

Staff Report of Investigation

Madison Fields Solar Project
Madison Fields Solar Project, LLC

Case No. 19-1881-EL-BGN

November 18, 2020



Power Siting
Board

Mike DeWine, Governor | Sam Randazzo, Chairman

**In the Matter of the Application of Madison Fields Solar)
Project, LLC for a Certificate of Environmental)
Compatibility and Public Need to Construct a Solar) Case No. 19-1881-EL-BGN
Powered Electric Generation Facility in Madison)
County, Ohio)**

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 Madison Fields Solar)
Project, LLC for a Certificate of Environmental)
Compatibility and Public Need to Construct a Solar) Case No. 19-1881-EL-BGN
Powered Electric Generation Facility in Madison)
County, Ohio)

Chairman, Public Utilities Commission	Director, Department of Natural Resources
Director, Department of Agriculture	Public Member
Director, Development Services Agency	Ohio House of Representatives
Director, Environmental Protection Agency	Ohio Senate
Director, Department of Health	

To the Honorable Power Siting Board:

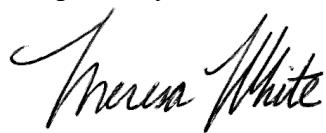
In accordance with the Ohio Revised Code (R.C.) 4906.07(C) and rules of the Ohio Power Siting Board (Board), the staff of the Public Utilities Commission of Ohio (Staff) has completed its investigation in the above matter and submits its findings and recommendations in this Staff Report for consideration 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 Development Services Agency, 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, the U.S. Army Corps of Engineers, and the U.S. Coast Guard.

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 and 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. POWERS AND DUTIES

OHIO POWER SITING BOARD

The authority of the Ohio Power Siting Board (Board or OPSB) is prescribed by Ohio Revised Code (R.C.) Chapter 4906. 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 twenty MW, measured at the customer's point of interconnection to the electrical grid.

Membership of the Board is specified in R.C. 4906.02(A). The voting members include: the Chairman of the Public Utilities Commission of Ohio (PUCO or Commission) who serves as Chairman of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health, the Ohio Development Services Agency, the Ohio Department of Agriculture, 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. Ex-officio Board members include two members (with alternates) 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

1. R.C. 4906.04 and 4906.20.

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

Within 60 days of receiving an application, the Chairman 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 Chairman 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 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

Board Decision

The Board may approve, modify and approve, or deny an application for a certificate of environmental compatibility and public need.¹⁰ If the Board approves, or modifies and approves an application, it will issue a certificate subject to conditions. 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 its issues were not adequately addressed by the Board may submit within

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.

10. R.C. 4906.10(A).

11. R.C. 4906.10.

12. R.C. 4906.11.

13. R.C. 4906.10(C).

30 days an application for rehearing.¹⁴ An entry on rehearing will 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 sections 1501.33, 1501.34, and 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 with the office of aviation of the division of multi-modal 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

¹⁴ R.C. 4903.10 and 4906.12.

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

- (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.

II. APPLICATION

APPLICANT

Madison Fields Solar Project, LLC (Applicant) is a wholly owned subsidiary of Savion, LLC (Savion). Savion, headquartered in Kansas City, Missouri, is a developer of utility scale solar and energy storage projects. The Applicant would construct, operate, and maintain the facility.

HISTORY OF THE APPLICATION

On October 18, 2019, the Applicant filed a pre-application notification letter regarding the project.

On November 5 and 6, 2019, the Applicant held in-person public informational meetings regarding the project.

On April 28, 2020, the Applicant filed a motion for waiver and request for approval to hold a virtual public informational meeting. The motion was granted.

On June 16, 2020, the Applicant held a virtual public informational meeting regarding the project.

On July 15, 2020, the Applicant held a second virtual public informational meeting regarding the project.

On July 17, 2020, the Applicant filed the Madison Fields Solar Project application as well as a motion for protective order to keep portions of its application confidential.

On July 23, 2020, the Applicant filed an updated version of application Exhibit W, Phase I Archaeological Survey.

On August 3, 2020, the Applicant filed as a supplement to the application, the concurrence letter from the OHPO.

On September 15, 2020, the Executive Director of the OPSB issued a letter of compliance regarding the application to the Applicant.

On September 28, 2020, the Applicant filed a response to the first set of data requests received from Staff.

On October 2, 2020, the Applicant filed a response to the second set of data requests received from Staff.

On October 23, 2020, the Applicant filed a response to the third set of data requests received from Staff.

