

Hoffman Falls Wind Project

Case No. 23-00038

900-2.21 Exhibit 20

Effect on Communications

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EXHIBIT 20 EFFECT ON COMMUNICATIONS

a) Proposed Telecommunications Interconnection

It is anticipated that the generating Facility's operational data will be transmitted to the New York Independent System Operator, and the transmission-owning utility, in this case National Grid. This data will include generation data (megawatt output, megavar, and any curtailment) and meteorological data (wind speed, wind direction, barometric pressure, ambient temperature, dew point, and humidity). The Facility's meter is anticipated to be located at the point of interconnection (POI) switchyard. At the POI substation, an internet protocol (IP)-based network connection will be enabled. Once the POI substation and operations and maintenance (O&M) building have internet service, a secure encrypted link will be established between the collection substation and the O&M building to allow for secure communication between the two.

b) Existing Broadcast Communication Sources

This Exhibit identifies existing broadcast communication sources within a minimum 2-mile radius of the Facility and the electric interconnection between the Facility and the POI, unless otherwise noted.

(1) AM Radio

Comsearch conducted a review of Federal Communications Commission (FCC) license data and compiled a list of AM radio stations within approximately 30 kilometers (18.6 miles) of the proposed Facility (Appendix 20-A). A total of 4 stations were identified within the survey area. However, no AM radio stations were identified within 2 miles of the Facility Site. The nearest AM radio station, WMCR, out of Oneida, New York, is located approximately 8.9 miles north of the proposed Facility.

(2) FM Radio

Comsearch also conducted a review of FCC license data and compiled a list of FM radio stations within approximately 30 kilometers (18.6 miles) of the proposed Facility (see Appendix 20-A). A total of 27 stations were identified within the survey area, all of which are currently licensed and operating. However, only one FM radio station—WMVQ, licensed out of Fenner, New York (approximately 1.6 miles from the proposed Facility)—was identified within 2 miles of the Facility Site.

(3) Television

"Off-air" television stations broadcast signals from terrestrial-based facilities directly to television receivers (i.e., without using a cable or satellite connection). Television stations within 150 kilometers (93.2 miles) are the most likely to provide off-air coverage to the communities near the Facility. Comsearch examined the coverage of television stations and communities in the area that could potentially have degraded television reception because of Facility operation (see Appendix 20-B). There are 91 television stations within 93.2 miles of the proposed Facility, of which 38 are currently licensed and operating. Eight of the licensed and operating stations are low-power stations or translators which serve local audiences and have limited ranges.

(4) Telephone

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with Emergency 911 capabilities (i.e., phones that automatically provide the location of the phone to emergency services). As mobile phone market boundaries differ from service to service, Comsearch disaggregated the carriers' licensed areas down to the county level (see Appendix 20-C). The type of service (e.g., cellular service at 800 MHz [CELL], advanced wireless service [AWS], personal communication service at 1.9 GHz [PCS], wireless communications service at 2.3 GHz [WCS], and commercial mobile phone at 700 MHz service [700 MHz]) for each mobile phone carrier in Madison County is provided below:

- AT&T: 700 MHz, AWS, Cellular, PCS, WCS
- DISH Network: 700 MHz
- Sprint: PCS
- T-Mobile: 700 MHz, AWS, PCS
- Verizon: 700 MHz, AWS, Cellular, PCS.

Only one FCC-licensed cellular site is located within 2 miles of the Facility Site. This site, which is owned by Bell Atlantic Mobile Systems, is located southeast of the Facility and approximately 1 mile from the nearest turbine.

(5) Microwave Transmission

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 megahertz [MHz] – 23 gigahertz [GHz]). These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the internet, network controls for utilities and railroads, and various video services. Comsearch prepared a study evaluating the location of the Facility relative to licensed, proposed, and applied for non-federal government microwave systems in the area (see Appendix 20-D). The study identified 13 microwave paths within 2 miles of the proposed Facility. Table 20-1 provides the call sign, band, and licensee for these paths. Three microwave paths (WMF964, WNTY998, and WQSX431) intersect the Facility Site. A map showing the location of the microwave paths is provided in Appendix 20-D and Figure 20-1.

