

Staff Report of Investigation

Wild Grains Solar Facility
Wild Grains Solar, LLC

Case No. 21-0823-EL-BGN

April 18, 2022



Power Siting
Board

Mike DeWine, Governor | **Jenifer French**, Chair

In the Matter of the Application of)	
Wild Grains Solar, LLC for a Certificate)	Case No. 21-0823-EL-BGN
of Environmental Compatibility and Public Need)	

Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

**In the Matter of the Application of Wild Grains Solar,)
LLC for a Certificate of Environmental Compatibility) Case No. 21-0823-EL-BGN
and Public Need.)**

Chair, Public Utilities Commission
Director, Department of Agriculture
Director, Department of Development
Director, Environmental Protection Agency
Director, Department of Health

Director, Department of Natural Resources
Public Member
Ohio House of Representatives
Ohio Senate
Board of Van Wert County Commissioners
Board of Trustees of Hoaglin Township

To the Honorable Power Siting Board:

In accordance with the Ohio Revised Code (R.C.) 4906.07(C) and rules of the Ohio Power Siting Board (Board), the staff of the Public Utilities Commission of Ohio (Staff) has completed its investigation in the above matter and submits its findings and recommendations in this Staff Report for consideration by the Board.

The findings and recommendations contained in this report are the result of Staff coordination with the following agencies that are members of the Board: Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Department of Development, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

In accordance with R.C. 4906.07(C) and 4906.12, copies of this Staff Report have been filed with the Docketing Division of the Public Utilities Commission of Ohio to be served upon the Applicant or its authorized representative, the parties of record, and pursuant to Ohio Administrative Code 4906-3-06, the main public libraries of the political subdivisions in the project area.

The Staff Report presents the results of Staff's investigation conducted in accordance with R.C. Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,



Theresa White
Executive Director
Ohio Power Siting Board

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I. EXECUTIVE SUMMARY

The authority of the Ohio Power Siting Board (Board or OPSB) is prescribed by Ohio Revised Code (R.C.) Chapter 4906. R.C. 4906.10 specifies that the Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines eight specified criteria. Staff investigated the application presented by Wild Grains Solar, LLC (Applicant) and recommends that the Board approve the Applicant's request for a certificate of environmental compatibility and public need subject to the proposed conditions contained in this report.

II. POWERS AND DUTIES

OHIO POWER SITING BOARD

R.C. 4906.03 authorizes the Board to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities defined in R.C. 4906.01. Included within this definition of major utility facilities are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity of 100 kilovolts (kV) or more; and gas pipelines greater than 500 feet in length and more than nine inches in outside diameter, and associated facilities, designed for transporting gas at a maximum allowable operating pressure in excess of 125 pounds per square inch. In addition, pursuant to R.C. 4906.20, the Board authority applies to economically significant wind farms, defined in R.C. 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five MW or greater but less than 50 MW. R.C. 4906.13 excludes from economically significant wind farms, one or more wind turbines and associated facilities that are primarily dedicated to providing electricity to a single customer at a single location and that are designed for, or capable of, operational at an aggregate capacity of less than 20 MW, measured at the customer's point of interconnection (POI) to the electrical grid.

Membership of the Board is specified in R.C. 4906.02(A). The voting members include: the Chairperson of the Public Utilities Commission of Ohio (PUCO or Commission) who serves as Chairperson of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health (ODH), the Ohio Department of Development (ODOD), the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Additionally, in certain cases including the present matter, voting members include two ad hoc members: one county commissioner or designee and one township trustee or designee. Non-voting Board members include four members of the Ohio General Assembly (with alternates) selected by leadership from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The Board has promulgated rules and regulations, found in Ohio Administrative Code (Ohio Adm.Code) 4906:1-01 et seq., which establish application procedures for major utility facilities and economically significant wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the Board an application for a certificate of environmental compatibility and public need.¹ The application must include a description of the facility and its location, a summary of environmental studies, a statement explaining the need for the facility and how it fits into the Applicant's energy forecasts (for transmission projects), and any other information the Applicant or Board may consider relevant.²

Within 60 days of receiving an application, the Chairperson must determine whether the application is sufficiently complete to begin an investigation.³ If an application is considered complete, the Board or an administrative law judge will cause a public hearing to be held 60 to 90 days after the official filing date of the completed application.⁴ At the public hearing, any person may provide written or oral testimony and may be examined by the parties.⁵

Staff Investigation and Report

The Chair will also cause each application to be investigated and a report published by the Board's Staff not less than 15 days prior to the public hearing.⁶ The report sets forth the nature of the investigation and contains the findings and, in the event the Board determines that a certificate should be granted, conditions recommended by Staff.⁷ The Board's Staff, which consists of career professionals drawn from the staff of the PUCO and other member agencies of the Board, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio Historic Preservation Office (OHPO), and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted pursuant to Ohio Adm.Code 4906-1-01 et seq. The recommended findings resulting from Staff's investigation are described in the Staff Report pursuant to R.C. 4906.07(C). The report does not represent the views or opinions of the Board and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record, is served upon all parties to the proceeding and is made available to any person upon request.⁸ A record of the public hearings and all evidence, including the Staff Report, may be examined by the public at any time.⁹

1. R.C. 4906.04 and 4906.20.

2. R.C. 4906.06(A) and 4906.20(B)(1).

3. Ohio Adm.Code 4906-3-06(A).

4. R.C. 4906.07(A) and Ohio Adm.Code 4906-3-08.

5. R.C. 4906.08(C).

6. R.C. 4906.07.

7. Ohio Adm.Code 4906-3-06(C).

8. R.C. 4906.07(C) and 4906.10.

9. R.C. 4906.09 and 4906.12.

Board Decision

The Board may approve or deny an application for a certificate of environmental compatibility and public need as filed, or modify and approve it upon such terms, conditions, or modifications as the board considers appropriate.¹⁰ The certificate is also conditioned upon the facility being in compliance with applicable standards and rules adopted under the Ohio Revised Code.¹¹

Upon rendering its decision, the Board must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need.¹² A copy of the Board's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding.¹³ Any party to the proceeding that believes the Board decision to be unlawful or unreasonable may submit within 30 days an application for rehearing.¹⁴ An entry on rehearing would then be issued by the Board within 30 days and may be appealed within 60 days to the Supreme Court of Ohio.¹⁵

CRITERIA

Staff developed the recommendations and conditions in this *Staff Report of Investigation* pursuant to the criteria set forth in R.C. 4906.10(A), which reads, in part:

The board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas pipeline;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generating facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704, 3734, and 6111 of the Revised Code and all rules and standards adopted under those chapters and under section 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult

10. R.C. 4906.10(A).

11. R.C. 4906.10.

12. R.C. 4906.11.

13. R.C. 4906.10(C).

14. R.C. 4903.10 and 4906.12.

15. R.C. 4903.11, 4903.12, and 4906.12.

with the office of aviation of the division of multimodal planning and programs of the department of transportation under section 4561.341 of the Revised Code;

- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929 of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the board, considering available technology and the nature and economics of the various alternatives.

III. APPLICATION

APPLICANT

Wild Grains Solar, LLC (Applicant) is a subsidiary of Avangrid Renewables, LLC (Avangrid). Avangrid owns and operates renewable energy facilities with a nameplate capacity of approximately seven gigawatts. The Applicant would construct, own, operate, and maintain the facility (Wild Grains Solar Facility), except for the direct connection to the AEP substation and upgrades to the transmission system identified in the system impact study.

HISTORY OF THE APPLICATION

On July 27, 2021, the Applicant filed a pre-application notification letter regarding the project.

On August 18, 2021, the Applicant held public informational meetings for the project.

On November 16, 2021, the Applicant filed a motion for waiver and request for approval to reduce the landmark and cultural resources study area and to use an interim interconnection service agreement in lieu of an interconnection service agreement. The motion was granted.

On November 16, 2021, the Applicant filed a motion for protective order for certain socioeconomic information, a cultural resource survey and some of the Applicant's financial data.

On November 16, 2021, the Applicant filed the Wild Grains Solar Facility application.

On January 16, 2021, the Executive Director of the OPSB issued a letter of compliance regarding the application to the Applicant.

On April 13, 2022, the Ohio Farm Bureau Federation requested to intervene in this proceeding.

A local public hearing has been scheduled for May 3, 2022, at 6:00 p.m. The evidentiary hearing is scheduled to commence on May 25, 2022, at 10:00 a.m.

This summary of the history of the application does not include every filing in case number 21-0823-EL-BGN. The docketing record for this case, which lists all documents filed to date, can be found online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

The Applicant intends to construct the Wild Grains Solar Facility, an up to 150 MW solar-powered generating facility in Hoaglin Township in Van Wert County overlapping the footprint of Avangrid's wind facility, Blue Creek Wind Farm, approved by the Board in case number 09-1066-EL-BGN. The project would consist of large arrays of photovoltaic (PV) modules, commonly referred to as solar panels, ground-mounted on a tracking rack system. The project would occupy approximately 818 acres within an approximate 2,312-acre project area comprised of private land secured by the Applicant through agreements with the landowners. The project would include associated facilities such as access roads, an operations and maintenance building, underground electric collection lines, pyranometers, inverters and transformers, a collection substation, and a 345 kV gen-tie electric transmission line. The project would be secured by perimeter fencing which would be 7-foot tall and accessed through gated entrances. The Applicant

would ensure that solar modules are setback a minimum of 100 feet from adjacent non-participating residences, and at least 25 feet from both non-participating property lines, at least 130 feet from the centerline of public roads and 1.3 times the maximum tip height from wind turbines.

Solar Panels and Racking

The solar panels would be attached to metal racking. The racking would include steel piles driven a minimum of seven feet into the ground. The Applicant will follow the US EPA's safety procedures to ensure all panels are compliant with the US EPA's Toxicity Characteristics Leaching Procedure ("TCLP") testing protocol. In addition, the panels used will qualify as a Bloomberg New Energy Finance tier 1 panel, per the Q1, 2021 assessment. The Applicant anticipates that the facility would be comprised of 520 to 545-watt panels. Depending on the module selected, the facility would include approximately 470,440 panels. The solar panel arrays would be grouped in large clusters that would be fenced in with gated entrances and electronic security systems. The highest point of each module would be approximately 12 feet, and the fence would not exceed seven feet. The project's arrays would be mounted on a single-axis tracking system that would rotate east-west to track the sun as it moves through the sky each day. The Applicant estimates the solar field would occupy approximately 818 acres of the project area.

Collection System

The Applicant would install an underground collector system made up of a network of electric and communication lines that would transmit the electric power from the solar arrays to a central location. The Applicant proposes to install up to 22.4 miles of buried cable.

The underground lines would be installed by direct burial method or horizontal directional drilling (HDD). Installation of the cable would require an approximately 20-foot wide temporary work area along its entire length. The below grade portion of the collector system would be buried at a depth of at least three feet.

The electricity from the solar panels would be generated in direct current (DC). DC power from the solar panels would be delivered to circuits, which would be routed through cable trays, then to combiner boxes. Power from the combiner boxes would be transmitted to groups of components, collectively called an inverter, which would include a DC-to-alternating current (AC) inverter, a step-up transformer that would increase the voltage to 34.5 kV, and a cabinet containing power control electronics. This would be housed in a power conversion station mounted a concrete foundation. The facility would include approximately 43 inverter pads.

Collection Substation and Transmission Line

The facility collection substation and switchyard would occupy approximately 2.5 acres of land and will interconnect to the 345 kV AEP Maddox Creek substation via a 100 foot-long overhead transmission line. The major components of the Applicant's substation would be a collection system bus, a main power transformer, circuit breakers, surge arrestors, insulators, and a lightning mast. The collection substation would be located adjacent to AEP Maddox Creek substation.

The collection substation, electric transmission line, and AEP substation are denoted on the maps in this report.

Roads

The Applicant proposes to construct approximately 8.7 miles of new access roads for construction, operation, and maintenance of the solar facility. The access road disturbance would be up to 30 feet wide during construction. After construction, the finished access roads would be approximately 14 feet in width.

Construction Laydown Area

The Applicant proposes to use ten temporary unimproved construction laydown areas of one acre each. The laydown areas would be used for material staging, equipment storage, parking, and construction trailers. The laydown areas would be located within the project fence and would be restored at the end of construction.

Weather Stations

The project would include 15 weather stations. These stations contain devices to measure solar irradiance, barometric pressure, rain gauge, temperature (i.e., thermometers), and wind speed.¹⁶ The weather stations would measure wind speed to ensure the solar panels can withstand wind speed in the area and, when wind speeds become too high, the racking systems include a stowing feature that activate to tilt the panels to a certain angle to reduce wind loading on the solar panels. These stations would also contain communications equipment.