On November 4, 2020, the Applicant filed a response to the fourth set of data requests received from Staff.

On November 13, 2020, the Applicant filed supplemental responses to the third and fourth data requests.

A local public hearing has been scheduled for December 3, 2020 at 6:00 p.m. The evidentiary hearing will commence on December 17, 2020, at 10:00 a.m.

This summary of the history of the application does not include every filing in case number 19-1881-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 Madison Fields Solar Project, a 180 MW solar-powered generating facility in Pike Township, Madison County near the community of Rosedale. 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 1,000 acres within a 1,932-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, meteorological stations, underground and overhead electric collection lines, inverters and transformers, a substation, a 138 kV gen-tie line, a point of interconnection switchyard, and an operations and maintenance building. The project would be secured by perimeter fencing, not to exceed seven feet in height, and accessed through gated entrances. The Applicant would ensure that solar modules are setback a minimum of 300 feet from adjacent residences, and at least 50 feet from public road centerlines.

Solar Panels and Racking

The solar panels would be attached to metal racking. The racking would include steel posts driven approximately seven to 11 feet into the ground. The Applicant anticipates installing approximately 85,000 posts. The highest point of each solar module would not exceed 15 feet above the ground.

PV modules have not been procured for the project. The Applicant anticipates that the facility would be comprised of 380 to 505 watt panels manufactured by Talesun, Longi, Risen, Trina, or Jinko, or similar modules. Depending on the module selected, the facility would include approximately 472,000 to 633,000 panels. The Applicant estimates the modules would occupy approximately 300 acres of the project area.

The solar arrays would be mounted on a single-axis tracking system oriented in rows running north to south that would rotate approximately +/- 60 degrees east-west, tracking the sun as it moves through the sky. The racking system has not been procured for the project. The Applicant anticipates that the facility would use racking systems manufactured by NEXTracker, Array Technologies, FTC Solar, Gamechange Solar, Soltec, Sunfolding, or similar systems.

DC Collector System, Inverters, and AC Collector System

The Applicant would install a 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 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 through cable that will be buried or attached to the racking system. The DC cables will run a total length of 861,705 linear feet, with 646,279 linear feet above grade and 215,426 linear below grade. The below grade portion of the DC collector system would be buried at least 30 inches.

Power from the combiner boxes would be transmitted to an inverter through underground cables. The facility would include approximately 60 inverters. Each inverter would deliver alternating

current (AC) power to the project substation through a system of collection lines. These lines would be installed underground by open cut trench, plowed method, or horizontal directional drilling (HDD) or located overhead on poles. The AC cables will run a total length of 261,560 linear feet, with 196,170 linear feet above grade and 65,390 linear below grade. The below grade portion of the AC collector system would be buried at least 36 inches, and the overhead portion would not exceed a maximum height of 30 feet.

Substation and Transmission Line

The facility would include a project substation, an overhead 138 kV gen-tie line no more than 1,000 feet in length, and a 138 kV three ring bus point of interconnection (POI) switchyard owned and operated by FirstEnergy (FE) and connected to FE's East Springfield-Tangy 138 kV transmission line. The Applicant presented two possible sites for the substation/switchyard complex and has selected the primary site. The Applicant anticipates that the substation, switchyard, and gen-tie line would not exceed a height of 110 feet above grade.

Roads

The Applicant proposes to construct approximately 42,982 feet (8.1 miles) of new access roads. The access roads would consist of aggregate gravel. The access roads would not exceed 20 feet in width, with the exception of turning radii, which would not exceed 53 feet in width.

Laydown Area

The Applicant proposes to use one laydown area of no more than six acres in size. The Applicant presented two possible sites for this laydown area and has selected the primary site. The laydown area would be restored at the end of construction, provided it is not to be used for other proposed project components.

Meteorological Stations

The project would include four meteorological stations that would be approximately 14 feet tall and installed on a concrete base adjacent to inverters. The meteorological stations would include pyranometers, which measure the solar resource; an anemometer to measure wind speed and direction; and a thermometer.