Table 20-1. Microwave Paths within 2 Miles of the Facility

Callsign 1	Callsign 2	Band	Licensee
WLT51	WLT49	940-960 MHz	New York, State of Div of State Police
WQBX986	WQCB227	940-960 MHz	New York, State of Div of State Police
WQGG694	WQGP490	11 GHz	Cellco Partnership - (W-NY)
WQGP490	WQGG694	11 GHz	Cellco Partnership - (W-NY)
WQNH518	WQNH560	6.1 GHz	Madison, County Of
WQNH536	WQNH563	6.1 GHz	Madison, County Of
WQNH559	WQNH560	6.1 GHz	Madison, County Of
WQNH560	WQNH547	6.1 GHz	Madison, County Of
WQNH561	WQNH560	6.1 GHz	Madison, County Of
WQNH563	WQNH550	11 GHz	Madison, County Of
WQNH564	WQNH559	6.1 GHz	Madison, County Of
WQZA455	WQZA456	11 GHz	Conterra Ultra Broadband, LLC
WRXM629	WRXM630	11 GHz	T-Mobile License LLC

(6) Emergency Services

Comsearch assessed the emergency services communication systems in place near the Facility to identify potential impacts from the planned turbines (Appendix 20-E). Registered frequencies for the following types of first responder entities were evaluated: police, fire, emergency medical services, emergency management, hospitals, public works, transportation, and other state, county, and municipal agencies. Land mobile and emergency services data were derived from the FCC’s Universal Licensing System and the FCC’s Public Safety & Homeland Security Bureau. Comsearch identified 19 site-based licenses within 2 miles of the Facility Area and 34 regional area-wide licenses designated for public safety use. The licensee, call sign, frequency bands, antenna height, and distance to nearest proposed turbine for the site-based licenses are provided in Table 20-2. The licensee, area of operation, and frequency band for area-wide licenses are provided in Table 20-3.

Table 20-2. Site-Based Licensed Communication Sources

Licensee	Call Sign	Frequency Bands (MHz)	Antenna Height (meters)	Distance to Nearest Turbine (miles)
MADISON, COUNTY OF	KA59023	150-174	35.0	0.17
MADISON COUNTY 911	WPAF751	450-470	52.0	0.17
MADISON, COUNTY OF	WPUQ258	450-470	51.8	0.17
County of Madison	WQOL738	25-50	21.0	0.22
County of Madison	WQLT879	450-470	49.0	0.24
County of Madison	WQPV647	150-174	18.0	0.24

Licensee	Call Sign	Frequency Bands (MHz)	Antenna Height (meters)	Distance to Nearest Turbine (miles)
BOARD OF COOPERATIVE EDUCATIONAL SERVICES MADISON & ONEIDA COUNTIES DISTRICT	WQYK289	450-470	24.0	0.24
NEW YORK, STATE OF DOT	KLK391	25-50	20.0	0.26
MADISON, COUNTY OF	KBU289	25-50, 150-174	8.9	0.26
FENNER, TOWN OF	WPAX644	150-174	8.9	0.70
County of Madison	WQLT878	450-470	43.0	0.97
County of Madison	WQLT879	450-470	43.0	0.97
STATE OF NEW YORK DIVISION OF STATE POLICE	KVN581	150-174	8.0	1.19
MORRISVILLE EATON CENTRAL SCHOOL	WRUK867	450-470	10.7	1.24
SUNY Morrisville	WQAU758	150-174	30.8	1.44
EATON, TOWN OF	WNRZ302	450-470	13.1	1.88
SMITHFIELD, TOWN OF	WQAB574	450-470	7.0	2.01
CAZENOVIA, VILLAGE OF	KNCW938	150-174	12.0	2.86