Operations and Maintenance Building

The Applicant proposes to use the Blue Creek Wind facility's operations and maintenance (O&M) building for O&M functions. The O&M building is located next to the AEP Maddox Creek substation. Although a new O&M building would not be needed, the project may include a new equipment storage facility which would be located within the fence line of the Blue Creek Wind O&M building.

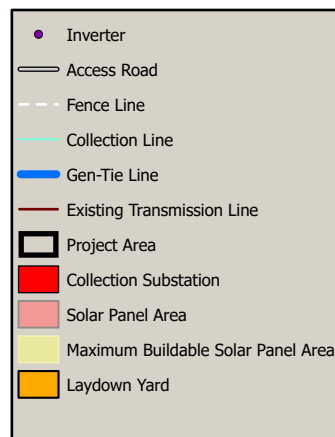
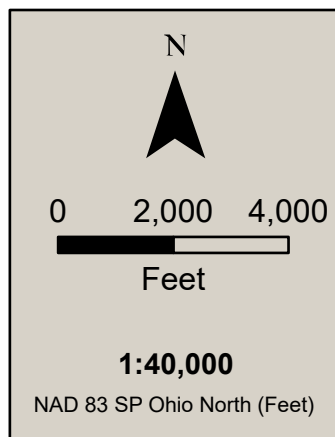
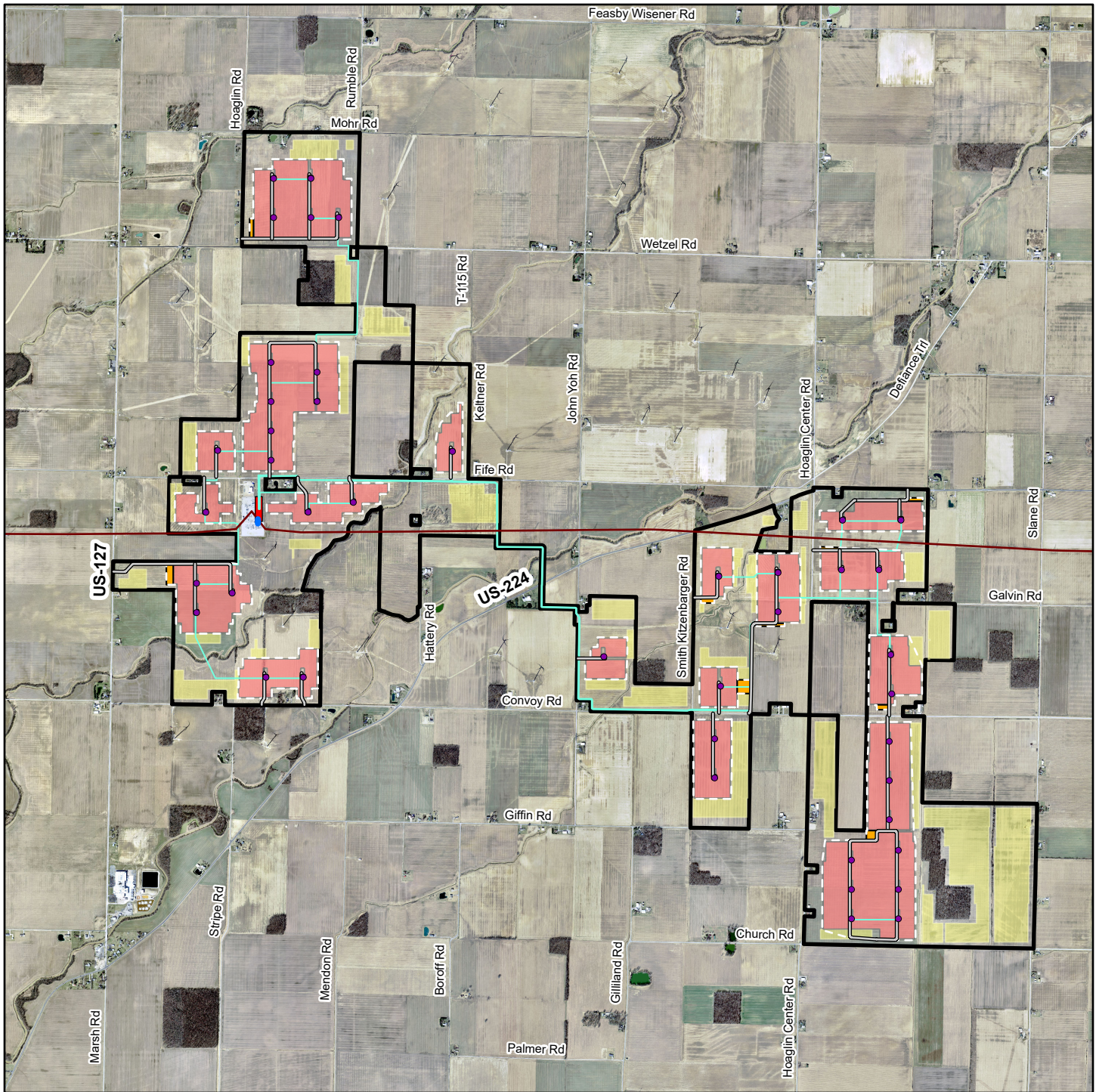
Lighting

Lighting would be installed at the operations and maintenance building, inverters, substation, and at project access points. Temporary lighting would be used at the laydown area. The Applicant indicates that to the extent practical, lighting would be oriented toward the interior of the solar facility and away from roadways/ residences. Lighting during operation would be downlit.

Project Schedule

The Applicant expects to finalize design of the project in the third quarter of 2022. Construction would start in the second half of 2022 or first half of 2023 and would last approximately 12 months. The facility is expected to complete construction in 2024 and place the facility in service shortly after construction is completed. The Applicant stated that delays to this timeline could cause a financial burden on the Applicant.

16. Solar irradiance is the amount of solar energy per square meter received from the sun.



Overview Map

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Wild Grains Solar

Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.

IV. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the Matter of the Application of Wild Grains Solar, LLC for a Certificate of Environmental Compatibility and Public Need, Staff submits the following considerations and recommended findings pursuant to R.C. 4906.07(C) and 4906.10(A).

Considerations for R.C. 4906.10(A)(1)

BASIS OF NEED

Pursuant to R.C. 4906.10(A)(1), the Board must determine the basis of the need for the facility only if the facility is an electric transmission line or gas pipeline. Therefore, Staff has found an analysis of R.C. 4906.10(A)(1) to be inapplicable to the facility in question.

Recommended Findings

Staff recommends that the Board find that the basis of need as specified under R.C. 4906.10(A)(1) is not applicable to this facility, as the facility is neither an electric transmission line nor a gas pipeline.

Considerations for R.C. 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility. Staff has found the following with regard to the nature of the probable environmental impact.

Overview

As described above, membership of the Board is specified in R.C. 4906.02(A) and its voting membership is comprised of leadership from the PUCO, Ohio EPA, ODH, ODOD, ODA, ODNR, as well as a member of the public specified as an engineer and two ad hoc members. Also as described above, the Board's Staff consists of career professionals from member agencies of the Board and their areas of expertise. Therefore, consideration of the nature of the probable environmental impact of a proposed facility incorporates such areas of expertise, as described below.

Community Impacts¹⁷

Land Use

The Applicant states the only land use type that would be impacted by this project is agricultural land. The Applicant established a minimum set back distance of 100 feet from non-participating residences and closest non-participating residence to a panel would be 222 feet away. The closest non-participating residence to a facility component is 104 feet from a collection line. The Applicant has designed the facility layout in a way which precludes residences being surrounded on more than one quadrant in their vicinity. The structures within a one-mile radius of the project area are residences, commercial/industrial development, churches, hospitals, schools, and government buildings. Impacts from construction would be temporary in nature and contained to the properties of participating landowners.

Regional Planning

Comprehensive land use plans provide citizens, elected officials, and developers with a conceptual planning framework. These plans may be utilized by governmental actors (such as planning boards) to aid in land use decisions; however, it is important to note that comprehensive plans are primarily authored to provide generalized guidance on market-based growth trends and many areas of these plans are deliberately not written with any binding force.

17. "The Ohio Department of Development is committed to creating jobs and building strong communities, while ensuring accountability and transparency of taxpayer money and exceptional customer service." (Ohio.gov, Department of Development, <https://development.ohio.gov/feat/whatisdsa.htm>). R.C. 122.011(A)(6) states, in part, that the department of development shall develop and promote plans and programs designed to assure that state resources are efficiently used, economic growth is properly balanced, community growth is developed in an orderly manner, and local governments are coordinated with each other and the state, and for such purposes may, among other things, cooperate with and provide technical assistance to state departments, regional and local planning commissions, and other appropriate organizations for the solution of community problems. According to R.C. 122.01(B)(1), "'community problems' includes, but is not limited to, taxation, fiscal administration, governmental structure and organization, intergovernmental cooperation, education and training, employment needs, community planning and development, air and water pollution, public safety and the administration of justice, housing, mass transportation, community facilities and services, health, welfare, recreation, open space, and the development of human resources."

In the project five-mile study area, there are two counties, one city, three villages, and nine townships. Paulding County is the only municipal jurisdiction that has adopted a land use plan, “Ohio Community Development Plan 2018”. The main objectives of this plan are to reduce poverty and increase job options for residents. The plan notes agriculture as a leading industry within the county, however the project will not be located within Paulding County. Staff asserts that the solar facility is not expected to conflict with this plan, though the project would provide some short-term employment during construction. The proposed solar facility would be expected to aid regional development by increasing local tax revenues. The project is consistent with the protection and preservation of the agricultural industry, in that the facility would provide supplemental income to farmers and the land would be protected from permanent development and could be returned to agricultural production upon decommissioning.

Recreation

In a study of recreation areas within five miles of the project area, the Applicant identified 15 recreation areas. Six of these recreation areas These recreational resources include a scenic byway and associated bike route, fairgrounds, a country club, and local community parks. The Lincoln Highway Scenic Byway and its associated bike route may have visibility of the project along portions of the route and byway, but the visibility may be alleviated by existing vegetative screening. Jubilee Park is in the northeast section of the city of Van Wert and is located 2.7 miles from the closest solar panels and designated as having partial views of the project. Bresler Park is in the northwest section of the village of Scott and is located three miles from the closest solar panels and designated as having limited views of the project. Haviland Park and Mumma Park are both in the northern section of the village of Haviland, are located 4.7 and 4.9 miles from the closest solar panels respectively and designated as having limited views of the project. According to the visual resource assessment, the number of panels potentially visible diminishes quickly at distances greater than 1.5 miles.

Aesthetics

Aesthetic impacts and considerations are always measured against the surrounding land use features and potential viewers’ subjective opinions. The rural nature of the project vicinity limits the number of potential viewers. Transportation corridors typically are smaller and much more lightly traveled, which reduces the number of viewing impacts. Existing woodlots are also able to offer additional natural screening. The project area predominantly consists of agricultural land. Traffic volume on roads throughout the project area is typically light, thus abating the potential number of viewers.

Staff reviewed the Applicant’s visual resource assessment and impact analysis. The solar panels would be installed no higher than 12 feet above ground level. Based on the results of the Applicant’s five-mile visual analysis, the solar panels would not likely be visible at most locations beyond one and a half-mile from the perimeter of the project, with highest visibility occurring within a half mile. According to the Applicant’s analysis, solar panels would be screened from approximately 47 percent of the viewshed by intervening vegetation and structures. The Applicant has designed the facility layout in a way which precludes residences being surrounded on more than one quadrant in their vicinity.¹⁸

18. Staff data request response filed February 11, 2021.

Staff's landscaping condition requires that the Applicant consult with a certified professional landscape architect. Staff reviewed Appendix V, Landscape Mitigation Plan, of the application. The Applicant's landscape mitigation plan incorporates potential planting measures such as shrub planting or enhanced pollinator plantings, to address impacts to adjacent non-participating residences, the traveling public, nearby communities, and recreationalists. The Applicant has not committed to module plantings in specific places around the proposed site as has been seen in other solar facility applications that have come before the Board. The Applicant has instead stated in a data request response to Staff that it will provide a landscaping allowance to non-participating landowners that are either adjacent to or within 300-feet of the facility and have a direct-line-of-sight of the facility.¹⁹ The Applicant states this provides residences with the options to install screening to their desire which is more in line with feedback it has received from these residents. The Applicant states this is also more in line with its intent to return the property to agricultural land use after the facility would be decommissioned.

Staff is recommending that the Applicant's landscape and lighting plans incorporate design features to reduce impacts in areas where an adjacent non-participating parcel contains a residence with a direct line of sight to the project's infrastructure. Staff recommends that aesthetic impact mitigation include good neighbor agreements or other methods in consultation with affected landowners and subject to Staff review.

