Wind Power GeoPlanner™

AM and FM Radio Report

115-kV Transmission Line in Steuben County, NY

Prepared on Behalf of
Eight Point Wind, LLC

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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 115-kV transmission line project in Steuben County, New York.

2. Summary of Results

AM Radio Analysis

Comsearch found six database records[1] for AM stations within approximately 30 kilometers of the transmission line, as shown in Table 1 and Figure 1. These records represent station WLEA, which broadcasts out of Hornell, New York, within the project area of interest (AOI); station WLSV, broadcasting out of Wellsville, New York, to the west of the project area; and station WDNY, out of Dansville, New York, to the north. 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 Nearest Tower (km)
1	WLEA	LIC	1480	2.5	Daytime	42.287500	-77.646389	0.20	0.77
2	WLEA	LIC	1480	0.019	Nighttime	42.287500	-77.646389	0.20	0.77
3	WLSV	LIC	790	1.0	Daytime	42.076944	-77.929722	0.38	19.07
4	WLSV	LIC	790	0.041	Nighttime	42.076944	-77.929722	0.38	19.07
5	WDNY	LIC	1400	0.88	Daytime	42.538611	-77.682500	0.21	25.82
6	WDNY	LIC	1400	1.0	Nighttime	42.538611	-77.682500	0.21	25.82

Table 1: AM Radio Stations within 30 Kilometers of Transmission Line

[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.

[2] LIC = Licensed and operational station

[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.

