

Wind Power GeoPlanner™

Communication Tower Study

Arkwright Summit Wind Farm LLC



Prepared on Behalf of
EDP Renewables

January 30, 2015



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1. Introduction

Our communication tower study was performed for Arkwright Summit Wind Farm in Chautauqua, New York to identify all communication signal towers, and their owners, within the project area. This information is useful in the planning stages of the wind energy facilities to identify turbine setbacks and to prevent disruption to the services provided by the tenants on the towers. This data can be used in support of the wind energy facilities communications needs in addition to avoiding any potential impact to the current communications services provided in the region.

2. Summary of Results

The communication towers in the study area were derived from a variety of sources including the FCC's Antenna Structure Registration (ASR) database, Universal Licensing System (ULS), national and regional tower owner databases, and the local planning and zoning boards. The data¹ was imported into GIS software and the structures mapped in the wind energy area of interest. Each tower location is identified with a unique ID number associated with detailed structure and contact information provided in a spreadsheet attachment.

Seven communication tower structures and twenty-nine active communication antennas were identified within the Arkwright Summit Wind Farm project area using the data sources described in our methodology above. The communication antennas may be located on a variety of structure types such as guyed towers, monopoles, silos or rooftops. The specific type of structure would normally need to be determined by an on-site visit.

Detailed information about the tower structure and communication antennas is provided in Table 1 and Table 2 including location coordinates, structure height above ground level, and owner-operator name². Some communication towers were found to have inaccurate coordinates in the FCC license. The coordinates have been corrected using aerial imagery.

A discussion of turbine setback distances is provided in section three.

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

² Please note that this report analyzes all known operators on the towers from data sources available to Comsearch. Unidentified operators may exist on the towers due to unlicensed or federal government systems, mobile phone operators with proprietary locations, erroneous data on the FCC license, and other factors beyond our control.

Tower ID	ASR Number	Owner	Structure Height AGL (m)	City	Latitude (NAD83)	Longitude (NAD83)
Tower001	1009129	TRI STATE CHRISTIAN TV	305.0	Arkwright, NY	42.393333	-79.228611
Tower002	1217743	County of Chautauqua Office of the Sheriff	73.1	Arkwright, NY	42.395056	-79.235889
Tower003	N/A	AMERICAN TOWER CORP	39.6	Arkwright, NY	42.411167	-79.238639
Tower004	N/A	SBA COMMUNICATIONS	60.4	Fredonia, NY	42.414378	-79.237452
Tower005	1006161	New York RSA No. 3 Cellular Partnership	87.2	Arkwright, NY	42.414778	-79.238250
Tower006	N/A	AMERICAN TOWER CORP	56.4	Fredonia, NY	42.415542	-79.238422
Tower007	N/A	KGI WIRELESS	42.7	Arkwright, NY	42.419778	-79.259778