In addition to vegetative screening mitigation measures, Staff is concerned about aesthetic impacts related to the project's perimeter fencing. The Applicant stated in a response to Staff data request that it is willing to consider alternative fencing for the perimeter pending market availability and compliance with applicable electric codes. Staff is recommending a condition to ensure that specifications for the selected perimeter fencing be less aesthetically intrusive, more suitable to agricultural land use, and small-wildlife permeable, or in essence, wildlife friendly. With implementation of Staff's landscape and fencing conditions, the overall expected aesthetic impact would be minimal.

Cultural Resources²⁰

The Applicant enlisted a consultant, Environmental Design & Research (EDR), to gather background information and complete archaeological cultural resources studies for this project. A Phase I cultural archaeological reconnaissance survey was completed and submitted to the Ohio Historic Preservation Office (OHPO) for review in November 2021. In the archaeology survey report, it was determined that a total of 98 archaeological sites were newly identified within the project area and four previously identified sites. All but 20 sites were recommended by EDR as ineligible for listing in the National Register of Historic Places (NRHP) as they either do not appear to offer information important to the prehistory of the region or do not appear to be associated with

19. Staff data request response filed February 11, 2021.

20. According to R.C. 149.53, "[a]ll departments, agencies, units, instrumentalities, and political subdivisions of the state shall cooperate with the Ohio history connection and the Ohio historic site preservation advisory board in the preservation of archaeological and historic sites and in recovery of scientific information from such sites, and for such purposes shall, whenever practical, by contract or otherwise provide for archaeological and historic survey and salvage work during the planning phases, before work on a public improvement begins or at other appropriate times." In Ohio, the Ohio Historic Preservation Office (OHPO) is part of the Ohio History Connection. (See, Ohio History Connection, About Section 106 Review, <<https://www.ohiohistory.org/preserve/state-historic-preservation-office/hpreviews/about-section-106-review>>).

important persons or events in the region. The OHPO agrees with EDR that the 20 sites EDR recommended as potentially eligible for listing in the NHRP are potentially eligible. The Applicant has agreed to avoid all 20 sites. The Applicant will also implement an unanticipated archaeological discovery protocol to ensure if archaeological resources are discovered during construction, the resources are evaluated concerning the need to possibly preserve the resource.

The Applicant enlisted EDR to gather background information and complete historical/architectural cultural resources studies for this project, which included a historic architecture survey of the area of potential effect.²¹ EDR identified 18 previously identified and three newly identified historic resources within the area of potential effect that are potentially eligible for listing in the NRHP. Of these 21 resources, six resources are recommended as eligible for listing on the NHRP. However, due to shielding and present viewshed these six resources are recommended as not having an adverse effect from the project. The OHPO concurs with these findings.

With OHPO's concurrence of no adverse effects from the project and the Applicant's commitments regarding project changes and/or the discovery of new/additional archaeological remains, Staff has determined that minimal adverse environmental impacts to cultural resources would be achieved.

Economic Impact

The Applicant states that it would be responsible for the construction and ownership of the proposed project. The Applicant will rent or own all the equipment and structures associated with the proposed project. The Applicant is in the process of securing the necessary leases and agreements for all land within the project area. The proposed facility will not change the ownership status of the public road rights-of-way. All other components of the facility will be located entirely on privately-owned land secured by lease, easement, and option to purchase agreements.

The Applicant chose to file its estimated capital and intangible costs, estimated O&M expenses, and estimated delay costs, under seal, and filed a motion for protective order to keep the information confidential. Similar requests have been common practice in many, but not all, solar facility applications.

Total cost comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant referenced a 2021 study conducted by the U.S. Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Laboratory) which states that the capacity-weighted average installed costs of solar PV projects was around \$1,420/kW in 2020 and that its costs are below this range. Staff verified the Applicant's assertion that the reported average cost of similar facilities is not substantially different from Applicant's estimated costs for the proposed facility and that the reported average cost of the Applicant's similar facilities is not substantially different from Applicant's estimated costs for the proposed facility.

O&M expense comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant stated that its recent solar projects of comparable scale report similar O&M costs to the proposed facility. Staff verified that the reported O&M costs

21. The area of potential effect is a geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of a cultural property.

of the Applicant's similar facilities is not substantially different from Applicant's estimated costs for the proposed facility. The Applicant referenced the same 2021 Berkeley Laboratory study which states that O&M costs for solar projects averaged \$16/kW/year for projects constructed in 2020. The Applicant expects that the O&M costs for the proposed project will be slightly higher than those contained in the Berkeley Laboratory report. Staff also notes that the National Renewable Energy Laboratory (NREL), in its 2021 update on utility-scale solar costs, reports that O&M costs were \$16/kW/year for fixed-tilt PV facilities and \$17/kW/year for facilities using tracking systems. The Applicant anticipates its O&M costs for the proposed project will be slightly higher than the costs stated in the NREL report.

The Applicant provided its estimates of the cost of delays in permitting and construction of the proposed facility, although the estimated costs were filed under seal. The Applicant stated that delays could prevent the project from meeting federal Investment Tax Credit deadlines which could result in the loss of those benefits to the Applicant. The Applicant's characterization of its estimated costs of delays appears reasonable to Staff.

The Applicant retained the services of EDR to report on the economic impact of the project.²² EDR used the National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impact (JEDI) model, the IMPLAN regional economic modeling system, as well as data from the Ohio Department of Taxation, to estimate the economic impact of the construction and operation of the solar facility. Staff verified that the methodology of the JEDI and IMPLAN models were appropriate for this study and that the estimated impacts reported by the Applicant are reasonable.

In this model, "earnings" are comprised of direct (on-site) wages, indirect (supply-chain labor) wages, and induced (through spending by persons in first two categories). "Output" in this model refers to the value of goods and services produced by direct, indirect, and induced labor. Based on the results of the JEDI and IMPLAN model analysis conducted by EDR, the project is expected to have the following impacts:

Jobs

- 675 construction related jobs for the state of Ohio
- Six long-term operational jobs for the state of Ohio

Earnings

- \$50 million in local earnings during construction for the state of Ohio
- \$400,000 in annual earnings during facility operations for the state of Ohio

Output

- \$84.6 million in output during construction of the facility for the state of Ohio
- \$1 million in annual output during facility operations for the state of Ohio

22. Environmental Design & Research is a multi-disciplinary environmental consulting and design firm that has conducted economic development analysis and studies the economic impact of energy projects at the national, state, and local level.

The project is estimated to generate between \$1,050,000 and \$1,350,000 annually for Van Wert County taxing districts. This estimate is based on a proposed Payment in Lieu of Taxes (PILOT) plan in which the Applicant would pay between \$7,000/MW and \$9000/MW annually for a total of 150 MW. At this time, the Applicant has not entered into a PILOT agreement with Van Wert County.

Glare

Glare is the phenomenon where sunlight reflects from a surface to create a duration of bright light. Glare also encompasses glint, which is a momentary flash of bright light. Potential impacts of this reflection from solar panel(s) could be a brief reduction in visibility, afterimage, a safety risk to pilots, or a perceived nuisance to neighbors. The Applicant considered the potential effects of glint and glare in the design of solar array layout and how the panels would be operated.

Solar panels are designed to absorb as much sunlight as possible with minimal reflectivity and include an anti-reflection coating. The Applicant conducted a glint and glare analysis to identify any potential impacts along local roads, airport flightpaths, and at nearby residences.²³ To perform the analysis of glare, the Applicant used the ForgeSolar software formerly known as the Solar Glare Hazard Analysis Tool (SGHAT) which was developed by Sandia National Laboratories to analyze potential glare at sensitive receptor locations. This software is commonly used by solar facility developers to determine the effect of solar glare. Glare is classified in three categories in the SGHAT tool: (1) the green type, which is associated with a low potential for temporary after-image when observed prior to a typical blink response time; (2) the yellow type, which is associated with a potential for temporary after-image when observed prior to a typical blink response time; and (3) the red type, which is associated with the permanent retinal damage when observed prior to a typical blink response time. The Applicant found that no glare (i.e., no minutes of either green, yellow, or red type) from the project is predicted to vehicles using the roadways or nearby residences. Staff agrees with the study results. Staff notes that aesthetic impact mitigation measures that include vegetative plantings may also further reduce potential impacts as part of a landscape and lighting plan, which Staff has recommended for this project.

Decommissioning

The Applicant holds land rights to and estimates that the solar facility can operate for 35 years or more. The Applicant has prepared a decommissioning plan and total decommissioning cost estimate of \$7,523,841. Staff has reviewed that decommissioning plan.²⁴

According to the Applicant's plan, at the end of the useful life of the facility, the solar facility would be decommissioned, and the land be returned to its current use as agricultural land. Prior to the start of any decommissioning activities, the Applicant would apply for and obtain applicable federal, state, and local permits. At this time, the Applicant has identified that during decommissioning, it may need to obtain, at the least, an Ohio EPA Construction Storm Water General Permit, Spill Prevention Control and Countermeasures plan, and adhere to the Van Wert County Solid Waste Ordinance. At the time of decommissioning, panels would be reused, recycled, or properly disposed in accord with regulations in effect at that time.

23. Application at Exhibit N.

24. Application at Exhibit L.

The decommissioning sequence consists of, but is not limited to dismantling panels and racking, removing inverters, removing electrical cables to a depth of at least 42 inches, removing access and internal roads, grading the site, removing the substation, removing overhead transmission lines and poles, and revegetating disturbed land to pre-construction conditions, to the extent practicable. At the request of the landowner, the Applicant may leave access roads or fencing in place. The Applicant has also committed to coordinate with the appropriate local agency to coordinate repair of any public roads if damaged or modified during decommissioning via a RUMA. The Applicant would restore the land significantly to its original topography to allow for resumption of the pre-construction agricultural land use. The Applicant stated that it anticipates decommissioning activities and restoration to occur over and be completed in a 50-week period. Based on the weather dependent nature of site restoration, the Applicant has committed to monitor the site to ensure successful revegetation and rehabilitation.

The Applicant intends to restore the land to its pre-construction condition to the extent practicable for agricultural purposes. During decommissioning, the Applicant would take commercially reasonable efforts to restore drainage in the area including lateral and main drain tile systems to the condition drainage was in prior to the commencement of the solar facility.²⁵ With that drainage restoration, the Applicant indicates that to the extent that any deeply buried underground facility component may remain after decommissioning, the landowner could work around it if encountered during tile maintenance or additional drain tile installation.

The Applicant states it would repurpose, salvage, recycle or haul offsite to a licensed solid waste disposal facility all solar components. Some of those solar components are anticipated to have a resale or salvage value and would be sold to offset the decommissioning cost. Those salvageable items typically are solar modules, tracking system, steel piles, inverters, and transformers. If solar modules are to be disposed, the Applicant intends to conduct the disposal in compliance with federal, state, and local laws and regulations. The Applicant is considering panels and intends to use only panels that have been certified to comply with the US EPA's toxicity characteristics leachate procedure (TCLP) test and meet U.S. EPA definition of non-hazardous waste. Staff recommends that at the time of solar panel end of life disposal, any retired panel material that is not recycled and that is marked for disposal, shall be sent to an engineered landfill with various barriers and methods designed to prevent leaching of materials into soils and groundwater, or another appropriate disposal location at the time of decommissioning approved by Staff.

The Applicant would also provide for financial security to ensure that funds are available for decommissioning/land-restoration. Specifically, the Applicant states that it would employ a surety bond active during the life of the project and renewed annually. The Applicant states that it would periodically review the decommissioning plan and costs and provide an updated report to the Board every five years after the commercial operations date. These reports would be prepared by an independent, registered professional engineer, licensed to practice engineering in the state of Ohio to estimate the total cost of decommissioning the facility, salvage value, and appropriateness of any contingency amount or percentage.

Staff recommends that at least 30 days prior to the preconstruction conference, the Applicant shall submit an updated decommissioning plan and total decommissioning cost estimate without regard to salvage value on the public docket that includes: (a) a provision that the decommissioning

25. Staff data request response filed March 25, 2022.

financial assurance mechanism include a performance bond where the company is the principal, the insurance company is the surety, and the Ohio Power Siting Board is the obligee; (b) a timeline for removal of the equipment; (c) a provision to monitor the site for at least one additional year to ensure successful revegetation and rehabilitation; (d) a provision where the performance bond is posted prior to the commencement of construction; (e) a provision that the performance bond is for the total decommissioning cost and excludes salvage value; (f) a provision to coordinate repair of public roads damaged or modified during the decommissioning and reclamation process; (g) a provision that the decommissioning plan be prepared by a professional engineer registered with the state board of registration for professional engineers and surveyors; (h) a provision stating that the bond shall be recalculated every five years by an engineer retained by the Applicant; and (i) a provision that underground equipment will be removed to the extent that allows for future drain tile repairs and installation to be completed.

