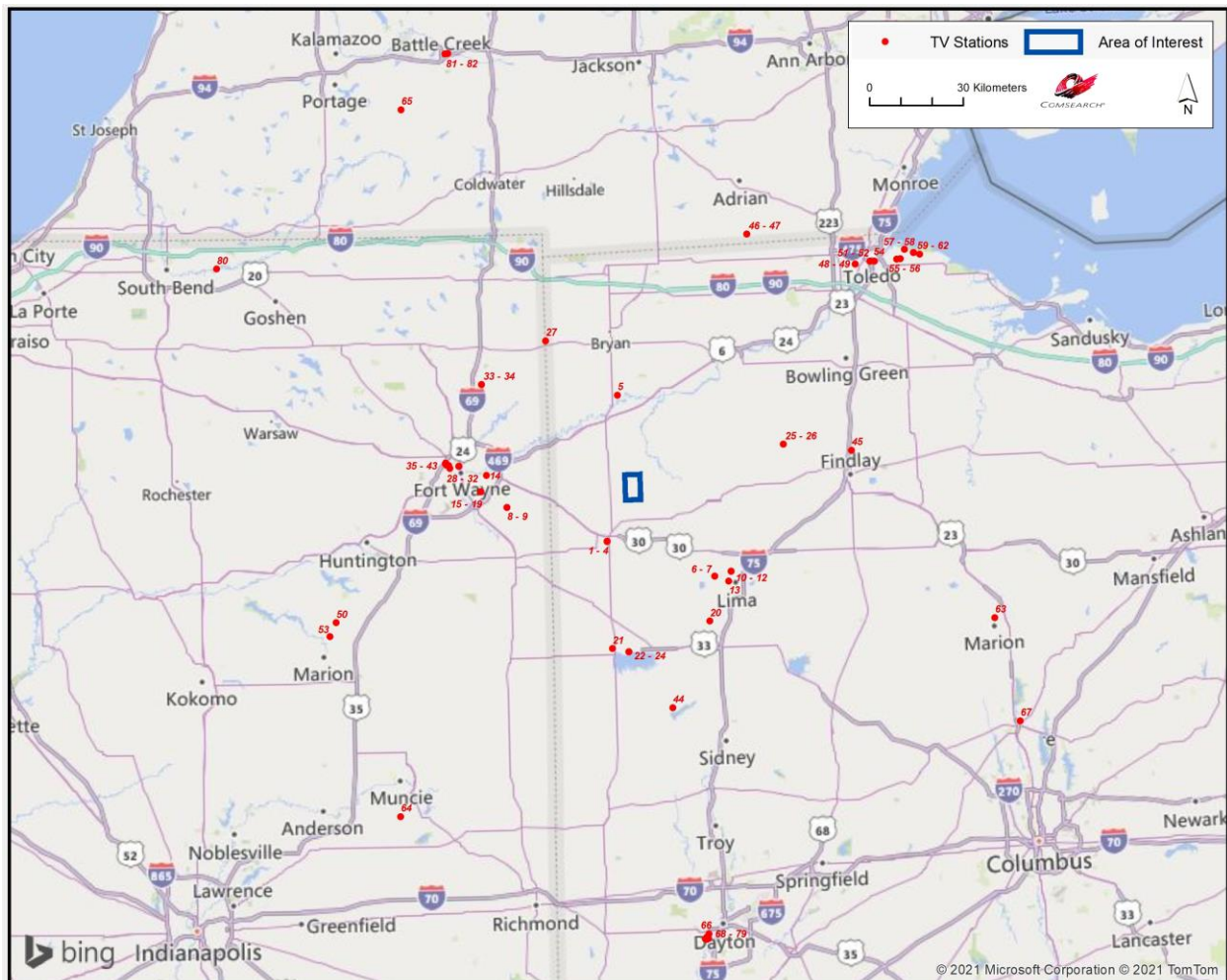


Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Proposed Turbines

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	W29EL-D	CP	LPD	29	0.5	40.872806	-84.588000	15.05
2	W42EP-D	CP	LPD	42	0.5	40.872806	-84.588000	15.05
3	W49EM-D	CP	LPD	49	0.5	40.872806	-84.588000	15.05
4	WOHW-LD	LIC	LPD	26	0.5	40.872222	-84.587778	15.10
5	WNHO-LD	LIC	LPD	35	15.0	41.292417	-84.533806	27.64
6	WTLW	LIC	DTV	4	10.0	40.763056	-84.183611	36.09
7	WOIW-LD	LIC	LPD	17	15.0	40.763056	-84.183611	36.09
8	WEDX-LD	CP	LPD	29	2.0	40.977222	-84.966111	38.61
9	W31ET-D	CP	LPD	31	15.0	40.977222	-84.966111	38.61
10	WLIO	LIC	DTV	8	40.0	40.775444	-84.120611	38.84
11	WOHL-CD	APP	DCA	15	15.0	40.775444	-84.120611	38.84
12	WOHL-CD	LIC	DCA	15	11.5	40.775444	-84.120611	38.84
13	WLQP-LP	STA	LPA	25	7.5	40.747556	-84.131750	40.32
14	W22FH-D	CP	LPD	22	3.0	41.071222	-85.040972	44.75
15	W14DS-D	CP	LPD	14	15.0	41.023944	-85.064111	46.65
16	W19DT-D	CP	LPD	19	15.0	41.023944	-85.064111	46.65
17	W21DJ-D	CP	LPD	21	15.0	41.023944	-85.064111	46.65
18	W28EY-D	CP	LPD	28	15.0	41.023944	-85.064111	46.65
19	W33DC-D	CP	LPD	33	15.0	41.023944	-85.064111	46.65
20	WLQP-LP	LIC	LPA	18	7.7	40.634194	-84.208000	46.67
21	WOHW-LD	APP	LPD	26	15.0	40.563333	-84.578333	48.19
22	W25FI-D	APP	LPT	25	6.7	40.552917	-84.517250	48.99
23	W25FI-D	CP	LPT	25	6.8	40.552917	-84.517250	48.99

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	W32DS-D	LIC	LPT	32	6.8	40.552917	-84.517250	48.99
25	WBGU-TV	LIC	DTV	22	137.0	41.136667	-83.906667	48.99
26	WPNM-LD	LIC	LPD	27	15.0	41.136667	-83.906667	48.99
27	WINM	LIC	DTV	12	16.5	41.454167	-84.802778	51.73
28	WFWC-CD	LIC	DCA	16	15.0	41.099139	-85.145000	53.73
29	WCUH-LD	LIC	LPD	23	5.0	41.099139	-85.145000	53.73
30	W25FH-D	LIC	LPD	25	15.0	41.099139	-85.145000	53.73
31	W30EH-D	LIC	LPD	30	5.0	41.099139	-85.145000	53.73
