

# Wind Power GeoPlanner™

## AM and FM Radio Report

Arkwright Summit Wind Farm LLC



Prepared on Behalf of  
EDP Renewables

July 15, 2015



**COMSEARCH**  
A CommScope Company

## **Table of Contents**

<b>1. Introduction</b>	<b>- 1 -</b>
<b>2. Summary of Results</b>	<b>- 1 -</b>
<b>3. Impact Assessment</b>	<b>- 5 -</b>
<b>4. Recommendations</b>	<b>- 5 -</b>
<b>5. Contact</b>	<b>- 6 -</b>

## 1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Arkwright Summit Wind Farm project in Chautauqua County, New York.

## 2. Summary of Results

### AM Radio Analysis

Comsearch found two database records<sup>1</sup> for AM stations within approximately 30 kilometers of the project, as shown in Table 1 and Figure 1. These records represent station WDOE, which broadcasts out of Dunkirk, New York, to the northwest of the project. WDOE is licensed to operate at two different power levels, a higher transmit power for daytime operations and a lower transmit power for nighttime operations.

ID	Call Sign	Status <sup>2</sup>	Frequency (kHz)	Transmit ERP <sup>3</sup> (kW)	Operation Time	Latitude (NAD 27)	Longitude (NAD 27)	Required Separation Distance <sup>4</sup> (km)	Distance to Nearest Turbine (km)
1	WDOE	LIC	1410	1.0	Daytime	42.463611	-79.355833	0.21	8.67
2	WDOE	LIC	1410	0.031	Nighttime	42.463611	-79.355833	0.21	8.67

Table 1: AM Radio Stations within 30 Kilometers

<sup>1</sup> 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](http://www.comsearch.com/files/data_license.pdf).

<sup>2</sup> LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

<sup>3</sup> ERP = Transmit Effective Radiated Power.

<sup>4</sup> 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.