Table 1: Summary of Tower Structures

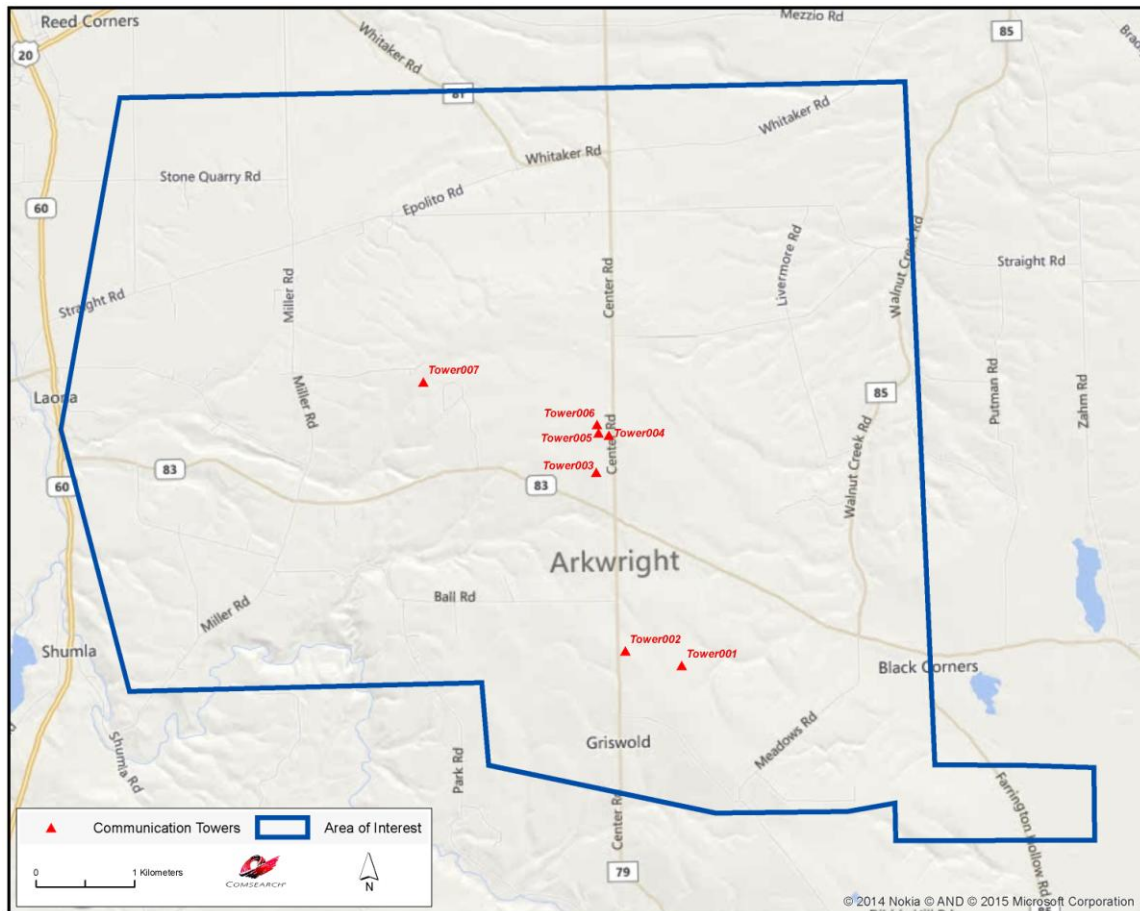


Figure 1: Towers within or near the Area of Interest

ID	Tower ID	Callsign	Service Type	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
1	Tower001	WNYB	TV	FAITH BROADCASTING NETWORK, INC.	313.0	42.393273	-79.228565
2	Tower001	WQFB461	Microwave	New York, State of	155.5	42.393273	-79.228565
3	Tower001	WPLR869	Land Mobile	FAITH BROADCASTING NETWORK, INC.	323.0	42.393273	-79.228565
4	Tower002	WPRR472	Microwave	County of Chautauqua Office of the Sheriff	71.6	42.394713	-79.235520
5	Tower002	KAN682	Land Mobile	CHAUTAUQUA COUNTY EMS NEW YORK	58.0	42.394713	-79.235520
6	Tower002	KEB392	Land Mobile	CHAUTAUQUA, COUNTY OF	58.0	42.394713	-79.235520
7	Tower002	KEB909	Land Mobile	CHAUTAUQUA, COUNTY OF	46.0	42.394713	-79.235520
8	Tower002	WPVX592	Land Mobile	CHAUTAUQUA, COUNTY OF	45.7	42.394713	-79.235520
9	Tower002	WQUD320	Land Mobile	CHAUTAUQUA, COUNTY OF	50.3	42.394713	-79.235520
10	Tower002	WQUU282	Land Mobile	CHAUTAUQUA, COUNTY OF	50.3	42.394713	-79.235520
11	Tower002	WQVE292	Land Mobile	CHAUTAUQUA, COUNTY OF	50.3	42.394713	-79.235520
12	Tower003	KQD357	Land Mobile	Norfolk Southern Railway Company	13.0	42.411167	-79.238639
13	Tower003	WBB742	Microwave	Norfolk Southern Railway Company	38.1	42.411167	-79.238639