32	WODP-LD	LIC	LPD	36	15.0	41.099139	-85.145000	53.73
33	W07CL	LIC	LPA	7	0.032	41.333639	-85.052167	55.71
34	W26DH-D	LIC	LPD	26	6.0	41.333611	-85.052222	55.71
35	WANE-TV	LIC	DTV	32	1000.0	41.093889	-85.180000	56.60
36	WPTA	APP	DTV	24	592.0	41.102111	-85.184333	57.05
37	WPTA	LIC	DTV	24	444.0	41.102111	-85.184333	57.05
38	WISE-TV	LIC	DTV	34	456.0	41.102111	-85.184333	57.05
39	WEIJ-LD	CP	LPD	17	15.0	41.103611	-85.191111	57.64
40	WFWA	LIC	DTV	18	350.0	41.103611	-85.191111	57.64
41	W38EA-D	LIC	LPD	38	15.0	41.103611	-85.191111	57.64
42	WFFT-TV	LIC	DTV	20	550.0	41.109278	-85.195056	58.04
43	WLMO-LD	LIC	LPD	2	3.0	41.106750	-85.196028	58.09
44	WAMS-LD	LIC	LPD	29	15.0	40.388667	-84.357333	68.42
45	WFND-LD	LIC	LPD	19	15.0	41.111417	-83.647972	69.58
46	WLMB	APP	DTV	5	10.0	41.744722	-84.018333	87.67
47	WLMB	LIC	DTV	5	10.0	41.744722	-84.018333	87.67
48	W38DH	CP	LPD	23	8.0	41.646861	-83.604917	100.02
49	W38DH	LIC	LPX	38	8.2	41.646861	-83.604917	100.02
50	WSOT-LD	LIC	LPD	27	10.0	40.655028	-85.623028	101.32
51	WDTJ-LD	LIC	LPD	18	4.0	41.653361	-83.547972	104.04
52	WDTJ-LP	LIC	LPA	68	6.6	41.653361	-83.547972	104.04
53	WIWU-CD	LIC	DCA	28	9.0	40.615528	-85.646472	104.86
54	WMNT-CD	LIC	DCA	36	15.0	41.653361	-83.530611	105.14
55	WUPW	LIC	DTV	26	65.0	41.656111	-83.444722	110.88
56	WGTE-TV	LIC	DTV	29	49.5	41.657222	-83.431944	111.80
57	WTVG	CP	DTV	13	20.1	41.683333	-83.413611	114.79
58	WTVG	LIC	DTV	13	16.7	41.683333	-83.413611	114.79
59	WDMY-LP	CP	LPX	6	3.0	41.672778	-83.379722	116.31
60	WTOL	CP	DTV	11	26.0	41.672778	-83.379722	116.31
61	WTOL	LIC	DTV	11	16.9	41.672778	-83.379722	116.31
62	WNWO-TV	LIC	DTV	23	275.0	41.667500	-83.356111	117.54
63	WXCB-CD	LIC	DCA	25	15.0	40.612778	-83.130000	120.91
64	WIPB	LIC	DTV	19	228.0	40.093611	-85.392222	124.93
65	WJGP-LD	LIC	LPD	25	15.0	42.128833	-85.339472	138.91