Table 20-3. Area-Wide Licensed Communication Sources

Licensee	Area of Operation	Frequency Band (MHz)
American National Red Cross	Statewide: New York	25-50, 450-470
CENTRAL ISLIP HAUPPAUGE VOLUNTEER AMBULANCE INC	Countywide: Steuben, NY	150-174
CHITTENANGO, VILLAGE OF	Countywide: MADISON, NY	150-174
CITY OF NEW YORK	Statewide: New York	4940-4990
County of Madison	Countywide: MADISON, NY	25-50, 150-174, 450-470
ERIE, COUNTY OF	Statewide: New York	450-470
GREATER LENOX AMB SERVICE DBA GREATER LENOX AMB SERVICE	Countywide: MADISON, NY	150-174, 450-470
County of Erie	Statewide: New York	450-470
MADISON, COUNTY OF	Countywide: MADISON, NY	150-174
MASSAUGA SEARCH AND RESCUE INC	Statewide: New York	150-174
NATIONAL SKI PATROL SYSTEM INC	Countywide: MADISON, NY	150-174
NATIONAL SKI PATROL SYSTEM INC	Statewide: New York	150-174
NEW YORK CITY POLICE DEPARTMENT	Statewide: New York	150-174
NEW YORK STATE DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION	Statewide: New York	150-174, 450-470, 4940-4990
New York State Department of Labor	Statewide: New York	150-174

Licensee	Area of Operation	Frequency Band (MHz)
New York State Department of Transportation	Statewide: New York	0-10, 4940-4990
New York State Dept of Environmental Conservation	Statewide: New York	25-50, 150-174
New York State Office of Parks, Recreation & Historic Preservation (NYSOPRHP) - Long Island Region	Statewide: New York	150-174
NYSOPRHP	Statewide: New York	450-470
NYSOPRHP - Niagara Region	Statewide: New York	150-174
NYSOPRHP - Albany	Statewide: New York	150-174
NYSOPRHP - Long Island Region	Statewide: New York	150-174
NEW YORK, STATE OF	Countywide: MADISON, NY	150-174
NEW YORK, STATE OF	Statewide: New York	0-10, 25-50, 150-174, 406-413, 4940-4990
NEW YORK, STATE OF, DIVISION OF STATE POLICE	Statewide: New York	150-174, 450-470, 2450-2500
NIAGARA FRONTIER SEARCH AND RESCUE	Statewide: New York	150-174
NORTHEAST MOBILE SEARCH AND RESCUE INC	Statewide: New York	150-174
NORTHEASTERN FOREST FIRE PROTECTION COMPACT	Statewide: New York	25-50
NYS DEPARTMENT OF HEALTH BUREAU OF EMS	Statewide: New York	25-50, 150-174, 450-470
ONEIDA, CITY OF	Countywide: MADISON, NY	25-50
ORLEANS, COUNTY OF	Statewide: New York	150-174, 450-470
OSSINING, VILLAGE OF	Statewide: New York	25-50
STATE OF NEW YORK DIVISION OF STATE POLICE	Statewide: New York	150-174, 800/900, 4940-4990
Triborough Bridge and Tunnel Authority	Statewide: New York	4940-4990
WESTERN NEW YORK SEARCH DOGS INC	Statewide: New York	150-174

(7) Municipal/School District Services

Municipal and school district communication sources were included in the assessment of emergency services communication sources described in Exhibit 20(b)(6) and in Appendix 20-E. As indicated above, Comsearch identified numerous communication sources licensed to educational facilities and municipalities, including Madison County and local towns and villages. Tables 20-2 and 20-3 in Exhibit 20(b)(6) and Appendix 20-E provide a full listing of site-based and area-wide communication sources in the area, identified by licensee.

(8) Public Utility Services

Public utility communication sources were included in the assessment of emergency services communication sources described in Exhibit 20(b)(6). No licenses issued to public utilities were identified by Comsearch.

