Wind Power GeoPlanner™

Off-Air TV Analysis

High Bridge Wind Farm

Prepared on Behalf of
Calpine Corporation

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COMSEARCH®
A CommScope Company

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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 High Bridge Wind Farm project in Chenango County, New York. 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.

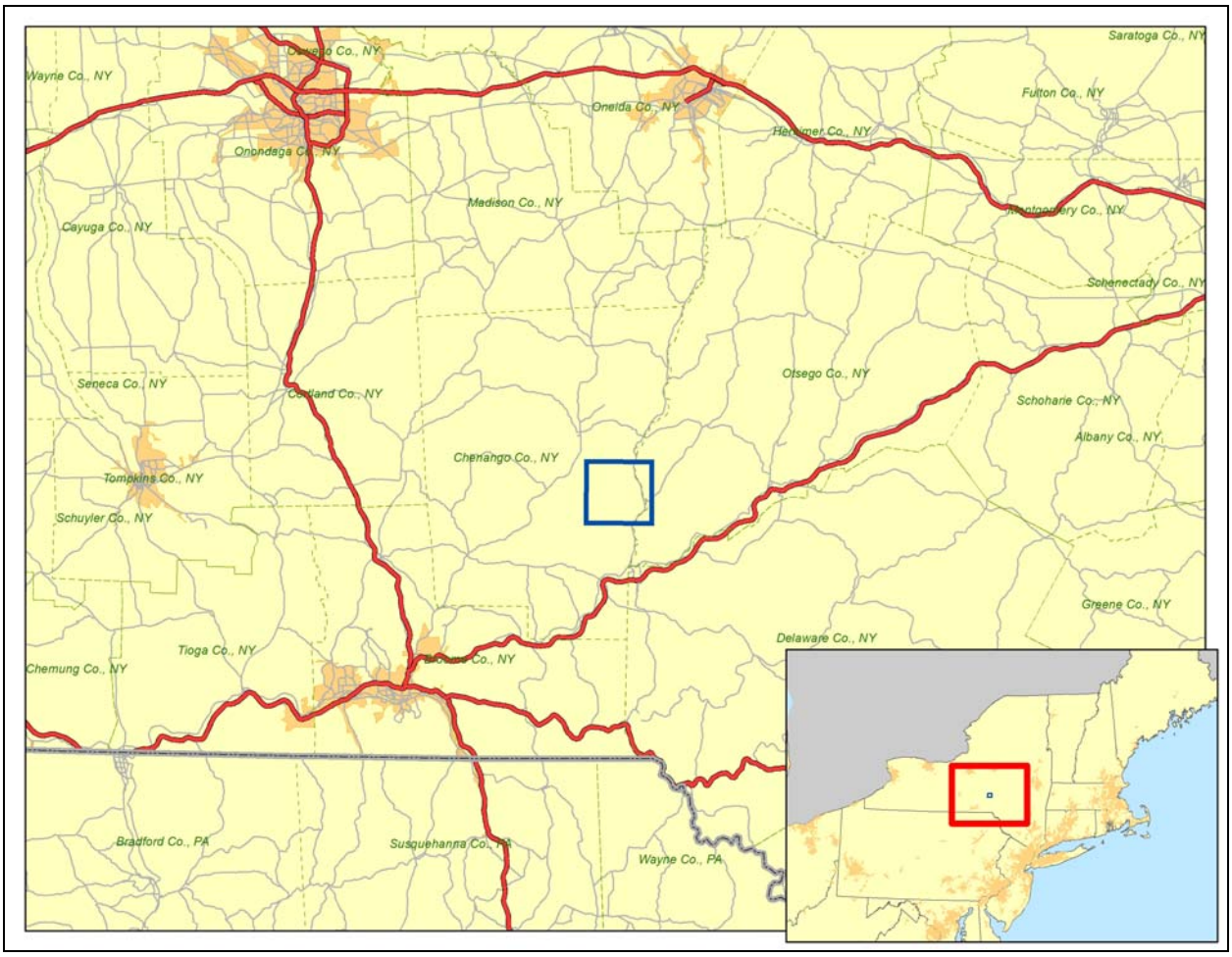

Figure 1: Wind Farm Project Area and Local Communities

To begin the analysis, Comsearch compiled all off-air television stations[1] within 150 kilometers of the project area of interest (AOI). 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 138 database records for stations within approximately 150 kilometers of the limits of the project AOI. Of these stations, only 104 are currently licensed and operating, fifty-six 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.