Wind Velocity

In compliance with the Ohio Administrative Code, the Applicant has provided a tabulation and a graphical representation of the hourly wind speed data from December 31, 1996 through December 31, 2020. Almost 204,000 hourly data points were in the record. The maximum and average of the wind speeds presented were 41.0 and 10.3 mph, respectively. Because the facility would be unoccupied structures, the facility is constructed under Risk Category I for wind load design using a minimum design wind load of 100 miles per hour (mph). The Applicant states that structural load calculations would be performed and reviewed by Ohio licensed professional engineers. The structures and supports would be designed to meet all applicable code requirements, including the ASCE 7-16 Risk Category I for 100 mph wind loading. The tracker would be designed to provide support for the modules and keep the module loading from exceeding the structural design limits.

The Applicant confirms that loading cases and combinations outlined in the ASCE 7 standards and loading due to undulating terrain would be considered in the final design.²⁶ The resulting stresses in the horizontal, axial, and lateral directions would be transferred to the racking structures, posts, and other hardware of the racking system. The components would be designed including a safety factor of 1.5 above the anticipated loads to accommodate these loads and resulting stresses.

The Applicant has also stated that wind sensors, communication systems, battery backups for these systems, and power supplies would be used to support weather stations to provide information and updates to the tracking system and its motor operations to prevent catastrophic failure during extreme wind and snow events. The systems also employ redundancy to help ensure a fail-safe operation; they would also be tested for performance during the commissioning of the project.

Roads and Bridges²⁷

The Applicant has yet to finalize its delivery route, although it is expected that deliveries to the project site would be by way of US Highway 30 to US 127, US 224, and Hoaglin Center Road via Lincoln Highway. The county and township roads adjacent to the project would receive traffic due to construction.

26. Staff data request response filed December 28, 2021.

27. The entity responsible for maintaining roads and bridges within Ohio depends on many factors. See, e.g., ODOT, Roadway Infrastructure Maintenance Responsibility Manual, <https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/maintenance-operations/rimr/rimr>.

The Applicant conducted an evaluation of probable impacts to traffic due to construction and operation of the proposed facility. Due to the nature of the traffic expected to be generated by the project and the style in which the roads to be used are surfaced, the Applicant expects minimum adverse impacts to transportation infrastructure. According to the Applicant's Traffic Study, the transportation infrastructure is sufficient to carry the necessary construction traffic.²⁸

Conventional heavy equipment which does not require special permitting would make up the majority of construction traffic. The electrical transformer is likely to be overweight and would require special permitting and route coordination for delivery. Staff notes that an increase in truck traffic would be anticipated during construction for the purpose of project area equipment access and equipment and material deliveries but does not anticipate significant changes to traffic patterns. Post construction and operation of the solar facility, Staff does not anticipate any additional traffic for the project beyond routine maintenance. The Applicant expects to enter into a Road Use Maintenance Agreement with Van Wert County. Any damaged public roads and bridges would be repaired by the Applicant under the guidance of the appropriate regulatory authority.

Noise

Noise impacts from construction activities would include site clearing, installation of mechanical and electrical equipment, and commissioning and testing of equipment. Many of the construction activities would generate significant noise levels during the construction period. However, the adverse impact of construction noise would be temporary and intermittent, would occur away from most residential structures, and would be limited to daytime working hours. The Applicant would use mitigation practices such as limiting construction activities to daylight hours and establishing a complaint resolution process.

Operational noise impacts for a solar generation facility would be relatively minor and occur only during the day. Operational noise sources include inverters and tracking motors. The step-up transformer at the new substation may operate at night but the noise impact would also be relatively minor.

The Applicant conducted an ambient noise level study in order to understand the existing noise levels near the proposed facility. Noise impacts to non-participating receptors were modeled using the proposed inverter model and substation transformer.²⁹ No non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level plus five dBA. Therefore, the project would be expected to have minimal adverse noise impacts on the adjacent community. If an inverter model different than the proposed inverter model is chosen, the Applicant would submit a noise report confirming that no non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level plus five dBA.

28. OPSB Case Number 21-0823-EL-BGN Exhibit K.

29. For the sound propagation model, the model used for the inverter was the Power Electronics HEM/PCSM GEN3 4.6 MW, for the field transformer the ABB Mustard MVT 5 MVA, and for the substation transformer was a Fortune Electric 167 MVA transformer.

Geology³⁰

*Surficial/Glacial*³¹

The project area lies within the glaciated margin of the state and includes several Wisconsinan-age glacial features. The project area is covered by the wave-planed till within the Glacial Lake Maumee Lake Plain. Glacial drift throughout most of the study area is between eight and 28 feet thick. Drift is generally thinnest in the east and thickest in the west.³²

*Bedrock*³³

The uppermost bedrock unit throughout the entire project boundary is the Salina Undifferentiated. This dolomite unit consists of brecciated intervals and argillaceous partings with interbedding of gypsum and anhydrite.³⁴ Given the drift thickness cited above, bedrock may be encountered in a portion of the proposed project area.

*Karst*³⁵

Conditions typically necessary for the formation of karst geology features do exist within the project area. There are no mapped suspected or field verified karst features in Van Wert County

30. According, in part, to R.C. 1505.01, the ODNR's division of geological survey "[s]hall advise, consult, or collaborate with representatives of agencies of the state...on problems or issues of a geological nature when requested by such an agency...." One of the missions of the ODNR Division Geological Survey is "to provide geologic information and services needed for responsible management of Ohio's natural resources." (ODNR, Division of Geological Survey, *About the Division*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/division-of-geologic-survey>>). This includes studying and investigating, among other things, glacial and surficial geology, bedrock geology, and geological hazards. According to ODNR a "geologic hazard or 'geohazard' is a geologic condition, either manmade or natural, that poses a potential danger to life and property. Ohio is home to a number of potential geohazards, including karst, mine subsidence, earthquakes, landslides, and shore erosion." (ODNR, *Geologic Hazards*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/geologic-hazards>>).

31. "Since its inception in 1837, the ODNR Division of Geological Survey has researched and mapped the state's glacial and surficial geology. Today, highly detailed mapping and meticulous studies continue to inform and broaden our knowledge of Ohio's glacial past." (ODNR, *Glacial Geology in Ohio* <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/glacial-geology>>).

"Since collaborating with the U.S. Geological Survey to release the first statewide *Glacial Map of Ohio* in 1961, the ODNR Division of Geological Survey has mapped the unconsolidated geologic materials found at Ohio's surface with increasing detail." (ODNR, *Glacial & Surficial Geologic Maps*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/glacial-geology/glacial-surficial-geologic-maps>>).

32. ODNR Ohio Geology Viewer Interactive Map <https://gis.ohiodnr.gov/website/dgs/geologyviewer/#>.

33. "The ODNR Division of Geological Survey has had a long history of generating bedrock geologic maps for the state of Ohio since its inception in 1839. The most recent iteration of the geologic map of Ohio was created by seamlessly piecing together 788 individual 7.5-minute bedrock geologic quadrangles." (ODNR, *Bedrock Geology*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-odnr/geologic-survey/bedrock-geology/bedrock-geology>>).

34. Application at Exhibit Q – Ecological Survey Report by ESRI – Appendix B - ODNR Geologic Survey Review.

35. Karst terrain is formed within carbonate (e.g. limestone or dolomite) or evaporite (e.g. anhydrite or gypsum) rocks through mineral dissolution caused by movement of water. Most common karst features include the formation of caves or the formation of sinkholes at the surface. Generally, karst features, and the likelihood of karst development are most prevalent in areas where the carbonate bedrock is overlain by 20 feet or less of glacial till material. Limestone and dolomite are the most common carbonate bedrock. Generally, Limestone is more prone to dissolution than dolomite.

or the surrounding Ohio counties; however, the bedrock type located within the project site boundary has been associated with suspected and field verified karst features in other parts of the state.³⁶ The nearest documented karst feature in Ohio is over 48 miles to the southeast of the project area.

*Oil/Gas and Mining*³⁷

No oil and gas well activity is documented within the project area. ODNR records indicate that the nearest oil and gas related well is a former Class II saltwater injection well approximately 1.6 miles east of the project area boundary.³⁸

No active mining occurs within the project boundary.³⁹ The nearest mine is a limestone quarry approximately three miles to the south of the project area. No known abandoned underground mines are located within several miles of the project area.

*Seismic Activity*⁴⁰

Recent geologic history shows Van Wert County to be at low risk for seismicity caused by earthquakes as only one small magnitude earthquake has been documented in the county.⁴¹ The nearest event epicenter occurred in northwestern Van Wert County, approximately 10 miles from the project boundary. Based on soil properties evaluated during the geotechnical study, a Class C Seismic Site Classification was assigned in accordance with the International Building Code. Class C generally corresponds to very dense soil and soft rock. The Applicant has indicated that no blasting activities are anticipated for the construction or operation of the proposed solar facility, and therefore no blasting-induced seismic activity is anticipated.⁴²

*Soils*⁴³

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey, the project area consists primarily of soils derived from glacial

36. Application at page 59 and Application at Exhibit Q – Ecological Survey Report by ESRI – Appendix B, ODNR Geologic Survey Review.

ODNR Karst Viewer Interactive Map https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/.

37. ODNR Division of Oil & Gas states: “[t]he Division is responsible for regulating Ohio’s oil and natural gas industry and for the protection of all Ohioans and our environment while ensuring the state’s abundant natural resources are managed properly.” (ODNR, *Division of Oil & Gas*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/oil-gas/division-of-oil-and-gas/division-of-oil-and-gas>>).

38. ODNR Oil and Gas Viewer Interactive Map <https://gis.ohiodnr.gov/MapView/?config=OilGasWells>.

39. ODNR Mines Viewer Interactive Map <https://gis.ohiodnr.gov/MapView/?config=OhioMines>.

40. The ODNR Division of Geological Survey coordinates a 21-station network of seismograph stations throughout the state in order to continuously record earthquake activity. The Ohio Seismic Network (OhioSeis) went online in January 1999 to ensure Ohio has monitoring and coverage 24 hours a day, seven days a week by seismic stations with automatic detection, location and magnitude determination. (ODNR, *The Ohio Seismic Network*, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/division-of-geologic-survey/ohio-seis>>).

41. ODNR Earthquake Epicenters <https://gis.ohiodnr.gov/MapView/?config=Earthquakes>

42. Staff data request response filed April 7, 2022.

43. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) conducts soil surveys and provides technical assistance to private landowners. (USDA NRCS, *Ohio NRCS Soils*, <<https://www.nrcs.usda.gov/wps/portal/nrcs/oh/soils/>>).

“Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural

till, outwash, and alluvium deposits. Hoytville is the most common soil series found within the boundaries of the project area. Together this soil comprises 82 percent of the project area. There is a moderate risk of shrink-swell potential in these soils and ponding is common. Slope is variable, with slope seldom exceeding a 6 percent grade. Steeper grades primarily exist along stream valley corridors.

Geotechnical Report

A Design Level Geotechnical Engineering Report prepared by Terracon discusses the geotechnical work performed to date. To further evaluate geologic properties, 44 total borings were advanced from a range of 7.3 feet to a maximum depth of 30 feet (below ground level) BGL. Groundwater was encountered in 21 borings at a depth ranging from six to 18.5 feet BGL. Soil samples from the borings were evaluated for moisture content, grain size and distribution, and corrosivity. Bedrock coring was also conducted at the substation boring locations. The Applicant also performed electrical and thermal resistivity soil testing in addition to pile load testing to evaluate for axial tension, axial compression, and lateral loading.

The boring results indicate the presence of stiff to hard native cohesive soils with low to high plasticity with granular soils underlain by dolomite bedrock. Corrosion testing indicates the site soils are corrosive, thus construction materials such as ferrous metals or concrete are subject to degradation, and therefore, warrant corrosion resistant design considerations. The Geotechnical Engineering Report recommends that a certified corrosion engineer be retained to evaluate the project design for corrosion protection needs.⁴⁴

Shallow bedrock (10 feet or less) encountered during geotechnical borings (five borings in the southeastern portion of the project area where panel arrays are proposed) indicates that pre-drilling will likely be necessary for some pile installation (7-10 feet BGL). In addition, if drilled shaft foundations are used, required depths may also necessitate rock coring to penetrate the top of bedrock.

Access road design was performed as outlined in Section 4.1.2 of the 1993 AASHTO Design of Pavement for aggregate surfaced roads.⁴⁵ The geotechnical engineering report recommends geotextile fabric should be considered for subgrade stabilization in wet or otherwise soft soil areas. The report also recommends chemical stabilization to address unstable soils.⁴⁶

“Test borings conducted in the Project Area do not suggest any obvious signs of karst-related anomalies.”⁴⁷ The boring logs from the cores extracted at the proposed substation site indicates the dolomite bedrock is severely to very severely weathered and contains dissolution features

resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information. Soil surveys can be used for general farm, local, and wider area planning.” (USDA NCRS, *USDA Web Soil Survey*, <<https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>>).