(9) Doppler/Weather Radar

Comsearch conducted a search for commercial interest and television station doppler radar systems within 250 kilometers of the proposed Facility's center point. This search radius was chosen by Comsearch based on terrain in the vicinity of the Facility and the location and elevation of individual turbines. Five doppler/weather radar systems were identified, with the closest being located approximately 12.7 miles from the nearest proposed turbine (see Appendix 20-F).

The New York State Mesonet System is a statewide network of weather stations developed and run by the State University of New York at Albany (University at Albany). This system collects data on mesoscale meteorological phenomena and is used to supplement data gathered by traditional automated surface observing systems in support of decision-making in agriculture, emergency management, energy, ground transportation, and aviation. According to Comsearch, the closest Mesonet station to the Facility, "Morrisville," is located approximately 2.1 miles from the nearest proposed turbine, well outside range of impact (see Appendix 20-F).

On August 24, 2023, the Applicant also submitted each turbine and met tower data to the Federal Aviation Administration (FAA) to review long-range radar systems for any impacts. Via the FAA submission, the Department of Defense (DoD) Siting Clearinghouse obtains the data to conduct a department review of surveillance radar systems and weather radar systems. In addition, the federal government conducts its own assessment of the impacts of wind projects on government radar systems, including NEXRAD, as part of reviews conducted under the auspices of the National Telecommunications and Information Administration (NTIA). The Applicant sent an initial written notification of the proposed Facility to the NTIA on August 29, 2023. The NTIA provided plans for the proposed Facility to the federal agencies represented in the Interdepartmental Radio Advisory Committee (IRAC), which include the National Oceanic and Atmospheric Administration, among other agencies. The NTIA's response, dated November 6, 2023, has been appended to this Application (see Appendix 20-G). Further consultation with the FAA is discussed in Exhibit 20(b)(10).

(10) Air Traffic Control

The closest air traffic control towers are located approximately 20 miles northwest and approximately 23 miles northeast of the Facility Site at the Syracuse Hancock International Airport and the Griffiss International Airport (AirNav.com, 2023). The FAA is the organization in the United States government responsible for air traffic control and for evaluating and issuing determinations on petitions for objects that penetrate the nation's airspace. Under Title 14 Code of Federal Regulations (CFR) Part 77.9, any person proposing to undertake any construction that is more than 200 feet above ground level (AGL) must provide notice to the FAA. As part of the required review process, the FAA will reach out both

internally and to other agencies, including the DoD Siting Clearinghouse, to determine whether such construction will adversely affect air safety, including navigational and surveillance systems such as radar.

Any object, such as a wind turbine, that is higher than 499 feet AGL at the site of the object is automatically issued a Notice of Preliminary Findings (NPF). Issuance of an NPF triggers a requirement for the FAA to conduct an aeronautical study of the locations of each proposed turbine. The FAA can issue two types of determinations – a Hazard Determination or a Determination of No Hazard (DNH). The Applicant submitted the proposed Facility layout to the FAA on August 24, 2023, so that aeronautical studies of locations of each proposed turbine can be conducted under the provisions of 14 CFR Part 77. The Applicant anticipates receiving a response from the FAA soon. The Applicant will continue to coordinate with the FAA and will provide copies of any determinations to the Office of Renewable Energy Siting upon receipt. Copies of all correspondence with the FAA to date are provided in Appendix 2-A.

(11) Armed Forces

According to the Military Installations, Ranges, and Training Areas GIS dataset maintained by the DoD, the Armed Forces installation nearest to the proposed Facility is the Verona Defense Fuel Support Point, located outside Syracuse, approximately 13 miles northeast of the proposed Facility Site (data.gov, 2023). As discussed in Exhibit 20(b)(9), the Applicant supplied written notice of the proposed Facility to the NTIA on August 29, 2023. The NTIA, in turn, distributed the information to the federal agencies represented in the IRAC, which include the Department of Homeland Security, U.S. Air Force, U.S. Army, U.S. Navy, U.S. Coast Guard, and Department of Veteran Affairs.