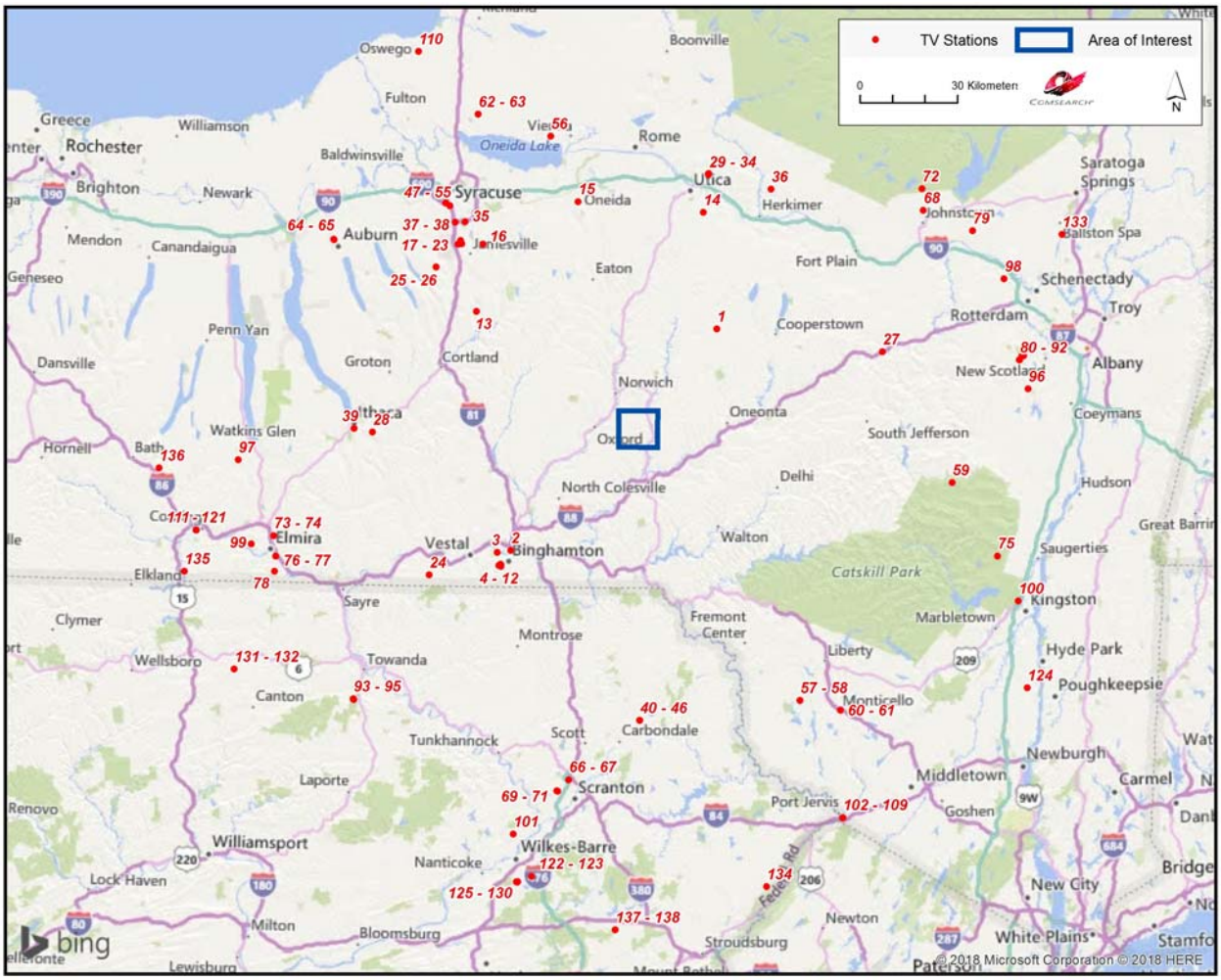

Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Project Area

[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 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 Nearest Turbine (km)
1	W31BP	LIC	TX	31	37.0	42.714778	-75.144028	35.36
2	WXXW-LP	LIC	TX	6	0.016	42.100056	-75.908528	51.34
3	WBPN-LD	CP MOD	LD	23	0.08	42.093944	-75.957139	54.56
4	WBGH-CD	LIC	DC	20	0.04	42.060833	-75.943056	56.51
5	WIVT	CP	DT	27	298.0	42.060833	-75.943056	56.51
6	WIVT	LIC	DT	34	345.0	42.060833	-75.943056	56.51
7	WSKG-TV	CP	DT	31	40.2	42.061167	-75.945611	56.62
8	WSKG-TV	LIC	DT	42	50.0	42.061167	-75.945611	56.62
9	WICZ-TV	LIC	DT	8	7.9	42.056111	-75.943889	56.95
10	WBPN-LP	LIC	TX	10	0.004	42.056111	-75.943889	56.95
11	WBNG-TV	LIC	DT	7	34.0	42.058611	-75.951389	57.15
12	WBNG-TV	CP	DT	8	34.0	42.058611	-75.951389	57.15
13	WNYI	LIC	DT	20	110.0	42.759028	-76.046139	56.78
14	WVVC-LD	LIC	LD	33	15.0	43.037472	-75.195417	65.21
15	WTKO-CD	LIC	DC	36	8.5	43.065889	-75.667389	68.15
16	WSYR-TV	LIC	DT	17	105.0	42.945000	-76.024167	70.12