14		WNCU997	Land Mobile	DON FRAME TRUCKING INC	58.0	42.413667	-79.218944
15		WPGH563	Land Mobile	S ST GEORGE ENTERPRISES INC	55.0	42.413667	-79.218944
16		WQOA377	Land Mobile	COMMUNICATION SERVICES OF WNY & PA INC	52.0	42.413667	-79.218944
17		WNXQ602	Land Mobile	W C A SERVICES CORP	52.0	42.413667	-79.218944
18		WNXQ602	Land Mobile	W C A SERVICES CORP	9.0	42.413667	-79.218944
19	Tower005	WQPA475	Microwave	Conterra Ultra Broadband LLC	41.2	42.414778	-79.238250
20	Tower005	WQSH456	Microwave	Sprint Spectrum L.P.	74.7	42.414778	-79.238250
21	Tower005	KNKQ273	Cellular	NEW YORK RSA NO. 3 CELLULAR PARTNERSHIP	87.2	42.414778	-79.238250
22	Tower005	WPJY947	Paging	Spok, Inc.	44.0	42.414778	-79.238250
23	Tower006	WMK453	Microwave	New Cingular Wireless PCS, LLC	32.0	42.415542	-79.238422
24		WNBK721	Land Mobile	HARVEY, ROBERT D	55.0	42.415611	-79.235889
25		WNMI645	Land Mobile	ERIE 2 CHAUTAUQUA CATTARAUGUS B O C E S	55.0	42.415611	-79.235889
26		WPCP419	Land Mobile	CARRIER COACH INC	55.0	42.415611	-79.235889
27		WQEK811	Land Mobile	STATE ELECTRONICS CO INC	55.0	42.415611	-79.235889
28		WQOZ204	Microwave (3600 MHz - 3700 MHz)	Netsync Internet Service Corporation	12.2	42.429167	-79.236111
29		W263CN	FM	FAMILY LIFE MINISTRIES, INC.	17.0	42.432085	-79.277515