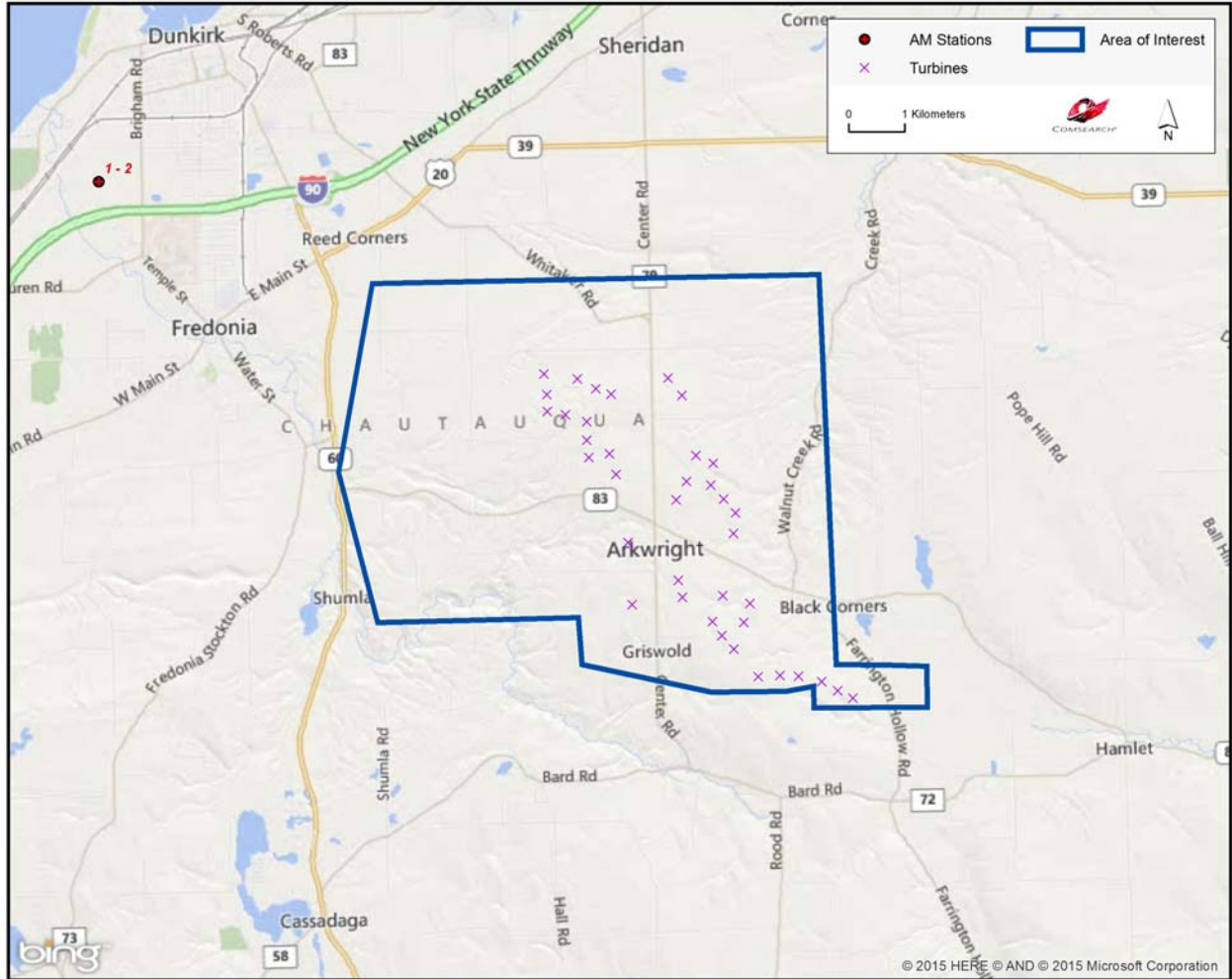


Figure 1: AM Radio Stations within 30 Kilometers

### FM Radio Analysis

Comsearch determined that there were fifteen database records for FM stations within a 30-kilometer radius of the Arkwright Summit Wind Farm project, as shown in Table 2 and Figure 2. Only twelve of these stations are currently licensed and operating, six of which are translator stations that operate with limited range.

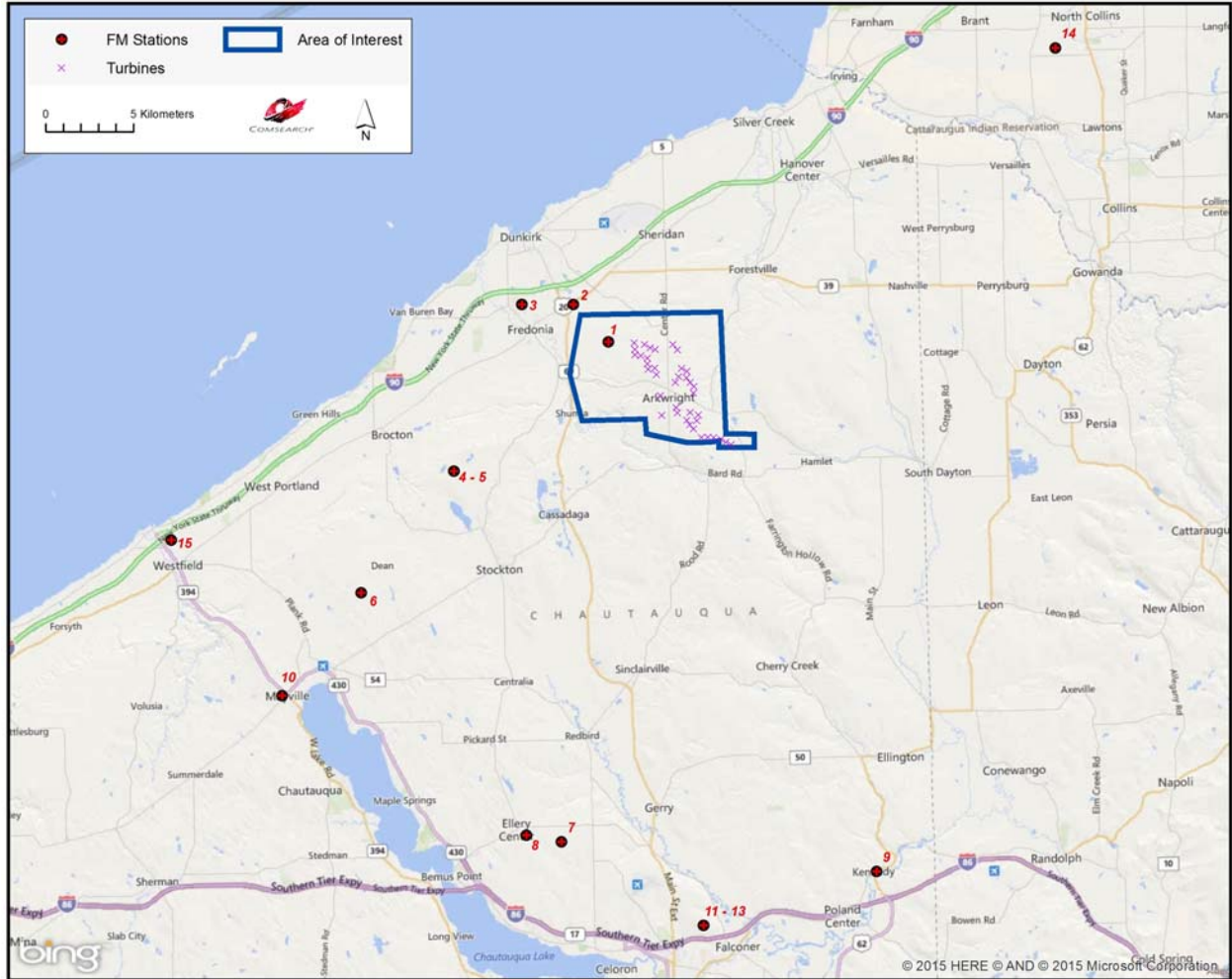
ID	Call Sign	Status <sup>5</sup>	Service <sup>6</sup>	Frequency (MHz)	Transmit ERP <sup>7</sup> (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	W263CN	CP MOD	FX	100.5	0.18	42.432028	-79.277750	1.47
2	W203AW	LIC	FX	88.5	0.019	42.451667	-79.301667	4.12
3	WCVF-FM	LIC	FM	88.9	0.13	42.452222	-79.337222	6.77
4	W235BP	LIC	FX	94.9	0.2	42.367222	-79.386667	12.29
5	WBKX	LIC	FM	96.5	1.4	42.367222	-79.386667	12.29
6	W252CG	LIC	FX	98.3	0.007	42.305833	-79.452222	19.91
7	WYRR	LIC	FM	88.9	0.42	42.175833	-79.317222	24.40
8	WUBJ	LIC	FM	88.1	2.7	42.179722	-79.341389	24.77
9	WWKP-LP	CP	FL	101.3	0.1	42.157222	-79.100000	25.74
10	W211AE	LIC	FX	90.1	0.003	42.253611	-79.508333	26.93
11	W203BV	LIC	FX	88.5	0.009	42.131389	-79.220278	27.49
12	W254AQ	LIC	FX	98.7	0.01	42.131389	-79.220278	27.49
13	WHUG	LIC	FM	101.9	6.0	42.131389	-79.220278	27.49
14	WCOM-FM	LIC	FM	89.3	8.0	42.578056	-78.963056	27.60
15	W252CG	CP	FX	98.3	0.07	42.334694	-79.583250	28.51