17	WDSS-LD	LIC	LD	38	15.0	42.945889	-76.104444	74.42
18	WSTQ-LP	CP	LD	14	15.0	42.944944	-76.118389	75.11
19	WSTM-TV	CP	DT	19	150.0	42.944944	-76.118389	75.11
20	WCNY-TV	CP	DT	20	84.6	42.944944	-76.118389	75.11
21	WSTM-TV	LIC	DT	24	210.0	42.944944	-76.118389	75.11
22	WCNY-TV	LIC	DT	25	97.0	42.944944	-76.118389	75.11
23	WTVH	LIC	DT	47	500.0	42.955278	-76.109167	75.45
24	W59DG	CP	LD	38	3.0	42.029278	-76.209167	74.86
25	WSYT	LIC	DT	19	621.0	42.880611	-76.199639	75.02
26	WNYS-TV	LIC	DT	44	680.0	42.880611	-76.199639	75.02
27	WUCB-LD	LIC	LD	41	7.3	42.650833	-74.523056	76.49
28	W07BJ	LIC	TX	7	0.016	42.420889	-76.429083	76.69
29	WWDG-CD	LIC	DC	28	12.7	43.142778	-75.175833	76.88
30	W22DO-D	LIC	LD	22	1.55	43.143889	-75.177500	76.96
31	WFXV	CP MOD	DT	34	1000.0	43.144750	-75.175611	77.09

[2] Definitions of service and status codes:
DT – Digital television broadcast station
DX – Digital auxiliary (backup) facility
TX – Translator station
LD – Low power digital television broadcast station
DC – Class A digital television broadcast station
LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational

