



**SOMERSET SOLAR, LLC**

**MATTER NO. 22-00026**

**§900-2.19 Exhibit 20 Revised**

**Effect on Communication**

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Figure 20-1 Underground Cables, Fiber Optic Cables and Telecommunication Poles

**ACRONYM LIST**

§	Section
AES	The AES Corporation, Inc.
DNP3	Distributed Network Protocol 3
EMF	electromagnetic field
EMS	Emergency Management System
Facility Substation	Somerset Collector Substation
GIS	geographic information system
HDD	horizontal directional drill
ITS	Information Technology Services
GSM	Global System for Mobile
LORAN	Long Range Navigation
NEXRAD	Next-Generation Radar
NYCRR	New York Codes, Rules and Regulations
NYISO	New York Independent System Operator
NYS	New York State
NYSEG	New York State Electric and Gas Corporation
OPGW	Optical Ground Wire
ORES	Office of Renewable Energy Siting
POI	point of interconnection
PV	photovoltaic
RTU	remote terminal unit
USCs	uniform standards and conditions
xDSL	digital subscriber line

## Glossary Terms

<b>Applicant</b>	Somerset Solar, LLC, a subsidiary of The AES Corporation, Inc. (AES), the entity seeking a siting permit for the Facility Site from the Office of Renewable Energy Siting (ORES) under Section (§) 94-c of the New York State Executive Law.
<b>Application</b>	Application under §94-c of the New York State Executive Law for review by the ORES for a Siting Permit.
<b>Facility</b>	The proposed components to be constructed for the collection and distribution of energy for the Somerset Solar Facility, which includes solar arrays, inverters, electric collection lines, and the collection substation.
<b>Facility Site</b>	The limit of disturbance (LOD) that will be utilized for construction and operation of the Facility, which totals about 700 acres on the Project Parcels in the Town of Somerset, Niagara County, New York (Figure 2-1).
<b>Project Parcels</b>	The parcels that are currently under agreement with the Applicant and Landowner, totaling about 1,784 acres in the Town of Somerset, Niagara County, New York, on which the Facility Site will be sited (Figure 3-1).
<b>Project Site</b>	The acreage of the Project Parcels under agreement between the Applicant and the Landowner, consisting of approximately 1,396 acres, in which the Applicant has performed diligence, surveys and assessments in support of Facility design and layout.

## EXHIBIT 20 EFFECTS ON COMMUNICATION

This exhibit addresses the requirements specified in 19 New York Codes, Rules and Regulations (NYCRR) Section (§) 900-2.21 regarding effects on communication.

The potential Facility impact on AM radio broadcast coverage, cable or satellite television, cellular phone service (i.e., wireless networks), microwave transmission, emergency services, municipal/school district services, public utility services, Next Generation Radar (NEXRAD), air traffic control, armed forces, Global Positioning System, long-range navigation (LORAN), amateur radio, or the New York State (NYS) Mesonet system has been evaluated and no significant impacts have been identified at this time. The Facility has been designed to comply with 19 NYCRR §900-2.21 and the Uniform Standards and Conditions (USCs) and impacts related to communication have been avoided and minimized to the maximum extent practicable.

An existing underground communications line owned by Verizon is present within the Facility Site, and Facility construction will include relocating a portion of the line to provide telecommunications services to the Somerset Collector Substation (Facility Substation) (Figure 20-1) during construction. The Applicant's onsite communications system will be inspected and maintained throughout the life of the Facility and provide information to The AES Corporation, Inc. (AES) Control Center.

### **20(a) Description of the Telecommunications Interconnection**

The on-site, New York State Electric and Gas Corporation (NYSEG) Kintigh Substation, will serve as the Point of Interconnection (POI) for the Facility. The Facility Substation will be connected to the Kintigh Substation, which will connect to the grid via NYSEG's 345 kilovolt transmission line, as shown in Appendix 5-B, Sheets TL-P.00.01 and TL-P.01.01. The Facility's Substation will establish a safe communication link between the Applicant's 24-hour operations AES Control Center located in Salt Lake City, Utah and the Facility through a high-speed internet connection. This connection will monitor the Facility, including energy production data, 24-hours a day, 365-days a year. Any anomalies detected will be relayed to Facility personnel in real-time. The energy production will be measured by a revenue-grade meter located inside the Facility Substation control room. The metering transformer will be located in the Facility Substation yard. The communication link will include a back-up cellular connection (Global System for Mobile [GSM] communication or other), using the existing and available cellular network in the area, to ensure the monitoring is continuous without interruption. Both connections will be connected to a router to provide a safe communication link between the Facility and its control center. The router located at the Facility Substation will be housed within the substation control building. The communication