44. Application at Exhibit C - Design Level Geotechnical Engineering Report by Terracon – page 8.

45. Application at Exhibit C - Design Level Geotechnical Engineering Report by Terracon – page 32.

AAHSTO - American Association of State Highway and Transportation Officials.

46. Application at Exhibit C - Design Level Geotechnical Engineering Report by Terracon – page 33.

47. Application at page 59.

(“vuggy zones”) which are indicative of karst geology. However, no karst features were discovered during onsite geotechnical investigations.

Conclusion

Conditions necessary for the formation of karst geology features do exist throughout the project site. However, the lack of documented karst features such as channels, sinkholes, or caverns within several miles of the project area suggests karst features are not expected to impact the construction and operation of the proposed project. Staff recommends that the final detailed engineering drawings of the final project design shall account for geological features and include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs. Staff recommends that the Applicant provide a final geotechnical engineering report to Staff at least 30 days prior to the preconstruction conference. Staff also proposes a condition that a corrosion engineer be part of the final design team to account for the potentially corrosive soils identified.

Based on the data and considerations provided within the application submittal to date and based on Staff assessment (with consideration and input from ODNR), and implementation of the recommended conditions, there appears to be no particular geological features within the project area that are incompatible with construction and operation of the proposed solar facility.

Ecological Impacts

Public and Private Water Supplies

Groundwater resources are plentiful throughout the project area. The ODNR has record of 130 water wells drilled within one mile of the project area. The wells range in depth from 19 to 387 feet deep, with an average depth of 82 feet. These wells indicate a sustainable yield range of one to 130 gallons per minute based on well log records. The average sustainable yield from these records was 22.6 gallons per minute. This is based on records from 59 wells within one mile of the project area that contain sustainable yield data.⁴⁸

Ohio EPA defines source water protection areas (SWPAs) as the area that supplies water to a public water supply (PWS) well within a five-year time-of-travel.⁴⁹ There are no SWPAs within the project area.⁵⁰ One SWPA assigned to the North Union United Methodist Church (OH8137112) lies 1,657 feet west of the project area. Another SWPA assigned to Cooper Farms Cooked Meats (OH8134212) is located 2,645 feet to the south of the project area. In order to protect PWSs, Ohio EPA has established regulations that restrict certain activities which may impact groundwater quality. Typical examples of restricted activities are concentrated animal feeding operations, landfills, and voluntary brownfield cleanups. Construction and operation of solar power facilities is not among those restricted activities.

The Applicant has indicated that ODNR records show ten wells within the project area. The Applicant committed to sealing all water wells not avoided in the final site layout design in accordance with Ohio Adm.Code 3701-28.⁵¹ Additionally, the Applicant committed to

48. August 9, 2021 ODNR Geologic Survey Review.

49. Ohio EPA Drinking Water Area Source Delineation Manual,
https://epa.ohio.gov/static/Portals/28/documents/swap/swap_delin_guidance.pdf.

50. Application at page 57 and Ohio EPA Source Water Protection Areas Map,
<https://oea.maps.arcgis.com/apps/webappviewer/index.html?id=3b39e11ba7fc43c3b41801e3580e6d21>.

51. Staff data request response filed January 12, 2022.

implementing a 50-foot setback for all wells not avoided in the final layout design. In the current facility layout design, the closest well is 165 feet from the fence line.

The project may require use of existing water wells located in the project area for construction activities including, but not limited to, moisture conditioning of the soil, dust control, and vegetation management. The application states that no facility components will use significant quantities of water or discharge significant quantities of wastewater.⁵² Citing its Groundwater, Hydrogeological, and Geotechnical Desktop Review provided to supplement the application, the Applicant concludes: “it does not appear that the local geology and/or hydrogeology will be prohibitive regarding the construction of the proposed Wild Grains Solar Project... Along with analysis of the known well yields, construction activities on-site are not anticipated to have significant negative impact to the irrigation and drinking wells located on the private properties.”⁵³

Based on the data and considerations provided within the application submittal to date, Staff concurs there appears to be no identifiable risk posed to public or private drinking water supplies by construction or operation of the proposed facility.

*Surface Waters*⁵⁴

The Applicant’s consultant, Environmental Solutions & Innovations, Inc. (ESI), conducted a stream and wetland delineation within the 2,556-acre study area in June of 2021.⁵⁵ ESI delineated three Category 1 palustrine forested wetlands, totaling 0.474 acres; nine stream segments (seven perennial and two ephemeral) as well as nine ditches; and four ponds.

The Applicant plans to avoid all wetlands and ponds in the project area. Up to six stream crossings by collection lines are being proposed, all of which would be completed by horizontal directional drilling (HDD). HDD is typically preferred to open-cut trenching when crossing surface water resources as impacts can be avoided in most cases. However, the HDD process includes the risk of a frac-out. A frac-out occurs when the drilling lubricant, typically water or a non-toxic, fine clay bentonite slurry, is forced through cracks in bedrock and/or surface soils. The Applicant has prepared an HDD Contingency Plan as part of the application that would be implemented at any stream crossing. Staff also recommends that the Applicant have an environmental specialist on site

52. Application at page 10.

53. Page 6 of Exhibit P (Groundwater, Hydrogeological, and Geotechnical Desktop Review by Westwood)

54. The Ohio EPA website states: “The Division of Surface Water ensures compliance with the federal Clean Water Act and works to increase the number of water bodies that can be safely used for swimming and fishing. The division issues permits to regulate wastewater treatment plants, factories and storm water runoff; develops comprehensive watershed plans aimed at improving polluted streams; and samples streams, lakes and wetlands — including fish, aquatic insects and plants — to determine the health of Ohio’s water bodies.” (Ohio EPA, *About Us: Surface Water*, <https://www.epa.ohio.gov/About#127147228-surface-water>); The U.S. Army Corps of Engineers website states: “The U.S. Army Corps of Engineers (USACE) Regulatory Program involves the regulating of discharges of dredged or fill material into waters of the United States and structures or work in navigable waters of the United States, under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act of 1899.” (USACE, *Obtain a Permit*, <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit/>); The Ohio Department of Natural Resources (ODNR) website states: “The Division of Water Resources manages statewide oversight of dams & levees, floodplains, and the collection and management of data related to the state’s water resources.” (ODNR, *Division of Water Resources*, <https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-odnr/water-resources/water-resources>).

55. Wetlands falling within the purview of the Clean Water Act are regulated within Ohio by R.C. 6111, et seq. and Ohio Adm.Code 3745-1-50, et seq. Ohio Adm.Code 3745-1-54 establishes wetland categories.

during construction activities where HDD activities may impact surface waters. The environmental specialist should have authority to stop HDD activities to ensure that any impacts related to a frac-out are addressed.

The Applicant has stated that the boundaries of jurisdictional streams and wetlands within and immediately adjacent to the construction limits of disturbance will be demarcated with highly visible flagging, staking, or fencing prior to construction. Further specifics about how surface waters would be protected from indirect construction stormwater impacts would be outlined in the Applicant's Stormwater Pollution Prevention Plan (SWPPP). The Applicant would obtain an Ohio National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit through Ohio EPA prior to the start of construction. Staff does not anticipate issues with the Applicant's procurement of this permit. Staff recommends the Applicant apply Ohio EPA published Guidelines for Post-Construction Storm Water Control for Solar Panel Arrays to project construction and operation. This project does not fall within a FEMA 100-year floodplain.

Due to the lack of proposed in-water work to and the use of HDD techniques for stream crossings by collection lines, there are no anticipated temporary or permanent impacts to surface waters in the project area.

*Threatened and Endangered Species*⁵⁶

The Applicant requested information from ODNR and USFWS regarding state and federal listed threatened or endangered plant and animal species. Staff gathered additional information through field assessments and review of published ecological information. The following tables provide the results of the information requests, field assessments, and document review.

56. Based on agency coordination with the USFWS and ODNR, identified species of concern are, in general, defined as those species that are protected under the federal Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531-1544) and/or according to the Conservation of Natural Resources within R.C. 1518.01-1518.99; 1531.25; and 1531.99. *See also e.g.*, R.C. 1531.08 states, in part: "In conformity with Section 36 of Article II, Ohio Constitution, providing for the passage of laws for the conservation of the natural resources of the state, including streams, lakes, submerged lands, and swamplands, and in conformity with this chapter and Chapter 1533. of the Revised Code, the chief of the division of wildlife has authority and control in all matters pertaining to the protection, preservation, propagation, possession, and management of wild animals and may adopt rules under section 1531.10 of the Revised Code for the management of wild animals."

One of the missions of the ODNR is to "conserve and improve the fish and wildlife resources and their habitats and promote their use and appreciation by the public so that these resources continue to enhance the quality of life for all Ohioans." In carrying out this mission, the ODNR considers the "status of native wildlife species [to be] very important" and therefore lists wildlife species needing protection. (ODNR, *State Listed Species*, <https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/wildlife/state-listed-species>).

MAMMALS				
	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	No suitable winter hibernacula were observed in the project area. Potentially suitable summer foraging and roosting habitat was observed in the project area.
Northern Long-Eared bat	<i>Myotis septentrionalis</i>	Threatened	Endangered	No suitable winter hibernacula were observed in the project area. Potentially suitable summer foraging and roosting habitat was observed in the project area.
Little Brown bat	<i>Myotis lucifugus</i>	N/A	Endangered	No suitable winter hibernacula were observed in the project area. Potentially suitable summer foraging and roosting habitat was observed in the project area.
Tri-colored bat	<i>Perimyotis subflavus</i>	N/A	Endangered	No suitable winter hibernacula were observed in the project area. Potentially suitable summer foraging and roosting habitat was observed in the project area.
FISH				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Pugnose minnow	<i>Opsopoeodus emiliae</i>	N/A	Endangered	Potentially suitable habitat identified in the project area.
BIRDS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Northern harrier	<i>Circus hudsonis</i>	N/A	Endangered	No suitable nesting habitat was observed within the area.
Upland sandpiper	<i>Bartramia longicuda</i>	N/A	Endangered	No suitable habitat was observed within the area.

The Applicant did not identify any listed plant or animal species during field surveys. The ODNR and the USFWS did not identify any concerns regarding impacts to listed plant or animal species. In the event that the Applicant encounters listed plant or animal species during construction, Staff recommends that the Applicant contact Staff, the ODNR, and the USFWS, as applicable. Staff also recommends that if the Applicant encounters any listed plant or animal species prior to construction, the Applicant include the location and how impacts would be avoided in mapping based on final engineering drawings to be provided to Staff prior to the preconstruction conference.

The project area is within the range of state and federally endangered Indiana bat (*Myotis sodalis*), the state endangered and federally threatened northern long-eared bat (*Myotis septentrionalis*), the state endangered little brown bat (*Myotis lucifugus*), and the state endangered tricolored bat (*Perimyotis subflavus*). As tree roosting species in the summer months, their habitat may be impacted by the project. Up to two acres of trees are proposed to be cleared for this project. The Applicant has committed to adhering to the seasonal tree cutting dates of October 1 through March

31 as recommended by the ODNR and USFWS. During the winter months bats, hibernate in caves and abandoned mines, also known as hibernacula. This project would not impact any bat hibernacula.

Critical habitat for the state endangered pugnose minnow (*Opsopoeodus emiliae*) was identified in the project area. The ODNR recommended that no in-water work in perennial streams be conducted from March 15 and June 30 to prevent impacts to this species. The Applicant has committed to this recommendation.

The project area is also within range of the state endangered northern harrier (*Circus hudsonis*) and upland sandpiper (*Bartramia longicauda*). Impacts to these species are not anticipated due to lack of habitat.

Vegetation

The following table reflects the different vegetative communities present in the project area and associated impact for the facility.

VEGETATIVE COMMUNITIES WITHIN PROJECT AREA	
Vegetation Community Type	Total (Acres)
Cultivated crop	2,300
Deciduous Forest	94
Developed, High Intensity	50
Grassland/Herbaceous	1
Woody Wetlands	1

Permanent vegetative impacts would occur primarily within agricultural lands. Forestland impact, totaling two acres, would be consist of clearing along hedgerows rather than existing woodlots.