Also, as part of its hazard determination process, the FAA must reach out to the DoD Siting Clearinghouse, which is responsible for assessing the impact of possible airspace obstructions on military operations and readiness. The DoD Siting Clearinghouse, in turn, is required to reach out to any military organizations or facilities potentially impacted by an airspace obstruction to obtain their comments/recommendations concerning a project. The Siting Clearinghouse then evaluates the comments received, determines whether that project will have an adverse impact on military operations and readiness, and reports that information on to the FAA. Receipt of an FAA DNH following the DoD Siting Clearinghouse review process is evidence that the Facility will not impact military operations or readiness.

As discussed in Exhibit 20(b)(10), the Applicant has submitted the proposed Facility layout to the FAA so that aeronautical studies of locations of each proposed turbine can be conducted under the provisions of 14 CFR Part 77. The Applicant will continue to coordinate with the FAA and will provide copies of any determinations to the Office of Renewable Energy Siting upon receipt.

(12) Global Positioning Systems

Global Positioning System (GPS) is a U.S.-owned utility that provides users with positioning, navigation, and timing services. This system consists of three segments: the space segment, the control segment,

and the user segment. The U.S. Air Force develops, maintains, and operates the space and control segments. The GPS control segment consists of a global network of ground facilities that track the GPS satellites, monitor their transmissions, perform analyses, and send commands and data to the constellation of satellites. The GPS ground facility located closest to the proposed Facility is the Air Force Satellite Control Network remote tracking station located in New Hampshire. The National Executive Committee coordinates GPS-related matters across multiple federal agencies to ensure the system addresses national priorities as well as military requirements. The National Executive Committee is chaired jointly by the Deputy Secretaries of Defense and Transportation, and membership includes top leaders from the Departments of State, the Interior, Agriculture, Commerce, and Homeland Security, the Joint Chiefs of Staff, and National Aeronautic and Space Administration (National Coordination Office, 2023).

Each of the agencies represented in the National Executive Committee are also represented in the IRAC. See Exhibit 20(b)(9) for a discussion of the IRAC review process.

(13) Amateur Radio Licenses

Comsearch conducted a search of the FCC’s database record by geocoding the street address of each amateur licensee within a 2-mile survey area. Comsearch identified 18 active amateur radio licenses registered to addresses within a 2-mile radius of the proposed Facility, with the closest located 0.3 miles from the nearest proposed turbine (see Appendix 20-H).

The call sign and operator class for each amateur radio license within 2 miles of the Facility Site is provided in Table 20-4.

Table 20-4. Amateur Radio Licenses within 2 Miles of the Facility Site

Call Sign	Operator Name	Distance to Closest Turbine (miles)
KD2WBV	Anderson, John A	0.27
KC2RRA	MC LAUGHLIN, GARY D	0.79
W2WFJ	JONES Mr, WARREN F	0.89
K8RWO	Caretti Mr., Jerome C	1.17
KB2WEP	RIGGALL, ROSEMARY W	1.31
KD2VCI	PUUKILA, NOAH R	1.70
KD2VCJ	STOKER, JENNIFER A	1.70
KD2VDB	STOKER, JOHN T	1.70
W2ZXN	HARMON-KIMBALL, ANDREW L	1.70
N2MBZ	KIMBALL, AARON J	1.72
N2MBZ	KIMBALL, AARON J	1.72
N2OMU	BERGMAN, JODY P	2.74
N2FIR	MARRIAM, GREGORY L	2.75
N2FIR	MARRIAM, GREGORY L	2.75
WA2PNW	Marriam, Karen J	2.75

Call Sign	Operator Name	Distance to Closest Turbine (miles)
WA2PNW	Marriam, Karen J	2.75
WA2DTN	MARRIAM, SCOTT L	2.75
WA2DTN	MARRIAM, SCOTT L	2.75
KD2TBV	RICHARDS, CHRISTOPHER P	2.75

c) Existing Underground Cable and Fiberoptic Lines within One Mile

The Applicant has consulted with Charter, Spectrum, and Windstream to identify overhead and underground cable and fiber optic lines located within 1 mile of the Facility Site. A number of fiber optic lines owned by Spectrum and Windstream were identified within the Facility Site. Some of these lines cross Facility access roads and collection lines (see Figure 20-1). Correspondence between the Applicant and communications service providers is provided in Appendix 02-A.