Operations and Maintenance Building

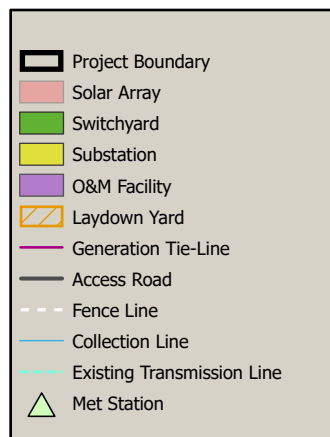
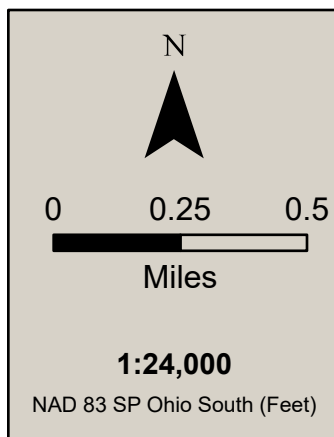
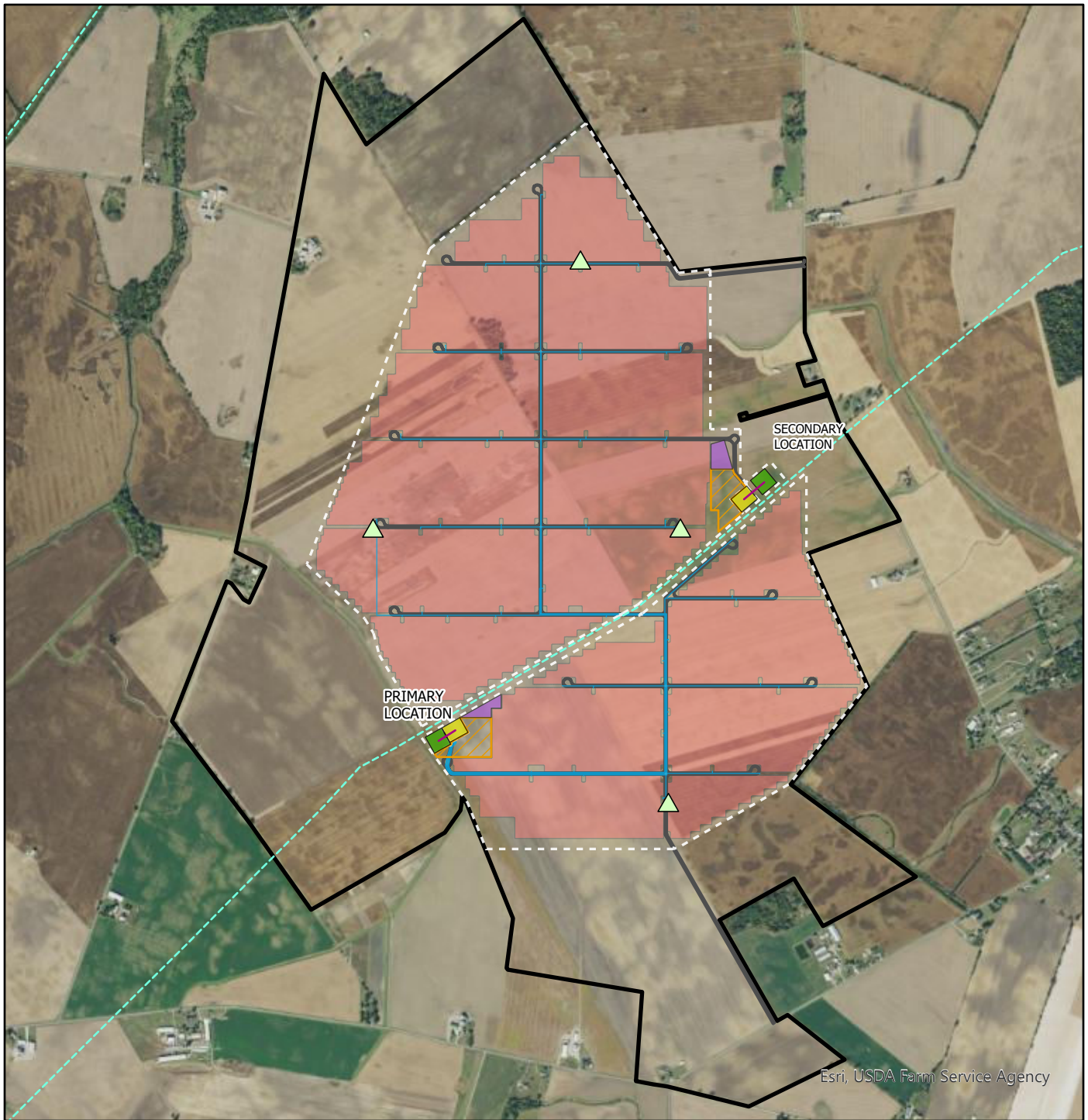
The Applicant presented two possible locations for an operations and maintenance building and has selected the primary site. The building site would occupy approximately two acres. The building would require a water supply and sanitary sewer capacity. The Applicant will coordinate with local authorities to determine the availability of public utility infrastructure in the area and obtain all required permits prior to construction. The building may also require an electric distribution line to deliver electricity to the building. The Applicant would arrange for this connection with the local distribution company.