[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 Nearest Turbine (km)
32	WPNY-LP	LIC	TX	11	0.094	43.145278	-75.176111	77.14
33	WFXV	LIC	DT	27	1000.0	43.145278	-75.176111	77.14
34	WUTR	LIC	DT	30	50.0	43.145278	-75.176111	77.14
35	WIXT-CD	LIC	DC	40	1.0	43.006944	-76.093611	79.03
36	WKTV	LIC	DT	29	708.0	43.102500	-74.940556	80.31
37	WBLZ-LD	LIC	TX	49	13.4	43.005333	-76.129639	80.75
38	WBLZ-LD	CP	LD	49	13.4	43.005333	-76.129639	80.75
39	W16AX-D	LIC	DC	16	1.7	42.429778	-76.496583	82.21
40	WNEP-TV	LIC	LD	22	0.3	41.632028	-75.425444	85.07
41	WYOU	LIC	LD	25	0.3	41.632028	-75.425444	85.07
42	WBRE-TV	LIC	LD	28	0.3	41.632028	-75.425444	85.07
43	WSWB	LIC	LD	36	0.3	41.632028	-75.425444	85.07
44	WVIA-TV	LIC	LD	44	0.323	41.632028	-75.425444	85.07
45	WOLF-TV	LIC	LD	47	0.3	41.632028	-75.425444	85.07
46	WQPX-TV	LIC	LD	49	0.3	41.632028	-75.425444	85.07
47	W42EB-D	LIC	LD	42	12.3	43.050056	-76.150750	85.68
48	WVOA-LP	LIC	TX	6	0.3	43.058333	-76.166389	87.20
49	WVOA-LP	CP	TX	6	3.0	43.058333	-76.166389	87.20
50	WSTQ-LP	LIC	TX	14	9.8	43.058333	-76.166389	87.20
51	WTVU-CD	LIC	DC	22	15.0	43.058333	-76.166389	87.20
52	WONO-CD	LIC	DC	34	2.8	43.058333	-76.166389	87.20
53	WWLF-LP	LIC	TX	35	4.92	43.058333	-76.166389	87.20
54	WBLZ-LD	LIC	LD	49	1.95	43.058333	-76.166389	87.20
55	WHSU-CD	LIC	DC	51	6.7	43.058333	-76.166389	87.20
56	WCUL-LD	CP	LD	32	2.25	43.246167	-75.773250	89.84
57	W39EB-D	LIC	LD	39	0.5	41.688056	-74.834444	92.56
58	W39EB-D	CP	LD	39	3.28	41.688139	-74.834028	92.57
59	WYBN-LD	LIC	LD	14	15.0	42.287111	-74.266167	94.68
60	W25DY-D	LIC	LD	25	2.4	41.660833	-74.686389	101.89
61	W30AZ-D	LIC	LD	30	0.1	41.660833	-74.686389	101.89
62	WSPX-TV	LIC	DT	15	49.0	43.305000	-76.049194	104.76
63	WSPX-TV	CP MOD	DT	36	953.0	43.305000	-76.049194	104.76
64	WNDR-LD	CP	LD	31	15.0	42.951389	-76.584444	105.18
65	WNDR-LP	LIC	TX	6	1.45	42.952000	-76.586306	105.35
66	W14CO-D	LIC	LD	14	0.092	41.467000	-75.686278	105.74
67	W47DH-D	LIC	LD	47	0.9	41.467000	-75.686278	105.74
68	W21CP-D	LIC	LD	21	2.5	43.041472	-74.366528	107.13
69	W24DB-D	LIC	DC	24	5.0	41.435861	-75.728417	109.88
70	WSWB	LIC	DT	31	100.0	41.435861	-75.728417	109.88
71	WQPX-TV	LIC	DT	32	528.0	41.435000	-75.726111	109.93
72	WFNY-CD	LIC	DC	48	0.86	43.101722	-74.370389	110.94
73	W26BF	LIC	TX	26	1.09	42.130889	-76.788833	112.13