protocol will be either Distributed Network Protocol 3 (DNP3), modbus, or PI, and may feature a TS1/DS1 communications link, depending upon the results of further studies and coordination with the New York Independent System Operator (NYISO). If a TS1/DS1 communication link is required for the Facility, it also will be housed within the Facility Substation control building.

### **Communication with NYSEG/NYISO**

The Facility Substation will establish a direct communication channel between the NYSEG Kintigh Substation and the Facility's high voltage circuit breaker through a bi-directional direct transfer trip (DTT). The Facility's local remote terminal unit (RTU) will be equipped for forthcoming data exchange needs with NYISO and/or the utility RTU/ Emergency Management System (EMS). The direct communication channel will be provided by Verizon, with service provided by existing telecommunications line located on the Project Site. As noted in the introduction and described further in section 20(c) of this exhibit, a portion of the existing telecommunications line will require relocation to provide this service to the Facility Substation (Figure 20-1), which is a covered activity of this Application.

The Applicant has not yet initiated negotiations for a Large Generator Interconnection Agreement for the Facility. These requirements, along with the NYISO requirements as well as the customer's operational and business requirements, will form the basis of specifications to be negotiated between parties. Following receipt of the Large Generator Interconnection Agreement, the Applicant will negotiate with local service providers for communication services.

### **Communication with the Collector Network**

Somerset Solar will install fiber optic cables along its collector network to communicate with the site equipment (inverters, trackers, and meteorological monitoring station). This new dedicated communication network will be available for the Facility only and will be protected behind a firewall.

### **20(b) Existing Broadcast Communication Sources near Wind Facilities**

The proposed Facility is a solar project, therefore this section is not applicable.

### **20(c) Existing Underground Cable and Fiber Optic Major Transmission Location Telecommunication Lines**

A review of publicly available data for underground cable or fiber optic lines available from New York State Information Technology Services (ITS) Geographic Information System (GIS) Program Office and Ventyx (New York State ITS GIS Program Office 2014, Hitachi Energy 2022) was conducted to identify lines mapped within a 1-mile radius of the Project Site. Two asymmetrical

digital subscriber lines (xDSL) and a cable modem line (DOCSIS 3.0) were identified within the 1-mile study area, including an asymmetrical xDSL located along NYS Route 18/Lake Road adjacent to the Facility Site, an asymmetrical xDSL located along West Somerset Road and Niagara County Route 65/Hosmer Road within 1-mile south of the Facility Site, and a cable modem line located along NYS Route 18/Lake Road adjacent to the Facility Site (Figure 20-1) (New York State ITS GIS Program Office 2014). A review of New York State ITS GIS Program Office data also identified that the entire study area shown on Figure 20-1 is covered by broadband wireless service (New York State ITS GIS Program Office 2014). A Verizon easement and existing underground telecommunications line is located on the Facility Site (Figure 20-1). A portion of the Verizon underground telecommunications line lies in an area targeted for arrays in the Facility design. To ease Facility construction, this portion of the underground telecommunications line will be relocated within the Facility Site and require crossing of the Facility Substation access road. When completed, this line will provide communication service to the Facility Substation. The existing easement located in the northern portion of the Facility Site is proposed to be crossed by a Facility access road. The Applicant is currently in negotiations with Verizon and Project Site landowners to obtain an easement for the relocated telecommunications line and to establish a crossing agreement where the Facility access road will cross the Verizon easement. The Applicant also is aware of plans for Verizon to construct an approximately 150-foot tall telecommunications tower in the northern area of the Project Site, north of NYS Route 18/Lake Road. Establishment of an easement and crossing agreement for the activities proposed will ensure construction of the Facility does not negatively affect Verizon's underground telecommunications line or easements. The proposed location for construction of the new Verizon cellular tower will not be impacted as it is located outside the Facility Site. Construction of the new cellular tower also is not expected to affect construction or operations of the Facility.