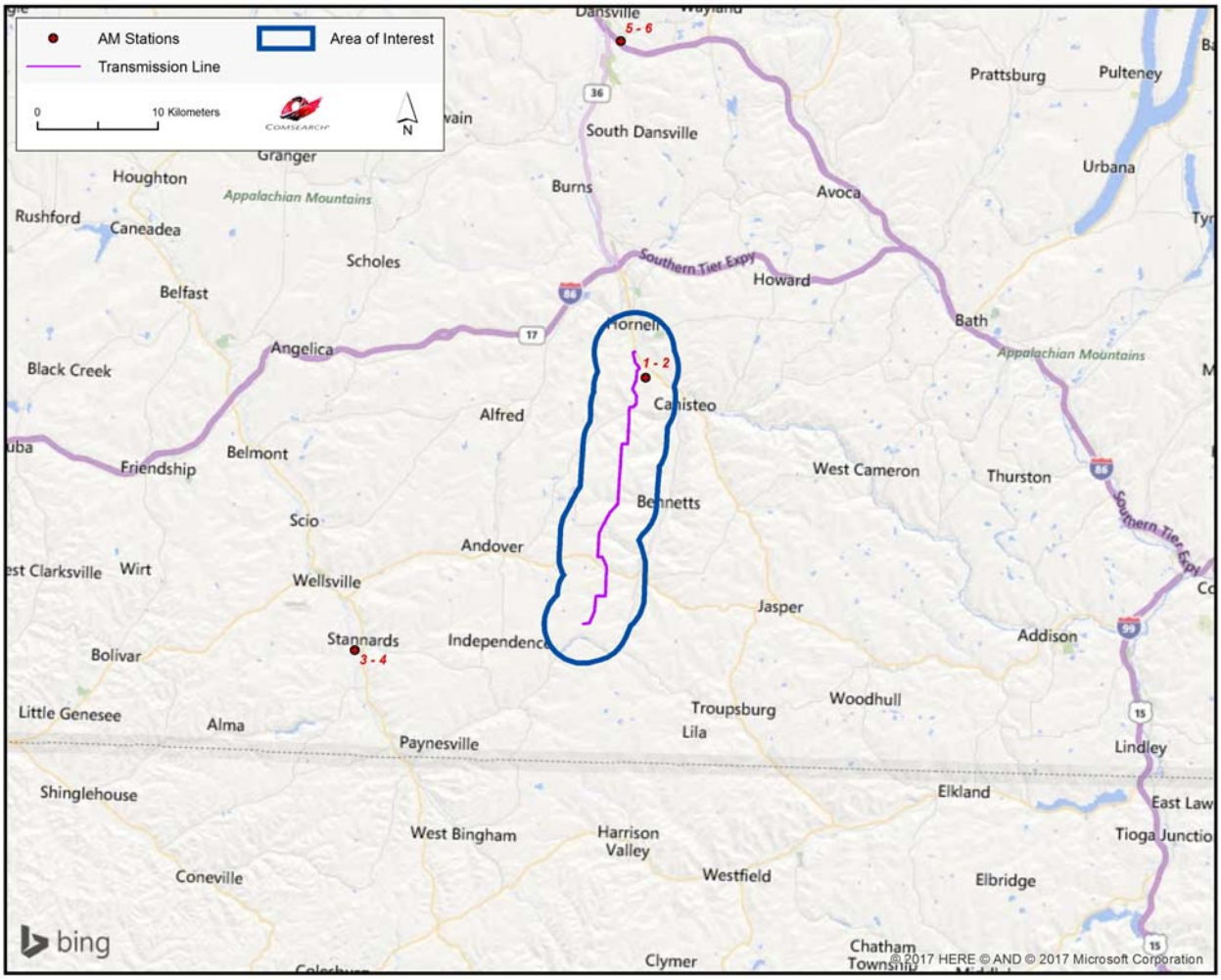

Figure 1: AM Radio Stations within 30 Kilometers of Transmission Line

FM Radio Analysis

Comsearch determined that there were twenty-eight database records for FM stations within a 30-kilometer radius of the transmission line, as shown in Table 2 and Figure 2. Only twenty-six of these stations are currently licensed and operating, twelve of which are translator stations 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 Nearest Tower (km)
1	WKPQ	LIC	FM	105.3	43.0	42.292222	-77.674167	1.54
2	WSQA	LIC	FM	88.7	4.5	42.267222	-77.631944	1.92
3	W226AP	LIC	FX	93.1	0.02	42.267222	-77.631944	1.92
4	WCKR	LIC	FM	92.1	2.55	42.343889	-77.626667	4.84
5	W257AX	LIC	FX	99.3	0.01	42.350556	-77.690556	5.54
6	W280EB	LIC	FX	103.9	0.034	42.278056	-77.769722	9.01
7	W284BX	LIC	FX	104.7	0.0054	42.278056	-77.769722	9.01
8	WALF	LIC	FM	89.7	0.2	42.254722	-77.786944	9.98
9	W236CP	LIC	FX	95.1	0.03	42.401667	-77.660278	10.53
10	WZHD	LIC	FM	97.1	3.9	42.401667	-77.660278	10.53
11	WETD	LIC	FM	90.7	3.2	42.260278	-77.797500	10.96
12	WQRW	LIC	FM	93.5	1.1	42.190278	-77.821389	11.20
13	WZKZ	LIC	FM	101.9	1.0	42.190278	-77.821389	11.20
14	WCIK	LIC	FM	103.1	0.79	42.335278	-77.457500	16.74
15	W219CK	LIC	FX	91.7	0.043	42.121667	-77.945000	20.24
16	WCIK	CP MOD	FM	103.1	1.4	42.470472	-77.536306	20.74
17	W248BC	LIC	FX	97.5	0.01	42.510833	-77.635000	22.73
18	W283BR	LIC	FX	104.5	0.01	42.510861	-77.635083	22.73
19	WDNY-FM	LIC	FM	93.9	0.57	42.512500	-77.635278	22.91
20	W294AV	LIC	FX	106.7	0.06	42.123611	-77.981667	23.28
21	WVIN-FM	LIC	FM	98.3	4.5	42.318333	-77.357500	24.50
22	W229AR	CP MOD	FX	100.3	0.15	42.318333	-77.357500	24.50
23	W239BK	LIC	FX	95.7	0.099	42.354722	-77.363889	24.75
24	WJQZ	LIC	FM	103.5	1.75	42.056667	-78.009444	25.96
25	WMTT	LIC	FS	94.7	7.9	42.062222	-77.360556	27.31
26	WMTT	LIC	FM	94.7	12.0	42.061944	-77.360556	27.31
27	W293CE	LIC	FX	106.5	0.09	42.357361	-77.321500	28.20
28	W294AW	LIC	FX	106.7	0.06	42.560278	-77.697222	28.33

Table 2: FM Radio Stations within 30 Kilometers of Transmission Line

[5] LIC = Licensed and operational station; CP MOD = Modification of construction permit.

[6] FM = FM broadcast station; FX = FM translator station; FS = FM auxiliary (backup) station

[7] ERP = Transmit Effective Radiated Power.