d) Anticipated Effects on Communication Systems

The following subsections discuss the anticipated effects of the proposed Facility and electric interconnection on the communication systems identified in Exhibit 20(b) and (c) above:

(1) Potential Structure Interference with Broadcast Patterns

Interference with radio broadcast coverage is not anticipated. Facility wind turbines are sited outside the 3-kilometer exclusion distance recommended for AM frequencies and outside the far field region of radiating FM antennae (i.e., the area within approximately 1,500 feet of the antenna) near the Facility (see Appendix 20-A). The proposed Facility is not anticipated to result in any significant harmful effects to the services of any amateur radio stations identified in Exhibit 20(b)(13) (see Appendix 20-H).

Interference with emergency responder services, municipal/school district services, industrial/business land mobile sites, area-wide public safety, and mobile telephone communications are not anticipated (Appendix 20-E). Although these sources operate in different frequency ranges and provide different types of service (e.g., voice, video, and/or data), wind turbines are not likely to impact any of these services. Each of these networks is designed to operate reliably in a non-line-of-sight environment. The frequencies of operation for these communication sources allow the signal to propagate through wind turbines. Moreover, land mobile systems are designed with overlap between base transmitter stations to maintain reception if the signal to one station is impeded. If a connection cannot be made to one base station, the signal will automatically shift to an adjacent base station to make the connection. In addition, the beam widths of the radiated signal from the base stations and mobile units are wide and the wavelength of the signal is long enough to wrap around objects such as wind turbine towers and blades. This allows wireless networks to provide coverage even in areas that are congested with physical obstructions (e.g., downtown urban areas). As a result, little, if any, change in coverage should occur when the wind turbines are installed. In the unlikely event that interference does occur, it can be mitigated using the methods outlined in Exhibit 20(g).

The potential for wind turbines to interfere with cellular base stations or land mobile units has been considered from an electromagnetic interference standpoint. Comsearch's calculations indicate that the proposed turbines are not expected to interfere with cellular signals if the cellular tower base stations are located 77.5 meters (254 feet) or more from the nearest turbine (see Appendices 20-C and 20-E). Since no turbines are proposed within this distance of a cellular tower, no impact is anticipated.

To ensure the highest quality of data, each station in the New York State Mesonet must be located at least 300 feet from any tall obstacles, such as wind turbines. The closest Mesonet station to the Facility is located approximately 2 miles from the closest turbine, well outside the range of impact. In addition, the data from each station is transmitted via the Internet to a central ingest system located at the University at Albany. Therefore, for the reasons outlined in this section, interference from the proposed Facility is unlikely (see Appendix 20-F).

No potential impacts to the GPS system have been identified. This communication source is typically unaffected by wind energy generating facilities.

Eighteen licensed full-power television stations and eight low-power digital stations could have their off-air reception disrupted in and around the Facility. This disruption would primarily occur in locations within 10 kilometers of the Facility that do not have a clear line-of-sight to the television station antennae but do have clear line-of-sight to a wind turbine located between the television station antennae and the television receiving the signal (Appendix 20-B). None of the 18 full-power stations or eight low-power digital stations that were identified as potentially having their service disrupted are located within 10 kilometers of proposed wind turbines. A discussion of potential mitigation measures to address disruptions in broadcast of off-air television signals is included at Exhibit 20(g).

(2) Potential for Structures to Block Lines-of-Sight

Microwave telecommunication systems are wireless point-to-point links that require clear line-of-sight conditions between each microwave dish. To assure an uninterrupted line of communication, a microwave link should be clear, not only along the axis between the center point of each microwave dish, but also within a formulaically calculated distance around the center axis of the radio beam, known as the Fresnel Zone. The potential impacts to microwave paths whose Fresnel Zone is impacted by a wind turbine would include a reduction in signal level, lower path reliability, and/or intermittent signal drops. The primary method to avoid issues with microwave paths is to design wind projects in locations that do not infringe on the Fresnel zones. Other mitigation for these impacts would be to redesign the path so that the signal blockage is removed. A redesign may include changing centerlines, locations, or frequency bands to work around the wind turbine.