The Applicant will verify all utility locations in the Facility Site during preconstruction and the Applicant and/or Engineering Procure and Construct contractor also will submit a request for location information to Dig Safely New York prior to the commencement of construction. The safety of onsite personnel and the prevention of damages to existing/operating utilities is a top priority of the Applicant. Using the information compiled on current fiber optic and/or underground cables through public review, consultation with Verizon and Project Site landowners and completion of a site survey for the Facility Site, the Applicant will avoid interference, or minimize interference where avoidance is not possible.

**20(d) Electric Interconnection Effects**

There will be no adverse impacts to communications systems as a result of the Facility. Communications equipment electronics will be installed and tested to ensure compliance with manufacturer's installation standards. Fiber optic cables neither emit, nor are affected by Electric Magnetic Fields (EMF). The Applicant is not aware of any research conducted to date that indicates interference to communication systems from utility-scale solar generation facilities. The Facility lacks tall structures and does not have exposed moving parts. The photovoltaic (PV) solar arrays generate weak EMF during the day that dissipate at short distances.

***(1) Structures to Interference with Broadcast Patterns***

Re-radiated wireless signals are a function of a material's refractive index. The Facility Substation will be connected to the Kintigh Substation, which is the POI for the Facility. The Facility Substation will be comprised mainly of concrete and galvanized steel components. These materials have low refractive indexes which result in relatively low levels of signal re-broadcasts. Re-broadcast of transmission signals are not expected to be an issue. The low structures associated with the panels (fixed tilt panels will have a maximum height of 7.6 feet from grade, and single-axis panels will have a maximum height of 11.1 feet from grade; Appendix 5-B, Sheets PV-E.05.11 and PV-E.05.12), also are not anticipated to create any interference with broadcast patterns.

***(2) Structures to Block Necessary Lines-of-Sight***

The average height of the Facility Substation components will be under 50 feet (with the exception of the Facility Substation gantry, which is approximately 52 feet tall), which is below tree heights in this region. Given the low profile of PV panels, the Facility is not anticipated to disturb or block any lines-of-sight for microwave telecommunications systems or any other line-of-sight communication systems. As a result, tree heights are the controlling factor for line-of-sight concerns and the Facility interconnection will not result in wireless signal blockages or increase signal attenuation. The low structures associated with the panels (single axis panels will have a maximum height of 11.1 feet at full tilt; fixed tilt panels will have a maximum height of 7.6 feet), also are not anticipated to create any interference with line-of-sight signals. The noise assessment completed for the Facility (Exhibit 7) identified potential exceedances of establish Town of Somerset and the Office of Renewable Energy Siting (ORES) noise criteria. For the Facility to be in compliance, a noise barrier that is 28 feet high and 43 feet in length will be constructed 10



feet south of the Facility Substation transformer (Appendix 5-B, Sheets HV-P.01.01 and HV-P.02.01). In addition, two barriers that are 16 feet high and 100 feet in length will be constructed approximately 10 feet to the east of the two inverter skids in Area 5 of the Facility Site (Appendix 5-A, Sheet PV-C.02.05) (Exhibit 7, section 7(o) contains additional details on the proposed barriers to be used to mitigate potential noise exceedances from the Facility Substation transformer and inverters located in Area 5 of the Facility Site). These proposed mitigation features also are not anticipated to create any interference with line-of-sight signals.

### ***(3) Physical Disturbance by Construction Activities***

Physical disturbance to communication infrastructure during construction is not anticipated. The Facility will avoid direct disturbance or impacts to underground cables or fiber optic lines. The Applicant will verify the location of all utility lines, fiber optic cables, and/or other underground cables during pre-construction through completion of a site survey for the Facility Site. Surveyed location data will be utilized to ensure interference with existing underground lines are avoided, or minimized, where avoidance is not possible. Prior to construction, the Applicant and/or the Engineering Procurement and Construction contractor will submit a “design ticket” to Dig Safely New York to initiate the process with which utilities and Dig Safely New York provide relevant mapping to the Applicant and/or construction contractor. If any previously unidentified underground cables and/or fiber optic lines are provided to the construction contractor these will be avoided to eliminate potential impacts. Physical disturbance to the existing communications system infrastructure will also be avoided by the construction contractor.

### ***(4) Adverse Impact to Co-located Lines due to Unintended Bonding***

The Applicant is not proposing to co-locate any buried lines and therefore unintended bonding will not occur.