The Applicant has developed a vegetation management plan in which it committed to incorporate pollinator-friendly habitat in accordance with the recommendations of the Ohio Pollinator Habitat Initiative. The Applicant elaborated⁵⁷ that while the specific mix and planting location are not known at this time, flowering plants and pollinators will be key components of the final seed mix. The Applicant committed to applying the final seed mix to all areas within the fence line (except for intentionally graveled areas) as well as a buffer area outside the fence line, encompassing an acreage of approximately 800 acres or 35 percent of the leased project area. The Applicant is unable to provide a specific pollinator score on the Ohio Solar Site Pollinator Habitat Planning and Assessment form but committed to maximizing the score once the site design is finalized. Additionally, the Applicant stated that buffer areas outside the fence lines and leased areas not utilized for panels may be utilized for more diverse plantings. Other additional measures, such as signage indicating the site is wildlife and pollinator-friendly or creation of habitat features may be implemented in order to maximize the pollinator score. Staff recommends that the Applicant prepare an updated vegetation management plan in consultation with ODNR, with a goal to follow the Ohio Solar Site Pollinator Habitat Planning and Assessment Form with a minimum score of 80 points. Pollinator habitat would enhance the visual appeal of the project, enrich local wildlife habitat, benefit the local farming community, increase plant diversity, and discourage invasive species. This would be expected to represent a reduced environmental impact when compared to

57. Staff data request response filed February 11, 2022.

the current land use of agricultural plant production. This is due to the reduction of frequent tilling leading to erosion and sedimentation, and reduced fertilizer and pesticide application. To further assure that these benefits would be realized, Staff recommends that the Applicant take steps to prevent establishment and/or further propagation of noxious weeds identified in Ohio Adm.Code Chapter 901:5-37 during implementation of any pollinator-friendly plantings.

Recommended Findings

Staff recommends that the Board find that the Applicant has determined the nature of the probable environmental impact for the proposed facility, and therefore complies with the requirements specified in R.C. 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Site Selection

The Applicant's site selection process focused on the following criteria: strong solar resources, manageable access to the bulk power transmission system, landowner interest, compatible land use characteristics, and few environmentally sensitive areas. In preparation of the application, the Applicant engaged local officials and the public.

Minimizing Impacts

Several archaeological sites within the project area were identified as potentially eligible for listing on the NRHP. The Applicant has agreed to avoid all potentially eligible sites. With the implementation of the Applicant's avoidance plan, and existing and planned vegetative screening, Staff has determined that minimal adverse environmental impacts to cultural resources would be achieved.

The proposed facility would have an impact on the state and local economy due to the increase in construction spending, wages, purchasing of goods and services, annual lease payments to the local landowners, increased tax revenues and PILOT revenue.

The geology of the project site in Van Wert County does not appear to present conditions that would limit or negatively impact the construction and future operation of the proposed facility. Staff recommends that the final detailed engineering drawings of the final project design shall account for geological features and that the Applicant develop a final Unanticipated Discovery Plan to account for any previously unknown conditions or features discovered during the proposed construction.

The Applicant would coordinate with landowners in the project area to identify specific well locations, avoidance and mitigation measures, or capping. Additionally, Staff has recommended conditions that include ensuring a 50-foot setback from water wells. Also, Staff has recommended documentation and setbacks to plugged and abandoned water wells in the project area. Based on implementation of these recommended conditions, there appears to be a low risk that the proposed solar facility would adversely impact public or private drinking water supplies.

The Applicant anticipates no temporary or permanent wetland impacts due to construction of the project, including construction of access roads and collection lines. The Applicant proposes up to six stream crossings. All stream crossings would be done via HDD to avoid impacting streams. Impacts to any state or federal listed species can be avoided by following seasonal restrictions for construction in certain habitat types, as detailed by the USFWS and the ODNR. The Applicant did not identify any listed plant or animal species during field surveys. While the project is within range of several listed species, impacts would be avoided on suitable habitats.

Noise impacts are expected to be limited to construction activities. The adverse impact of construction noise would be temporary and intermittent and would occur away from most residential structures. Staff recommends that the Applicant limit the hours of construction to address potential construction and operational related concerns from any nearby residents. No non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level. If the Applicant chooses an inverter or transformer model with a higher sound power level than the representative models used in the Noise Evaluation, Staff recommends that the Applicant submit an updated noise study, using noise data from the inverter or transformer chosen for the project. The updated noise study would confirm that sound levels would not exceed the ambient level plus five dBA at any non-participating sensitive receptor to assure that operational noise impacts are minimal.

During the construction period, local, state, and county roads would experience a temporary increase in truck traffic due to deliveries of equipment and materials. Due to the location of the project, the Applicant anticipates that most components for the entire project would be delivered by using flatbed or tractor-trailer vehicles and multi-axle dump trucks. The transportation management plan would be finalized before the pre-construction conference. A final delivery route plan would be developed through discussions with local officials. The Applicant intends to enter into a road use agreement with the county engineer.

Due to the low profile of the project, combined with existing vegetation in the area, the visual impacts would be most prominent to landowners in the immediate vicinity of the infrastructure itself. In order to reduce impacts in areas where an adjacent, non-participating parcel contains a residence with a direct line of sight to the project, Staff has recommended a condition requiring a final landscape and lighting plan that addresses the potential impacts of the facility.

The Applicant has committed to take steps to address such potential impacts to farmland, including repairing all drainage tiles damaged during construction and restoring temporarily impacted land to its original use. The Applicant has consulted landowners and county records, to determine the locations of drain tile mains. To avoid impacts to drain tiles, the Applicant stated that it would locate drain tiles as accurately as possible prior to construction. The Applicant has committed to ensure that adverse impacts to drain tile systems will not extend outside the project area. Following decommissioning of the facility, land can be restored for agricultural use.

The Applicant has prepared a draft plan to decommission the solar facility. The Applicant would provide for financial security to ensure that funds are available for decommissioning/land-restoration. The Applicant would restore the land significantly to its original topography to allow for resumption of agricultural use. Staff has recommended a condition requiring that the draft decommissioning plan be updated to include improved financial assurance and a decommissioning cost estimate, among other things.

Conclusion

Staff concludes that the proposed project would result in both temporary and permanent impacts to the project and surrounding areas. The project is unlikely to pose a significant adverse impact to existing land use, cultural resources, recreational resources, or wildlife. With Staff's recommended conditions to further mitigate potential impacts, Staff concludes that the project represents the minimum adverse environmental impact.

Recommended Findings

Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in R.C. 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

CONSIDERATIONS FOR R.C. 4906.10(A)(4)

ELECTRIC GRID

Pursuant to R.C. 4906.10(A)(4), the Board must determine that the proposed electric facilities are consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facilities will serve the interests of electric system economy and reliability. The purpose of this section of the report is to evaluate the impact of integrating the proposed facility into the bulk power system (BPS).

The Applicant proposes to construct a solar-powered electric generation facility, capable of producing 150 MW. The proposed facility would interconnect from the facility substation to a newly proposed 115 kV gen-tie connection which would connect the proposed facility to American Electric Power's (AEP) existing 345 kV Maddox Creek substation. The Maddox Creek substation would inject energy into the BPS on AEP's Lima - Maddox Creek, Maddox Creek - RP Mone, and Blue Creek - Maddox Creek 345 kV transmission lines.

NERC Planning Criteria

The North American Electric Reliability Corporation (NERC) is responsible for the development and enforcement of the federal government's approved reliability standards, which are applicable to all owners, operators, and users of the BPS. As an owner, operator, and/or user of the BPS, the Applicant is subject to compliance with various NERC reliability standards. NERC reliability standards are included as part of the system evaluations conducted by PJM Interconnection, LLC (PJM).⁵⁸

PJM Interconnection

The Applicant submitted a generation interconnection request for the proposed facility to PJM on October 18, 2019. PJM assigned the project queue position AF2-014.⁵⁹ The Applicant requested an energy injection of 150 MW, of which 90 MW could be available in the PJM capacity market.⁶⁰ PJM has completed the feasibility and system impact study (SIS) and is processing the facilities study.^{61, 62}

58. PJM Interconnection, LLC is the regional transmission organization charged with planning for upgrades and administering the generation queue for the regional transmission system in Ohio. Generators wanting to interconnect to the bulk electric transmission system located in the PJM control area are required to submit an interconnection application for review of system impacts. The interconnection process provides for the construction of expansions and upgrades of the PJM transmission system, as needed to maintain compliance with reliability criteria with the addition of generation in its footprint.

59. PJM Interconnection, "New Services Queue," for Queue ID: AF2-014, accessed March 21, 2022, <https://pjm.com/planning/services-requests/interconnection-queues>.

60. The capacity market ensures the adequate availability of necessary generation resources can be called upon to meet current and future demand.

61. PJM Interconnection, "New Services Queue," Feasibility Study for Queue ID: AF2-014, accessed March 21, 2022, https://pjm.com/pub/planning/project-queues/feas_docs/af2014_fea.pdf.

62. PJM Interconnection, "New Services Queue," System Impact Study for Queue ID: AF2-014, accessed March 21, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/af2014_imp.pdf.

PJM Network Impacts

PJM analyzed the proposed facility interconnected to the BPS. A summer peak power flow model was used to evaluate the regional reliability impacts. The studies revealed no reliability criteria violations. The below chart displays the results of the PJM SIS for the PJM regional footprint.

PJM REGIONAL SYSTEM IMPACTS - (Summer Peak)	
Generator Deliverability - System Normal & Single Contingency Outage	
<i>Capacity Level - 90 MW</i>	No problems identified
Category C and D - Multiple Contingency Outages <i>Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies</i>	
<i>Energy Output - 150 MW</i>	No problems identified

New System Reinforcements

PJM requires mitigation of contingencies that cause reliability criteria violations which are initially caused by the addition of an Applicant's project. The results identified no new system reinforcements needed.

Contribution to Previously Identified Overloads - Network Impacts

PJM studied overloading where the proposed facility may affect earlier projects in the PJM Queue. The results identified no network impacts.

Potential Congestion due to Local Energy Deliverability- Energy Delivery Impacts

PJM studied the delivery of the energy portion. Network upgrades under this section would allow for the delivery of energy with operational restrictions. The upgrades to mitigate any future operational restrictions are not required for the facility to be operational and are at the discretion of the Applicant. The results identified three network impacts which may impact energy deliverability.⁶³ If the Applicant wishes to proceed with upgrades, PJM requires a merchant transmission interconnection request.

Short Circuit Analysis

The short circuit analysis study, which is part of the System Impact Study, evaluates the interrupting capabilities of circuit breakers that would be impacted by the proposed generation addition. The results identified no circuit breaker problems.

Recommended Findings

Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electrical power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, Staff recommends that the Board find that the facility complies with the requirements specified in R.C. 4906.10(A)(4), provided that any certificate issued by the

63. PJM Interconnection, "New Services Queue," System Impact Study for Queue ID: AF2-014, accessed March 21, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/af2014_imp.pdf

Board for the proposed facilities include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(5)

AIR, WATER, SOLID WASTE AND AVIATION

Pursuant to R.C. 4906.10(A)(5), the facility must comply with Ohio law regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air⁶⁴

Air quality permits are not required for construction or operation of the proposed facility. However, fugitive dust rules adopted under R.C. Chapter 3704 may be applicable to the construction of the proposed facility. The Applicant would control temporary and localized fugitive dust by using best management practices (BMP) such as using water to wet soil or calcium chloride application to minimize dust during periods of high heat. These methods are outlined in the ODNR's *Ohio Rainwater and Land Development Manual*. This method of dust control is typically used to comply with fugitive dust rules.

This project would not include any stationary sources of air emissions and, therefore, would not require air pollution control equipment.

Water⁶⁵

The Applicant anticipates obtaining environmental permits if and where necessary. The Applicant would mitigate potential water quality impacts associated with storm water runoff by obtaining NPDES construction storm water general permit (OHC00005) from the Ohio EPA with submittal of a notice of intent for coverage under that permit. The construction storm water general permit also requires development of an SWPPP to direct the implementation of construction related storm water BMP for soil erosion control.

The Applicant would obtain, if required, the following permits:

64. The Revised Code provides for the Ohio EPA to administer and enforce the provisions of R.C. Ch. 3704 with regards to air pollution control. See e.g., RC 3704.03, 3704.161. The Ohio EPA Division of Air Pollution Control ensures compliance with the federal Clean Air Act and the Emergency Planning and Community Right-to-Know Act as part of its mission to attain and maintain air quality at a level that protects the environment and public health. (Ohio EPA, *Division of Air Pollution Control*, <https://www.epa.ohio.gov/dapc/#188913097-featured-topics>). The Division of Air Pollution Control develops and enforces rules in the Ohio Administrative Code, which assist the state of Ohio to: attain and maintain the National Ambient Air Quality Standards (NAAQS) contained in the Clean Air Act; fulfill the requirements set forth by the Ohio General Assembly in R.C. 3704; and protect and maintain healthy air quality for the citizens of the state of Ohio. (See, Ohio EPA, *Division of Air Pollution Control Rules and Laws*, <<https://www.epa.ohio.gov/dapc/DAPCrules>>).

65. The Revised Code provides for the Ohio EPA to be the lead agency in administering the provisions of Ch. 6111 with regards to water quality. See e.g., RC 6111.041. For example, the Ohio EPA, among other things, "ensures compliance with the federal Clean Water Act and works to restore and enhance the integrity of Ohio's waters." (Ohio EPA Website, *Division of Surface Water*, <https://www.epa.ohio.gov/dsw/Surface-Water/LiveTabId/113292#:~:text=Ensures%20compliance%20with%20the%20federal,the%20integrity%20of%20Ohio's%20waters.&text=We%20issue%20permits%20to%20regulate,aimed%20at%20improving%20polluted%20streams>). The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. (US EPA, *Summary of Clean Water Act*, <https://www.epa.gov/laws-regulations/summary-clean-water-act>).