Comsearch calculated the Fresnel Zone for the 13 microwave paths identified near the proposed Facility (see Appendix 20-D). A cross-sectional overlay analysis was conducted using these Fresnel Zones, the Facility layout, and conservative turbine dimension assumptions that included a maximum blade diameter of 163 meters and a maximum turbine hub height of 127.5 meters. Based on the cross-sectional analysis provided in Appendix 20-D, no turbines in the proposed Facility layout intersect any Fresnel Zones. Consequently, there will be no impact to microwave systems in the area.

The study conducted by Comsearch was based on a 100% value of each Fresnel Zone, whereas standard surveys and path design techniques routinely clear paths for operation at the 60% design value. The analysis is also based on the turbine blades completely occupying a solid sphere around the tower when, in reality, wind turbines will be moving within the area based on the prevailing wind and the majority of the time will have greater separation distances from the Fresnel Zone. Additionally, a conservative 163-meter maximum rotor diameter was used in this analysis; if the Applicant ultimately selects a different turbine with a smaller rotor diameter, that horizontal signal clearance could increase.

Wind turbines in the line-of-sight of the transmitted signal of radar systems also have the potential to impact Doppler radar coverage and produce false targets. Comsearch's analysis found that one doppler radar system, WPPY879, and two NEXRAD radar systems, KRMX and KBGM, do not clear the initial line-of-sight analysis for proposed Facility wind turbines and could potentially be impacted. Potential impacts to the doppler radar system (WPPY879) were further evaluated by Comsearch. Most doppler radar emit pulses at various elevation angles ranging from 0.5 – 19.5 degrees, wind turbines that fall below the lowest elevation angle, based on distance and maximum turbine height, are not "seen" by the radar system. Only one of the Facility's turbines (T-1) exceeds the 0.5-degree elevation angle, as viewed from WPPY879. This exceedance is minor (0.067 degrees) and should be correctable through software or other adjustments (see Appendix 20-F). Impacts to the NEXRAD radar systems were evaluated further in coordination with the radar licensee and the Radar Operations Center¹ as part of the Applicant's consultation with the NTIA. As outlined in Section 5, the NTIA indicated that the Facility will not impact these radar systems (see Appendix 20-G).

(3) Physical Disturbance by Construction Activities

Physical disturbance to communication infrastructure (e.g., towers, buried cables, etc.) during construction is not anticipated. The location of any such infrastructure within and adjacent to the proposed Facility will be indicated on construction drawings and reviewed by the contractor prior to construction. The Applicant will also coordinate with Dig Safely New York prior to commencing any construction activities. All Facility construction and maintenance work that requires excavation will follow the One Call process with Dig Safely New York. This process helps prevent damage by alerting the excavator to the locations of underground utilities, including electric, gas, oil, steam, water, sewer, and communications lines. The excavator identifies the area to be excavated and then provides information to Dig Safely New York about the company performing the excavation, the duration of the job, the locations of digging, the depth of the excavation, and other information. Dig Safely New York members, who are utility operators, respond to the request either by noting that the area is clear, or by providing the locations of their facilities. These facilities are then marked above ground, and either avoided or protected during the excavation. If an underground facility cannot be avoided and needs to be exposed, the excavator will provide proper support and protection so that the facility is not damaged. Upon completion of work, the excavator backfills around any exposed utilities.

¹ The Radar Operations Center is responsible for the NEXRAD system.