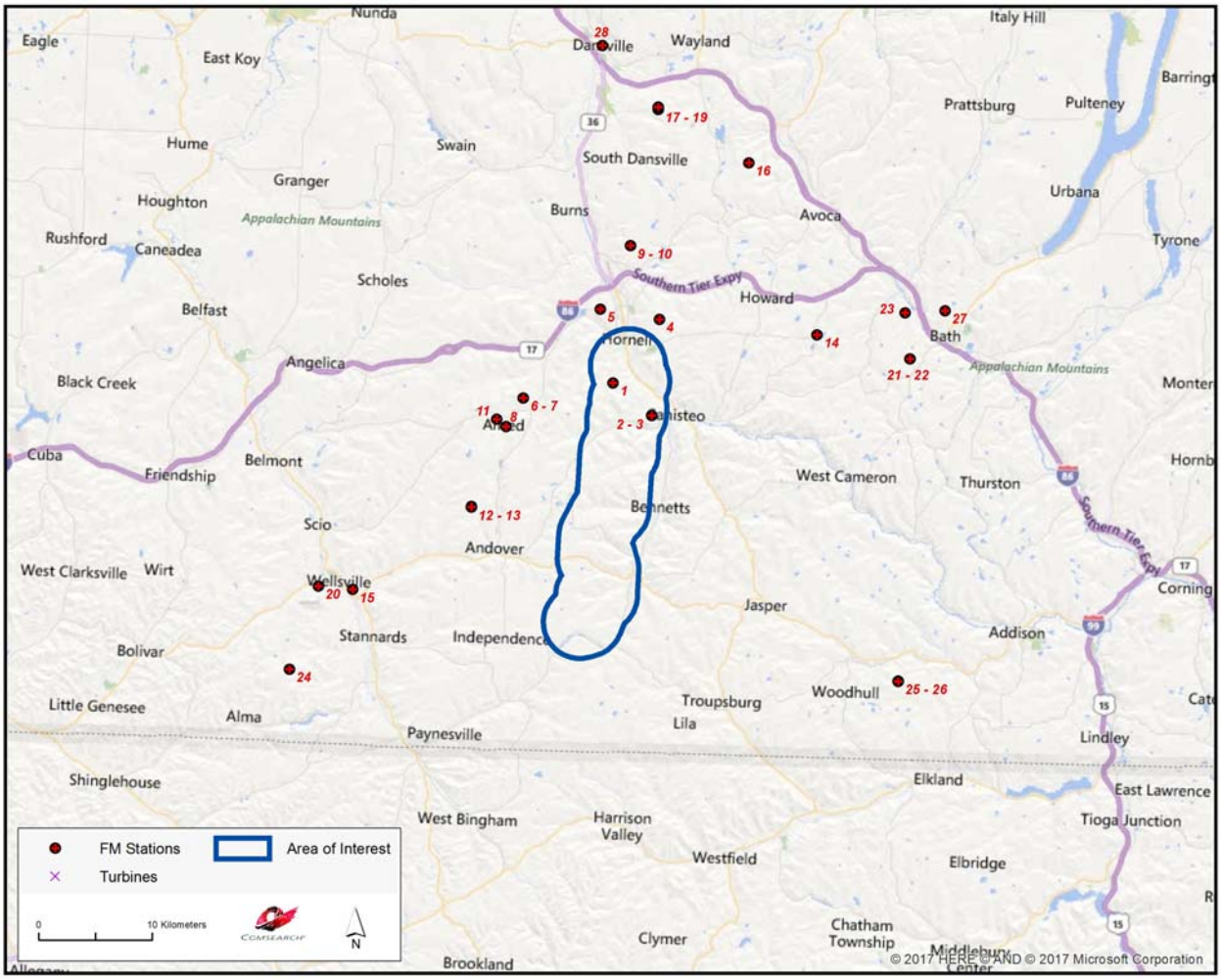

Figure 2: FM Radio Stations within 30 Kilometers of Transmission Line

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 the transmission line towers. The closest AM station to any tower in the transmission line project is WLEA at a distance of more than 0.7 kilometers. Since the station's antenna is non-directional and transmits at a relatively high frequency, the exclusion distance for WLEA is only 0.2 kilometers, placing it outside the potential range of impact. The next closest AM station is WLSV at a distance of more than 19.0 kilometers. As there were no other 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 towers should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by transmission line towers, especially when large objects, such as towers, 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 transmission line, WKPQ, is more than 1.5 kilometers from the nearest tower. At this distance, there should be adequate separation to avoid radiation pattern distortion.

Electromagnetic interference (EMI) from a transmission line is caused by an induction field, which is created by the 60 Hz electrical power carried on the transmission line conductors and the harmonics of the 60 Hz fundamental waveform. Interference can also result from arcing that occurs at high-voltage interconnect points on the transmission line. In either case, the interfering signal is amplitude-modulated (AM), and the propagation of the interference occurs over very short distances. These distances are generally around 500 feet or less, and the frequency of the electromagnetic interference does not normally extend above 50 MHz.

Accordingly, the only reception devices that could be affected by EMI would be AM radios, which operate between 0.5 and 1.6 MHz. The degree of degradation to AM reception would be a function of the separation distance of the AM radio from the transmission line and the strength of the received signal. Generally speaking, however, this degradation would be no different than what occurs when a car radio passes under or near existing high voltage transmission lines that interconnect utility companies and their sub stations throughout the state.

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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