- An individual permit or nationwide permit under Section 404 of the Clean Water Act (CWA).
- A Water Quality Certification from the Ohio EPA.
- An Ohio Isolated Wetland Permit.

An SWPPP would be developed to ensure compliance with the CWA and detail the BMP's to be implemented during the construction and operation of the facility.

With these measures, construction and operation of this facility would comply with requirements of R.C. Chapter 6111, and the rules and laws adopted under that chapter.

Solid Waste⁶⁶

Construction is expected to produce approximately 9,200 cubic yards of waste. Debris generated from construction activities would include items such as plastic, wood, cardboard, metal packing/packaging materials, construction scrap, and general refuse. The Applicant stated that all construction-related debris would be disposed of by a contractor.

During operation of the project, the Applicant anticipates that the O&M facility would generate solid waste comparable in type and quantity to a small business office; it would use a local solid waste disposal service to handle the waste. The Applicant's solid waste disposal plans would comply with solid waste disposal requirements set forth in R.C. Chapter 3734.

Aviation⁶⁷

The height of the tallest above ground structure would be the lightning mast at the collector substation at approximately 65 feet tall.⁶⁸ That height is under the height requirement from the Federal Aviation Administration (FAA), pursuant to 14 CFR Part 77.9(a), for filing a Form 7460-1.

According to the Applicant, there is one public use airport within five miles of the project area and no heliports within that distance.⁶⁹ Staff confirmed through the FAA, that the closest public-use airport is the Van Wert (VNW) airport which is approximately 4.5 miles southwest of the proposed solar facility project collector substation.

In accordance with R.C. 4906.10(A)(5), Staff contacted the ODOT Office of Aviation during the review of this application in order to coordinate review of potential impacts of the facility on local airports.⁷⁰ As of the date of this filing, no such concerns have been identified.

66. The Revised Code generally provides for Ohio EPA to administer and enforce the provisions of Chapters 3714. and 3734., in particular with regard to solid waste facilities, infectious waste treatment facilities and construction and demolition debris facilities.

67. The FAA is the authority in the U.S. government responsible for regulating all aspects of civil aviation, including issuing determinations on petitions for objects that penetrate the nation's airspace. The FAA conducts aeronautical studies for new structures that will exceed 200 feet in height under the provisions of 49 U.S.C. 44718, and applicable 14 CFR Part 77. Pursuant to R.C. 4561.32, ODOT regulates the height and location of structures and objects within any airport's clear zone surface, horizontal surface, conical surface, primary surface, approach surface, or transitional surface.

68. Application at page 12 and Staff data request response filed January 3, 2022..

69. Application at page 49 and Figure 08-3.

70. R.C. 4906.10(A)(5) states: "[i]n determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult with the office of aviation of

Recommended Findings

Staff recommends that the Board find that the proposed facility complies with the requirements specified in R.C. 4906.10(A)(5), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

the division of multi-modal planning and programs of the department of transportation under section 4561.341 of the Revised Code.” R.C. 4561.341 states: “[p]ursuant to any consultation with the power siting board regarding an application for certification under section 4906.03 or 4906.10 of the Revised Code, the office of aviation of the division of multi-modal planning and programs of the department of transportation shall review the application to determine whether the facility constitutes or will constitute an obstruction to air navigation based upon the rules adopted under section 4561.32 of the Revised Code. Upon review of the application, if the office determines that the facility constitutes or will constitute an obstruction to air navigation, it shall provide, in writing, this determination and either the terms, conditions, and modifications that are necessary for the applicant to eliminate the obstruction or a statement that compliance with the obstruction standards may be waived, to the power siting board under section 4906.03 or 4906.10 of the Revised Code, as appropriate.”

Considerations for R.C. 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to R.C. 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

Safety

The Applicant stated that it would use reliable equipment. The current equipment under consideration is compliant with applicable Underwriters Laboratories and Institute of Electrical and Electronics Engineers standards. The Applicant intends to select leading suppliers, particularly a Tier 1 solar panel manufacturer and that all of the primary components of the solar facility will have standard industry warranties. The Applicant has also planned for the expenses of O&M for the solar facility to keep the facility in a safe and reliable status.⁷¹

The Applicant intends to use warning signs, fencing, and gates to restrict access to the potential hazards within the solar project area. Additionally, the Applicant intends to design its facility with setbacks from its fence line to non-participating sensitive receptors, non-participating properties, wind turbines, and public roads. Specifically, the Applicant would implement the following setbacks: 100 feet to a non-participating residence, church, or school, 25 feet from the property line of any non-participating property, 1.3 times the maximum tip height to a wind turbine (approximately 618 feet), and 130 feet from the centerline of a public road. The Applicant would also incorporate any manufacturer recommended setbacks into its final site plan.

The Applicant stated that it intends to restrict public access to the facility by enclosing the project area with a perimeter fence. The Applicant has proposed a chain-link fence that is seven-feet tall and is considering alternative fencing around the panel areas such as wire mesh or deer fence that complies with applicable electrical code requirements. The Applicant intends that fencing around the substation would be a six-foot tall chain link fence topped with a one-foot tall, barbed wire strand.⁷² Staff has recommended that, except for the substation fencing, the solar panel perimeter fence type be both wildlife permeable and aesthetically fitting for a rural location. Prior to construction, the Applicant also intends to develop and implement an emergency response plan in further consultation with potentially affected emergency response personnel. The Applicant has provided an example emergency response plan, which Staff has reviewed.⁷³

Electromagnetic Fields

Electric transmission lines, when energized, generate electromagnetic fields (EMF). Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. There have been concerns, however, that EMF may have impacts on human health. The gen-tie transmission line is not within 100 feet of an occupied structure, therefore calculation of the production of EMF during operation of the proposed gen-tie transmission line is not warranted

71. Application at page 32.

72. Application at page 9 and Staff data request response filed February 11, 2022.

73. Application at Exhibit M.

per Ohio Adm.Code 4906-5-07(A)(2).⁷⁴ The Applicant states that the transmission facilities would be designed and installed according to the requirements of the National Electrical Safety Code.

Public Interaction and Participation

The Applicant hosted a public informational meeting for the project. Attendees were provided the opportunity to review information about the project, ask questions, and provide written comments. The Applicant has developed a public interaction plan for the project and maintains a project website at <http://www.wildgrainssolar.com>.⁷⁵

The Applicant has drafted a complaint resolution plan to handle complaints during the construction and operation of the facility.⁷⁶ Staff recommends that a final version of the complaint resolution plan for construction and operation be filed on the docket no later than 30 days prior to the start of construction. The Applicant has committed to notify affected property owners and tenants prior to the start of construction. Staff recommends that these notices be mailed to all residences, airports, schools, and libraries located within one mile of the project area; parties to this case; county commissioners, township trustees, and emergency responders; and any other person who requests updates regarding the project. Staff further recommends that a similar notice be mailed to the same recipients prior to the start of facility operations. Staff also recommends that the Applicant prepare a quarterly complaint summary report about the nature and resolution of all complaints received in that quarter and file these reports on the public docket during the first five years of operation.

The Administrative Law Judge scheduled a public hearing and an adjudicatory hearing for this proceeding. The local public hearing will be held on May 3, 2022 at 6 p.m. at the EMR Room, Van Wert County Fairgrounds, 1055 S. Washington Street in Van Wert, Ohio 45891. The adjudicatory hearing is scheduled to commence on May 25, 2022, at 10 a.m., at the offices of the Public Utilities Commission of Ohio, Hearing Room 11-C, 11th Floor, 180 East Broad Street, Columbus, Ohio 43215-3793. The Ohio Farm Bureau Federation has filed to intervene in this proceeding.

Senate Bill 52 (S.B. 52)

The passage of Senate Bill 52 (S.B. 52) provides new opportunities for county commissioners and township trustees to participate in the siting of solar projects in their community. The Wild Grains Solar Facility is the first project partially impacted by the new legislation; it is grandfathered under S.B. 52 except for the ad hoc board member provision. County commissioners may choose one commissioner, or a designee, to serve as an ad hoc board member. In addition, township trustees may choose one trustee, or a designee, to serve as their ad hoc board member representative. Local government boards must designate ad hoc members within 30 days of notice of application completion.

The Board of Van Wert County Commissioners appointed Commissioner Todd D. Wolfrum, and the Board of Trustees of Hoaglin Township appointed Trustee Alfred Osting, as the ad hoc board members for this project.

74. Wild Grains Solar, LLC's Response to Staff's Second Data Requested dated December 20, 2021, Data Request #34B (January 3, 2022).

75. Application at Exhibit I.

76. Application at Exhibit J.

Public Comments

As of the filing date of this report, 37 document records have been filed in the public comments of the case record. Each document record may include one or more public comments. Public comments include:

- A letter from the Board of Trustees of Hoaglin Township expressing the township's support for the project.⁷⁷
- An email from Hoaglin Township Trustee Dean Girod expressing his support for the project.⁷⁸
- Letters from local residents in opposition to and in support of the project.

Commenters opposed to the proposed project expressed concerns about issues including traffic impacts, agricultural land use and farmland preservation, agricultural production and livestock, wildlife, drinking water and ground water, drainage and flooding, runoff pollution, property values, public health, aesthetics and viewshed, and fencing. Those supportive of the project emphasized support for landowner rights and the benefits of additional tax revenue for local government and schools, economic investment in the community, job creation, renewable energy, and lease payments for participating landowners. All public comments are available for Board members and the public to view online in the case record at <http://dis.puc.state.oh.us>.

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in R.C. 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

77. Letter from Board of Trustees of Hoaglin Township filed January 3, 2022.

78. Email from Hoaglin Township Trustee Dean Girod filed March 30, 2022.

Considerations for R.C. 4906.10(A)(7)

AGRICULTURAL DISTRICTS AND AGRICULTURAL LAND

Pursuant to R.C. 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the project area of the proposed facility. The agricultural district program was established under R.C. Chapter 929. Agricultural district land is exempt from sewer, water, or electrical service tax assessments.

Agricultural land can be classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Eligible land must be devoted exclusively to agricultural production or be qualified for compensation under a land conservation program for the preceding three calendar years. Furthermore, eligible land must be at least 10 acres in size or produce a minimum average gross annual income of \$2,500.

Approximately 818 acres of agricultural land will be permanently disturbed by the proposed project. Approximately 37 of those acres are currently enrolled in the Agricultural District program. The Applicant states the repurposed land could be restored for agricultural use when the project is decommissioned. The construction and operation of the proposed facility will disturb the existing soil and could lead to broken drainage tiles. A drain tile system consists of laterals, which are branches off a main, and main lines. Main lines can allow water to flow into or out of one parcel to another. The locating and avoiding of damaging drain tile mains can help prevent the pooling of water on project parcels and adjacent parcels.

The Applicant has drawn a preliminary map which identifies the locations of existing drain tiles within the project area. This map and the Applicant's mitigation plan are detailed in the Tile Maintenance Plan submitted within its OPSB application (Exhibit E). This report discusses avoidance, repair, and mitigation details of all known drain tile locations. The Applicant has outlined a drain tile repair protocol in the Tile Maintenance Plan. The Applicant has committed to take steps to address potential impacts to farmland, including repairing drainage tiles damaged during construction and restoring temporarily impacted land to its original use. Excavated topsoil will be separated during construction and returned as topsoil after construction unless otherwise specified by landowners. Upon decommissioning, disturbed areas will be restored for agricultural use.

Recommended Findings

Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in R.C. 4906.10(A)(7) provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to R.C. 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

Construction of the proposed facility would not require the use of significant amounts of water. Water may be utilized for dust suppression and control on open soil surfaces such as construction access roads as needed.

Operation of the proposed facility would not require the use of significant amounts of water. The project would use the existing O&M building from the Blue Creek Wind Farm. So, no appreciable additional water or wastewater would be generated from the project. In relation to the cleaning of panels, the Applicant stated that area rainfall and snowfall should sufficiently clean the panels and that no more than once in a five-year period does it anticipate cleaning of panels.⁷⁹ In the rare event that cleaning is needed, the Applicant estimates that a single instance of approximately 120,000 gallons of water would be used.