### ***(5) Other Interference Potential***

Based on the Applicant’s analysis there is not expected to be any adverse interference to communications systems as a result of the Facility. The Facility’s PV panels have a low profile and any frequencies produced will likely dissipate quickly over short distances, The Applicant does not anticipate any other types of potential interference.

**20(e) Analysis of the Capacity**

The Project Site is situated northwest within the Town of Somerset, adjacent and south of Lake Ontario. The Applicant does not foresee any issues with the capacity of the communication network to support the new Facility. The Facility Substation will utilize fiber optics to facilitate communications to and from the Kintigh Substation. Given the capability of giga-bit per second transmission speeds of fiber electronics and the availability of wave division multiplexing, there are no anticipated constraints regarding system communications capacity.

**20(f) Adverse Effects on Communication Systems**

There will be no adverse impacts to communications systems as a result of the Facility. Communications equipment electronics will be installed and tested to ensure compliance with manufacturer's installation standards. If Verizon elects to install a fiber optics cable and telecommunication tower on the Project Site, the construction and operations of these facilities are not expected to impact operations of the Facility. Likewise, the operation of the Facility is not anticipated to impact the construction or operations of the proposed telecommunications tower. Fiber optic cables neither emit, nor are affected by EMF. The Applicant is not aware of any research conducted to date that indicates interference to communication systems from utility-scale solar generation facilities. The Facility lacks tall structures and does not have exposed moving parts. The PV arrays generate weak EMF during the day that dissipate at short distances. The communications lines mapped in the vicinity of the Facility Site shown on Figure 20-1 are located along existing roadways that are adjacent to the center of the Facility Site. This map also identifies the road crossings where medium voltage electrical lines are proposed to cross NYS Route 18/Lake Road utilizing horizontal direction drilling (HDD) techniques. Prior to initiating construction activities within public roadways, the Applicant will coordinate with the communication line owners (Verizon New York Inc. and Time Warner Cable LLC), obtain the required road crossing permits from NYS Department of Transportation and Niagara County, and obtain Dig Safely New York clearance just prior to initiating construction in this area of the Facility. Obtaining the road crossing permits and the Dig Safely New York clearance, and use of HDD installation methods will ensure existing communication lines will not be impacted. The relocated portion of the existing Verizon underground communications line that will provide telecommunications services to the Facility Substation is being coordinated with Verizon, including establishment of easement agreements between the landowners and Verizon. These agreements will be finalized prior to initiating construction of the Facility.

The interconnection design will be completed by a professional engineer and conform to engineering standards and procedures. In the unlikely event that the interconnection does impact other communication systems, the Applicant will take appropriate steps to review and respond to any complaints.

### **20(g) Plans to Mitigate Impacts on Existing Communication Sources**

As described throughout this exhibit, based on the inherent characteristics of solar facilities and the specific location of the Facility, no adverse effects on the communication system are anticipated. The construction contractor and the Applicant will comply with Dig Safely New York prior to starting any construction activities that could impact the communication system. Nevertheless, members of the public will be able to report any communication issues that could be related to the Facility in accordance with the Facility's Complaint Resolution Plan, to be developed and implemented pursuant to the Pre-Construction Filing requirements in §900-10.2.e.7 of §94-c of the New York State Executive Law. The Complaint Resolution Plan will outline, among other things, how stakeholders can register complaints and the process for the Applicant to respond to and resolve complaints. The Complaint Resolution Process will either remain live or be amended during the operations phase, to maintain a process for receiving, resolving, and logging complaints from the public. In addition, the Applicant's on-site communications system will be inspected and maintained throughout the life of the Facility and provide information to the Facility's control center.

### **20(h) Status of Telecommunications Interconnection**

It is anticipated that the connection to NYSEG's grid network will be via a redundant 24 strand, single mode Optical Ground Wire (OPGW) fiber optic cables. It is expected that the framework of previous agreements will be utilized and that no significant concerns are expected.

## References

Hitachi Energy. 2022. Electric Transmission Lines. Available online at: <https://www.hitachienergy.com/us/en>. Accessed August 2022.

New York State Information Technology Services (ITS) Geographic Information System (GIS) Program Office. 2014. Broadband Service Road Segments and Broadband Wireless Service. Available online at: <http://gis.ny.gov>. Accessed August 2022.