Table 2: Summary of Communication Antennas

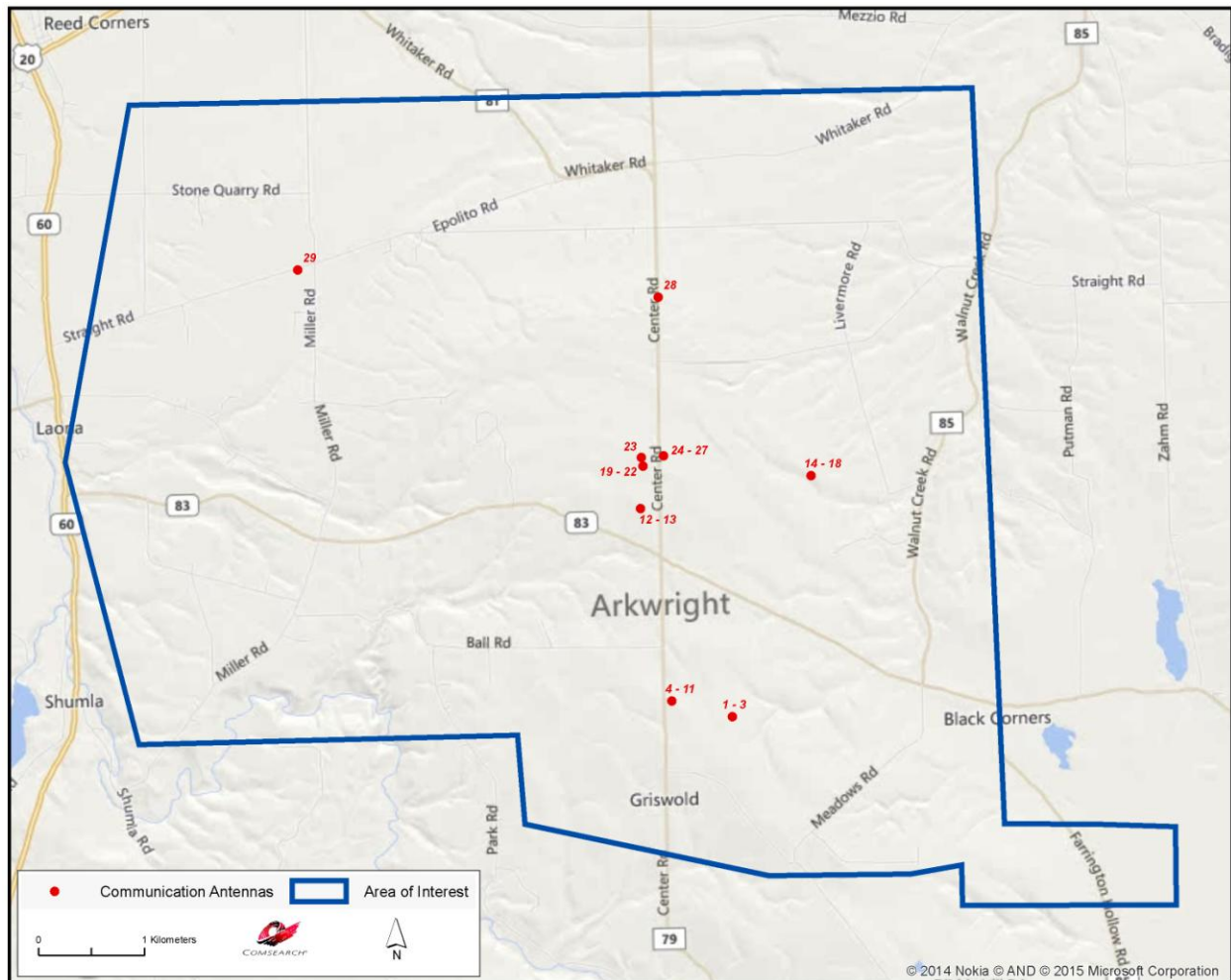


Figure 2: Communication Antennas within or near the Area of Interest

3. Discussion of Separation Distances

In planning the wind energy turbine locations, a conservative approach would dictate not locating any turbines in close proximity to existing tower structures to avoid any possible impact to the communications services provided by the structures. Reasonable distance between communication towers and wind turbine towers is a function of two things: (1) the physical turning radius of the wind turbine blades and (2) the characteristics of the communication systems on the communication tower.

Since wind turbine blades can rotate 360°, the first consideration of separation distance to other structures is clearance of the blades. If the blade radius is 50 meters, than a separation distance greater than 50 meters is necessary. From a practical standpoint, a setback distance

greater than the maximum height of the turbine is necessary to insure a “fall” safety zone in the unlikely event of a turbine tower failure. Setback requirements for “fall” safety are typically specified by the local zoning ordinances.

The separation distance required based on the characteristics of the communication systems will vary depending on the type(s) of communication antennas located on the tower. For example, AM, FM and TV communication antennas should be separated by distances that allow for normal coverage. For FM and TV stations, the separation distances can be as great as 4 kilometers and for AM stations 3.2 kilometers. For land mobile and mobile phone systems, setback distances are based on FCC interference emissions from electrical devices in the land mobile and mobile telephone frequency bands.

Finally, the tower structures identified could be a potential benefit in support of communications network needs for the wind energy facility. An example would be the implementation of a Supervisory Control and Data Acquisition (SCADA) system that monitors and provides communications access to the wind energy facility.

4. Conclusions

Our study identified seven tower structures and twenty-nine active communication antennas within or in the close proximity to the project area. They are used for a variety of wireless services including microwave, land mobile, cellular, TV and FM services. Detailed impact assessments should be performed for each service type.

5. Contact Us

For questions or information regarding the Communication Tower Study, please contact:

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