(4) Adverse Impacts to Co-Located Lines Due to Unintended Bonding

Underground fiber optic lines are located within and adjacent to the Facility Site, and Facility infrastructure crosses these lines in several locations. Some of these lines are located within the Facility's limits of disturbance. The Applicant will coordinate with the owners of these fiber optic lines and any other identified co-located lines to ensure appropriate separate and protection measures are being implemented and, where necessary, execute crossing agreements to ensure the Facility avoids interference with all existing utility systems. The Applicant does not believe that there is significant potential for the proposed Facility and electrical interconnection to adversely impact co-located lines due to unintended bonding.

(5) Other Potential for Interference

The Applicant sent an initial written notification of the proposed Facility to the NTIA on August 29, 2023. The NTIA's response, dated November 6, 2023, indicates: "No reviewing agencies had issues with turbine placement in this area. Commerce has completed our review of the subject wind project and found it is over 83 km NNE of the Binghamton, NY NEXRAD. Based upon distance and terrain this project appears to be radar neutral. No further contact with the developer is requested at this time." The NTIA's response has been appended to this Application (see Appendix 20-G).

e) Capacity Analysis

High speed internet connection will be established at the minimum point of entry. At that point, a secure encrypted link will be established over that line with the Facility's central operations center to provide real-time telemetry and other information to the appropriate parties for monitoring and reporting purposes.

At the O&M building, a similar setup will be established for high-speed data communications. A Voice Over Internet Protocol telecommunications network will be set up that will also allow for internal communications as well as telecommunications to the public and emergency responders, if necessary. There will be secure encrypted links at both the O&M building and the minimum point of entry that will be tied back to the Applicant's corporate offices for monitoring and access to the Facility.

f) Evaluation of Design Configuration

A map illustrating relevant communication system constraints within the Facility Site and 2-mile Study Area (e.g., Fresnel zones, land mobile sites, and radio and cellular communications towers, etc.) is provided in Figure 20-1. The Facility has been designed to avoid impacts to communication systems to the extent practicable. In the unlikely event that the Facility has impacts on communications systems, the Applicant will take appropriate steps to review and respond to the complaint as set forth in Exhibit 20(g).

g) Post-construction Activities to Identify and Mitigate Adverse Effects on Communication Systems

The Applicant takes seriously any complaints that it receives from members of the public concerning the impact of the Facility. Residents that experience degraded off-air television service after installation of the Facility can file a formal complaint with the Applicant. If it is determined that Facility operation has impacted

existing off-air television coverage, the Applicant will analyze each individual problem on a case-by-case basis to determine the extent of the impact. After this analysis, the Applicant may offer cable television hookups or direct broadcast satellite reception systems (in areas where cable service is not available/practical) or investigate methods for improving the television reception system. It is important to note that both cable service and direct broadcast satellite service will be unaffected by the presence of the Facility (see Appendix 20-B).

In the unlikely event that a public safety entity believes their coverage has been compromised by the Facility, the Applicant will work with the public safety entity to remedy any interference related to the Facility. Possible solutions include optimizing nearby base transmitters, adding a repeater site, and/or using utility towers, meteorological towers, or even the turbine towers within the Facility as base station or repeater sites.

h) Communication Interconnection Negotiations and Agreements

In compliance with §900-2.21(h), the Applicant notes that business grade broadband internet service is available on Cody Road, to any customer with a property interest at that location. No upgrades to the system are anticipated to be required to provide this service. As of yet, the Applicant has not requested service as the lead time for installation is relatively short, the service will not be required for more than a year from the present time, and service requires a 911 address that is yet to be established. Such negotiations have not yet been initiated for the Facility because the agreements have not been identified at the time of Application filing.

Section §900-2.21(h), requires a description of the status of negotiations, or a copy of agreements that have been executed, with companies or individuals for providing the communications interconnection, including any restrictions or conditions of approval placed on the Facility imposed by the provider, if applicable. The Applicant is in the process of securing a Large Generator Interconnection Agreement for the Facility. The requirements of National Grid (the transmission owner), the New York Independent System Operator, and the Applicant, will form the basis of specifications to be negotiated between parties. Following the execution of the Large Generator Interconnection Agreement, the Applicant will negotiate with local service providers for communication services.

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