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Nearest Turbine (km)
74	W26BF	APP	LD	26	15.0	42.130889	-76.788833	112.13
75	WEPT-CD	LIC	DC	22	15.0	42.085000	-74.100000	113.37
76	W59DG	CP	LD	32	15.0	42.074722	-76.779444	113.57
77	W59DG	LIC	TX	59	7.7	42.074722	-76.779444	113.57
78	W28DO-D	LIC	LD	28	0.76	42.031944	-76.783611	115.73
79	WYPX-TV	LIC	DT	50	450.0	42.984528	-74.181694	116.50
80	WRGB	LIC	DT	6	30.2	42.625361	-74.010194	116.68
81	WXXA-TV	LIC	DT	7	15.0	42.625361	-74.010194	116.68
82	WNYT	LIC	DT	12	30.0	42.625361	-74.010194	116.68
83	WNYT	LIC	DX	12	15.0	42.625361	-74.010194	116.68
84	WMHT	CP	DT	25	268.0	42.625361	-74.010194	116.68
85	WTEN	LIC	DT	26	700.0	42.625361	-74.010194	116.68
86	WMHT	LIC	DT	34	325.0	42.625361	-74.010194	116.68
87	WCWN	LIC	DT	43	600.0	42.625361	-74.010194	116.68
88	WCWN	LIC	DX	43	326.0	42.625361	-74.010194	116.68
89	W44CT-D	LIC	LD	44	9.0	42.636944	-74.000833	117.69
90	WVBG-LP	CP	LD	41	15.0	42.637000	-73.997056	117.99
91	WRGB	LIC	DX	6	14.0	42.636944	-73.995278	118.13
92	WNYA	LIC	DT	13	12.69	42.636944	-73.995278	118.13
93	W25AQ-D	LIC	LD	25	3.6	41.683111	-76.482694	117.69
94	W10CP-D	LIC	LD	10	0.066	41.681167	-76.481583	117.78
95	W15CO-D	LIC	LD	15	0.034	41.681167	-76.481583	117.78
96	WVBG-LP	LIC	TX	41	0.1	42.545056	-73.979833	117.80
97	-	CP	LD	40	0.1	42.336944	-76.927500	118.36
98	WNGX-LD	LIC	LD	42	0.14	42.850167	-74.064389	119.02
99	WETM-TV	LIC	DT	18	45.0	42.106111	-76.871111	119.46
100	WRGB	LIC	LD	24	5.0	41.960083	-74.025972	124.15
101	W43CO-D	LIC	LD	43	9.5	41.314944	-75.888361	126.42
102	W20CM	LIC	TX	20	0.2	41.363694	-74.677639	130.35
103	W25FA-D	LIC	TX	24	0.2	41.363694	-74.677639	130.35
104	W26DB-D	LIC	TX	26	0.2	41.363694	-74.677639	130.35
105	W32EI-D	LIC	TX	32	0.2	41.363694	-74.677639	130.35
106	W34DI-D	LIC	TX	34	0.2	41.363694	-74.677639	130.35
107	W22EW-D	LIC	TX	42	0.2	41.363694	-74.677639	130.35
108	W31EF-D	LIC	TX	46	0.2	41.363694	-74.677639	130.35
109	W28ES-D	LIC	TX	49	0.2	41.363694	-74.677639	130.35
110	WNNY-LD	CP	LD	39	3.5	43.476667	-76.278611	130.56
111	WSKA	LIC	DT	30	25.0	42.142000	-77.077444	134.62
112	WENY-TV	LIC	DT	36	75.0	42.142000	-77.077444	134.62
113	WYDC	LIC	DT	48	7.6	42.142000	-77.077444	134.62
114	W16DR-D	CP	LD	16	10.0	42.141944	-77.077500	134.62
115	WECY-LD	LIC	LD	22	15.0	42.141944	-77.077500	134.62