*Table 2: FM Radio Stations within 30 Kilometers*

<sup>5</sup> LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

<sup>6</sup> FM = FM broadcast station; FX = FM translator station; FL = FM low-power station; FB = FM booster station.

<sup>7</sup> ERP = Transmit Effective Radiated Power.



*Figure 2: FM Radio Stations within 30 Kilometers*

### **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 wind turbine towers. The closest AM station to the Arkwright Summit Wind Farm project, WDOE, is more than 8.6 kilometers from the nearest turbine. As there were no 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 should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by wind turbines, especially when large objects, such as wind turbines, 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 station to the Arkwright Summit Wind Farm project, W203AW, is located approximately 4.1 kilometers from the nearest turbine. At this distance, there should be adequate separation to avoid radiation pattern distortion.

Family Life Ministries, Inc. have been issued a permit to construct a new FM translator station under call sign W263CN for the purposes of rebroadcasting parent station WTSS (see Table 2, ID 1). The proposed location is inside the Arkwright Summit Wind Farm project area and in relatively close proximity to number of the planned turbines. The authorization was granted November 11, 2014 and allows Family Life Ministries, Inc. until November 26, 2016 to complete construction and file for a license to cover; failure to do so before this date will automatically forfeit the permit.

### **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. If the proposed FM translator station W263CN becomes licensed after the Arkwright Summit Wind Farm project is installed, the station will have to plan its actual location and coverage around the presence of the wind turbines.



## **5. Contact**

For questions or information regarding the AM and FM Radio Report, please contact:

Contact person:	Denise Finney
Title:	Account Manager
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5650 (office) / 703-726-5595 (fax)
Email:	<a href="mailto:dfinney@comsearch.com">dfinney@comsearch.com</a>
Web site:	<a href="http://www.comsearch.com">www.comsearch.com</a>