Recommended Findings

The Staff recommends that the Board find that the proposed facility would incorporate maximum feasible water conservation practices, and therefore complies with the requirements specified in R.C. 4906.10(A)(8), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

79. Staff data request response filed January 3, 2022.

V. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by the Applicant and the record compiled to date in this proceeding, Staff recommends that a certificate be issued for the proposed facility. Staff recommends that a number of conditions become part of such certificate. These recommended conditions may be modified as a result of public or other input received subsequent to the issuance of this report. At this time, Staff recommends the following conditions:

- (1) The Applicant shall install the facility, utilize equipment and construction practices, and implement mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (2) The Applicant shall conduct a preconstruction conference prior to the commencement of any construction activities. Staff, the Applicant, and representatives of the primary contractor and all subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review and shall file a copy of the agenda on the case docket. The Applicant may conduct separate preconstruction conferences for each stage of construction.
- (3) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. If the Applicant demonstrates that good cause prevents it from submitting a copy of the as-built specifications for the entire facility within 60 days after commencement of commercial operation, it may request an extension of time for the filing of such as-built specifications. The Applicant shall use reasonable efforts to provide as-built drawings in both hard copy and as geographically referenced electronic data.
- (4) Separate preconstruction conferences may be held for the different phases of civil construction and equipment installation. At least 30 days prior to each preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design for that phase of construction and mapping in the form of PDF, which the Applicant shall also file on the docket of this case, and geographically referenced data (such as shapefiles or KMZ files) based on final engineering drawings to confirm that the final design is in conformance with the certificate. Mapping shall include the limits of disturbance, permanent and temporary infrastructure locations, areas of vegetation removal and vegetative restoration as applicable, and specifically denote any adjustments made from the siting detailed in the application. The detailed engineering drawings of the final project design for each phase of construction shall account for geological features and include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs. All applicable geotechnical study results shall be included in the submission of the final project design to Staff.

- (5) At least 30 days prior to the preconstruction conference, the Applicant shall provide Staff, for review and acceptance, the final geotechnical engineering report. This shall include a summary statement addressing the geologic and soil suitability.
- (6) If any changes are made to the facility layout after the submission of final engineering drawings, the Applicant shall provide all such changes to Staff in hard copy and as geographically-referenced electronic data. All changes are subject to Staff review for compliance with all conditions of the certificate, prior to construction in those areas.
- (7) At least 30 days prior to the preconstruction conference, the Applicant shall provide Staff, for review and acceptance, a final Unanticipated Discovery Plan to address the processes that would be followed by the Applicant in the event any previously unknown contaminated material or other potential hazard(s) are discovered during the proposed construction.
- (8) The Applicant's final project design shall include input from a qualified corrosion engineer to account for potentially corrosive soils.
- (9) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate unless the Board grants a waiver or extension of time.
- (10) As the information becomes known, the Applicant shall file on the public docket the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- (11) The Applicant shall obtain transportation permits prior to the commencement of construction activities that require them. The Applicant shall coordinate with the appropriate authority regarding any temporary road closures, road use agreements, driveway permits, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. Applicant shall detail this coordination as part of a final transportation management plan submitted to Staff prior to the preconstruction conference for review and confirmation by Staff that it complies with this condition.
- (12) Prior to the commencement of construction activities in areas that require permits or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits or authorizations. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant and shall file such permits or authorizations on the public docket. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference(s).
- (13) The certificate authority provided in this case shall not exempt the facility from any other applicable and lawful local, state, or federal rules or regulations nor be used to affect the exercise of discretion of any other local, state, or federal permitting or licensing authority with regard to areas subject to their supervision or control.
- (14) The Applicant shall not commercially operate the facility until it has as executed an Interconnection Service Agreement and Interconnection Construction Service Agreement

with PJM Interconnection, LLC, which includes construction, operation, and maintenance of system upgrades necessary to integrate the proposed generating facility into the regional transmission system reliably and safely. The Applicant shall docket in the case record a letter stating that the Agreements have been signed or docket a copy of the executed Interconnection Service Agreement and Interconnection Construction Service Agreement.

- (15) The Applicant shall not commence any construction of the facility until it has executed either an Interconnection Service Agreement or an Interim Interconnection Service Agreement with PJM Interconnection, LLC. The Applicant shall docket in the case record a letter stating that such agreement has been signed or docket a copy of the executed agreement.
- (16) The facility shall be operated in such a way as to assure that no more than 150 megawatts would at any time be injected into the Bulk Power System.
- (17) Prior to commencement of any construction, the Applicant shall prepare a landscape and lighting plan in consultation with a landscape architect licensed by the Ohio Landscape Architects Board that addresses the aesthetic and lighting impacts of the facility with an emphasis on any locations where an adjacent non-participating parcel contains a residence with a direct line of sight to the project area. The plan shall also address potential aesthetic impacts to nearby communities, the travelling public, and recreationalists by incorporating appropriate landscaping measures such as shrub plantings or enhanced pollinator plantings. The plan shall include measures such as fencing, vegetative screening, or good neighbor agreements. Unless alternative mitigation is agreed upon with the owner of any such adjacent, non-participating parcel containing a residence with a direct line of sight to the fence of the facility, the plan shall provide for the planting of vegetative screening designed by the landscape architect to enhance the view from the residence and be in harmony with the existing vegetation and viewshed in the area. The Applicant shall maintain vegetative screening for the life of the facility and the Applicant shall replace any failed plantings so that, after five years, at least 90 percent of the vegetation has survived. Prior to commencement of construction, the Applicant shall submit to Staff for approval a solar panel perimeter fence type that is both small-wildlife permeable and aesthetically fitting for a rural location. This condition shall not apply to substation fencing. The Applicant shall maintain all fencing along the perimeter of the project in good repair for the term of the project and shall promptly repair any damage as needed. Lights shall be motion-activated and designed to narrowly focus light inward toward the facility, such as being downward facing and/or fitted with side shields. The Applicant shall provide the plan to Staff and file it on the public docket for review and confirmation that it complies with this condition.
- (18) Prior to commencement of construction, the Applicant shall submit to Staff for approval a solar panel perimeter fence type that is both small-wildlife permeable and aesthetically fitting for a rural location. This condition shall not apply to substation fencing.
- (19) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving shall be limited to the hours between 9:00 a.m. and 6:00 p.m. Hoe ram operations, if required, shall be limited to the hours between 10:00 a.m. and 4:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are

permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Ohio Adm.Code 4906-3-03(B)(2) of upcoming construction activities including potential for nighttime construction.

- (20) Operational sound levels shall not exceed 47 dBA plus five dBA, at non-participating receptors. If the inverters and/or substation transformer chosen for the project have a higher sound power level than the representative inverter and transformer used in the sound assessment, the Applicant shall submit an updated noise study. If noise data from the inverter and substation transformer chosen for the project is available, the updated noise study shall be submitted at least 30 days prior to construction. If, however, noise data from the inverter and substation transformer chosen for the project is not available, the Applicant shall conduct an operational test with the facility operating at approximately the level with the largest noise impact for its updated noise study. The updated noise study shall show that sound levels will not exceed the 47 dBA plus five dBA at any non-participating sensitive receptor.
- (21) The Applicant shall avoid, where possible, or minimize to the extent practicable, any damage to functioning field tile drainage systems compaction to soils resulting from the construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems shall be promptly repaired or rerouted to at least original conditions or modern equivalent at the Applicant's expense to ensure proper drainage. However, if the affected landowner(s) agrees to not having the damaged field tile system repaired, they may do so only if the field tile systems of nearby parcels remain unaffected by the non-repair of the landowner's field tile system. The Applicant shall design the project to ensure that nearby parcels are protected from unwanted drainage problems due to construction and operation of the project. The Applicant shall document benchmark conditions of surface and subsurface drainage systems on project parcels prior to construction, including the location of laterals, mains, grassed waterways, and county maintenance/repair ditches. The Applicant shall consult with owners of all parcels adjacent to the project parcels, the county soil and water conservation district, and the county to request drainage system information over those parcels. The Applicant shall consult with the county engineer for tile located in a county maintenance/repair ditch. A map of discovered drain tile systems shall be filed in the case docket once construction is complete.
- (22) At least 30 days prior to the preconstruction conference, the Applicant shall submit an updated decommissioning plan and total decommissioning cost estimate without regard to salvage value on the public docket that includes: (a) a provision that the decommissioning financial assurance mechanism include a performance bond where the company is the principal, the insurance company is the surety, and the Ohio Power Siting Board is the obligee; (b) a timeline for removal of the equipment; (c) a provision to monitor the site for at least one additional year to ensure successful revegetation and rehabilitation; (d) a provision where the performance bond is posted prior to the commencement of construction; (e) a provision that the performance bond is for the total decommissioning cost and excludes salvage value; (f) a provision to coordinate repair of public roads damaged or modified during the decommissioning and reclamation process; (g) a provision that the decommissioning plan be prepared by a professional engineer registered with the state board of registration for professional engineers and surveyors; (h) a provision stating

that the bond shall be recalculated every five years by an engineer retained by the Applicant; and (i) a provision that underground equipment will be removed to the extent that allows for future drain tile repairs and installation to be completed.

- (23) At the time of solar panel end of life disposal, any retired panel material that is not recycled and that is marked for disposal, shall be sent to an engineered landfill with various barriers and methods designed to prevent leaching of materials into soils and groundwater, or another appropriate disposal location at the time of decommissioning approved by Staff.
- (24) All water wells within the project area shall be “ground-truthed” to determine the exact locations prior to construction. The Applicant shall adhere to a minimum project infrastructure setback of 50 feet from any existing domestic use water supply well. The Applicant shall obtain concurrence from the landowner prior to the plugging and abandonment of any water wells within the project area. Documentation of that concurrence shall be filed on the case docket. Plugging and abandonment of any water wells within the project area shall occur prior to construction.
- (25) The Applicant shall adhere to a minimum setback of ten feet between project infrastructure and any plugged and abandoned water wells.
- (26) The Applicant shall construct the facility in a manner that incorporates post construction stormwater management under OHC00005 (Part III.G.2.e, pp. 19-27) in accordance with the Ohio Environmental Protection Agency’s Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays.
- (27) The Applicant shall contact Staff, the ODNR, and the USFWS within 24 hours if state or federal listed species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be immediately halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and the appropriate agencies.
- (28) Prior to commencement of any construction, the Applicant shall prepare an updated vegetation management plan in consultation with ODNR. The goals of the plan shall include planting approximately 800 acres in beneficial vegetation, utilizing plant species listed in Attachment A of ODNR Recommended Requirements for Proposed Solar Energy Facilities in Ohio or other suitable species as approved by ODNR, and to follow the Ohio Solar Site Pollinator Habitat Planning and Assessment Form with a minimum score of 80 points. The plan shall include a narrative on how the project proposes to establish and maintain beneficial vegetation and pollinator habitat in accordance with the guidelines provided above. The plan shall include mapping of the areas where pollinator habitat would be established and maintained. The plan shall include that routine mowing would be limited to fall/spring seasons, as needed, to allow for natural reseeding of plantings and reduce impacts to ground-nesting birds.
- (29) The Applicant take steps to prevent establishment and/or further propagation of noxious weeds identified in Ohio Adm.Code 901:5-37 during implementation of any pollinator-friendly plantings. This would be achieved through appropriate seed selection, and annual

vegetative surveys. If noxious weeds are found to be present, the Applicant shall remove and treat them with herbicide as necessary.

- (30) The Applicant shall coordinate with the ODNR, USFWS, and Staff should final site designs necessitate temporary or permanent impacts to surface waters.
- (31) The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas. Sensitive areas may include, but are not limited to, wetlands and streams, and locations of threatened or endangered species. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction. The environmental specialist shall have authority to stop construction to assure that unforeseen environmental impacts do not progress and recommend procedures to resolve the impact. A map shall be provided to Staff showing sensitive areas which would be impacted during construction with information on when the environmental specialist would be present.
- (32) At least 30 days prior to the start of construction, the Applicant shall file a copy of the final complaint resolution plan for construction and operation of the project on the public docket. At least seven days prior to the start of construction and at least seven days prior to the start of facility operations, the Applicant shall notify via mail affected property owners and tenants; all residents, airports, schools, and libraries located within one mile of the project area; parties to this case; county commissioners, township trustees, and emergency responders; and any other person who requests updates regarding the project. These notices shall provide information about the project, including contact information and a copy of the complaint resolution program. The start of construction notice shall include written confirmation that the Applicant has complied with all preconstruction-related conditions of the certificate, as well as a timeline for construction and restoration activities. The start of facility operations notice shall include written confirmation that the Applicant has complied with all construction-related conditions of the certificate, as well as a timeline for the start of operations. The Applicant shall file a copy of these notices on the public docket. During the construction and operation of the facility, the Applicant shall submit to Staff a complaint summary report by the fifteenth day of April, July, October, and January of each year during construction and through the first five years of operation. The report shall include a list of all complaints received through the Applicant's complaint resolution program, a description of the actions taken toward the resolution of each complaint, and a status update if the complaint has yet to be resolved. The Applicant shall file a copy of these complaint summaries on the public docket.

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Summary: Staff Report of Investigation electronically filed by Mr. Matt Butler on
behalf of Staff of OPSB