ID	Call Sign	Status	Service ²	Channel	Transmit ERP ³ (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to the Closest Turbine (km)
66	WHIO-TV	LIC	DTV	33	854.0	39.733889	-84.248056	141.67
67	WOCB-CD	LIC	DCA	22	15.0	40.313056	-83.051111	142.35
68	WLWD-LD	CP	LPD	5	3.0	39.724611	-84.254889	142.60
69	WLWD-LD	LIC	LPD	20	5.0	39.724611	-84.254889	142.60
70	WKEF	LIC	DTV	34	950.0	39.724611	-84.254889	142.60
71	WRGT-TV	LIC	DTV	36	1000.0	39.724611	-84.254889	142.60
72	WRCX-LD	LIC	LPD	9	3.0	39.724444	-84.255000	142.62
73	WRCX-LP	LIC	LPA	40	34.0	39.724444	-84.255000	142.62
74	W22DE	LIC	LPA	22	54.0	39.720556	-84.261111	142.97
75	WPTD	LIC	DTV	35	250.0	39.721111	-84.250000	143.05
76	WHIO-TV	STA	DTV	35	250.0	39.721111	-84.250000	143.05
77	WKOI-TV	LIC	DTV	31	1000.0	39.718611	-84.256111	143.25
78	WDTN	LIC	DTV	31	1000.0	39.718611	-84.256111	143.25
79	WBBDT	LIC	DTV	31	1000.0	39.718611	-84.256111	143.25
80	WEID-LD	LIC	LPD	16	15.0	41.678306	-86.060778	147.63
81	WXMI	LIC	DRT	23	15.0	42.288833	-85.153389	148.26
82	WOBC-CD	LIC	DCA	16	0.37	42.287972	-85.165083	148.53

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 Grover Hill Wind Project, it was determined that twelve of the full-power digital stations, identified below in Table 2, along with seven 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)
4	WOHW-LD	LIC	LPD	26	0.5	40.872222	-84.587778	15.10
5	WNHO-LD	LIC	LPD	35	15.0	41.292417	-84.533806	27.64
6	WTLW	LIC	DTV	4	10.0	40.763056	-84.183611	36.09
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10	WLIO	LIC	DTV	8	40.0	40.775444	-84.120611	38.84
12	WOHL-CD	LIC	DCA	15	11.5	40.775444	-84.120611	38.84
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42	WFFT-TV	LIC	DTV	20	550.0	41.109278	-85.195056	58.04
43	WLMO-LD	LIC	LPD	2	3.0	41.106750	-85.196028	58.09
47	WLMB	LIC	DTV	5	10.0	41.744722	-84.018333	87.67

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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Summary: Application - 32 of 40 (Exhibit Z - Off-Air TV Analysis) electronically filed by Christine M.T. Pirik on behalf of Grover Hill Wind, LLC