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Nearest Turbine (km)
116	WJKP-LD	LIC	LD	39	0.314	42.141944	-77.077500	134.62
117	W41DB	LIC	TX	41	7.0	42.141944	-77.077500	134.62
118	W45DZ-D	CP	LD	45	5.0	42.141944	-77.077500	134.62
119	W46EZ-D	CP	LD	46	15.0	42.141944	-77.077500	134.62
120	W50ES-D	CP	LD	50	15.0	42.141944	-77.077500	134.62
121	NEW	APP	LD	51	15.0	42.141944	-77.077500	134.62
122	W08EM-D	LIC	DC	8	0.007	41.198389	-75.819639	137.31
123	W08EM-D	CP	DC	9	0.024	41.198389	-75.819639	137.31
124	W42AE	LIC	TX	42	19.3	41.719528	-73.995417	139.31
125	WOLF-TV	CP	DT	22	220.0	41.182833	-75.869861	140.05
126	WOLF-TV	LIC	DT	45	420.0	41.182833	-75.869861	140.05
127	WNEP-TV	LIC	DT	50	500.0	41.182556	-75.870528	140.09
128	WBRE-TV	LIC	DT	11	30.0	41.182778	-75.873611	140.14
129	WYOU	CP	DT	12	30.0	41.182778	-75.873611	140.14
130	WYOU	LIC	DT	13	30.0	41.182778	-75.873611	140.14
131	W20CP-D	LIC	LD	20	1.15	41.759500	-76.924944	140.62
132	W26CV-D	LIC	LD	26	0.098	41.759500	-76.924944	140.62
133	W47CM	CP MOD	LD	47	1.3	42.971389	-73.845000	140.63
134	W28ES-D	CP	TX	49	70.0	41.173167	-74.958556	141.34
135	W38FM-D	CP	LD	38	2.0	42.026333	-77.117056	141.61
136	W20BL-D	LIC	LD	20	0.593	42.309167	-77.221111	142.76
137	-	CP	LD	48	0.1	41.051944	-75.511944	149.69
138	-	CP	LD	48	0.1	41.051944	-75.511944	149.69

Table 1: Off-Air TV Stations within 150 Kilometers of Project Area

3. Impact Assessment

Based on a contour analysis of the licensed stations within 150 kilometers of the High Bridge Wind Farm project, it was determined that fourteen of the full-power digital stations, identified below in Table 2, may have their reception disrupted in and around the project. The areas primarily affected would include TV service locations within 10 kilometers of the wind energy project 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 Nearest Turbine (km)
6	WIVT	LIC	DT	34	345.0	42.060833	-75.943056	56.51
8	WSKG-TV	LIC	DT	42	50.0	42.061167	-75.945611	56.62
9	WICZ-TV	LIC	DT	8	7.9	42.056111	-75.943889	56.95
11	WBNG-TV	LIC	DT	7	34.0	42.058611	-75.951389	57.15
16	WSYR-TV	LIC	DT	17	105.0	42.945000	-76.024167	70.12
21	WSTM-TV	LIC	DT	24	210.0	42.944944	-76.118389	75.11
22	WCNY-TV	LIC	DT	25	97.0	42.944944	-76.118389	75.11
23	WTVH	LIC	DT	47	500.0	42.955278	-76.109167	75.45
25	WSYT	LIC	DT	19	621.0	42.880611	-76.199639	75.02
26	WNYS-TV	LIC	DT	44	680.0	42.880611	-76.199639	75.02
33	WFXV	LIC	DT	27	1000.0	43.145278	-75.176111	77.14
34	WUTR	LIC	DT	30	50.0	43.145278	-75.176111	77.14
36	WKTV	LIC	DT	29	708.0	43.102500	-74.940556	80.31
80	WRGB	LIC	DT	6	30.2	42.625361	-74.010194	116.68

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

[4] Definitions of service and status codes:
DT – Digital television broadcast station
LIC – Licensed and operational station

[5] ERP = Transmit Effective Radiated Power

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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