Lighting

Security lighting would be installed at the operations and maintenance building, substation, and at project access points.

Project Schedule

The Applicant expects to finalize design of the project in the first quarter of 2022, complete construction by the end of 2022, and place the facility in service by the fourth quarter of 2022 or the first quarter of 2023. The Applicant stated that delays to this timeline could impact project financing, including the Applicant's ability to procure PV modules and facility components. Further, delays may push the in-service date back, causing significant financial burden, according to the Applicant.



Overview Map

19-1881-EL-BGN

Madison Fields Solar Project

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.

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III. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the Matter of the Application of Madison Fields Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct an Electric Generation Facility in Madison County, Ohio, 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.

Socioeconomic Impacts

Regional Planning and Demographics

The Applicant reviewed the Madison County 2014 Comprehensive Plan and found that the project area does not impede on future land use plans at the project vicinity. At present, Pike Township does not have an individual comprehensive land use plan. The proposed solar facility would be expected to aid regional development by increasing local tax revenues, increasing economic contributions to the local economy. Staff believes that construction and operation of the project would not interfere with planned future uses identified in the Madison County 2014 Comprehensive Plan.

The project is consistent with agricultural industry support, in that the facility would provide supplemental income to farmers and the land could be returned to agricultural production upon decommissioning. Farming activities would require only minor modifications, aside from temporary disruptions that could occur during construction.

The population of Pike Township in 2018 was estimated to be 584, up from 580 according to the 2010 U.S. Census. This project would not remove residences nor develop residential structures, so the impact on Pike Township's population would be expected to be minimal as a result of this project.

Land Use

The predominant land use within the project area is agriculture, with approximately 99 percent of land being used for agriculture purposes, and less than one percent for land uses such as scrub-shrub, forest, residential and developed, and old field. The Applicant does not intend to remove or relocate any existing residential structures. Significant impacts to residential, commercial, industrial, recreational, and institutional land uses are not anticipated, and surrounding agricultural land use would continue with minimal disruption. Institutional land use includes the Rosedale Bible College, located outside the southeast corner of the project area. There is a public use facility to the south of the project, which is presently utilized as the Pike Township meeting hall.

Recreation

Construction and operation of the facility would not physically impact any recreational areas. The Applicant identified 41 recreational areas within 10 miles of the project area. However, the nearest recreational area to the project footprint is the Bigelow Cemetery State Nature Preserve, located approximately 2.7 miles to the east.

Beyond the Bigelow Cemetery State Nature Preserve, the Applicant identified state and local parks, golf courses, watercraft launches natural areas and preserves, state conservation areas and agricultural easements related to the Ohio Farm and Ranch Lands Protection and Clean Ohio Fund

Farmland Preservation programs within 10 miles of the project. Because the facility would not physically impact recreational land uses, adverse impacts to these areas are not anticipated.

Cultural Resources

The Applicant enlisted a consultant to gather background information and complete a cultural resources records review for a 0.5-mile radius defined as the Area of Potential Effect for the project. This review was based on data provided by the OHPO online geographic information system mapping, Ohio Historic Inventory, the Ohio Archaeological Inventory, and National Register of Historic Places (NRHP) files. The Applicant obtained information on historic cemeteries from the Ohio Genealogical Society.

The consultant initiated an architectural survey that identified 13 new and one previously recorded resource over 50 years of age. The information provided suggests that views to the project from NRHP-listed and NRHP-eligible properties would be limited or non-existent. There are also no historic districts located within the project footprint or within the survey radius.

To assess the potential for archaeological impacts, the Applicant performed site surface collection and multiple shovel excavations. Approximately 1,000 acres were surveyed (known as the facility footprint where ground disturbance is anticipated) within the total 1,932-acre project area. No previously identified archaeological sites are located within the facility footprint. Twenty-seven new archaeological sites were identified during the survey; however, none of these sites were recommended as being eligible for listing in the NRHP. The OHPO recommended that no further archaeological surveys are required.

Staff has reviewed the Applicant's architectural and archaeological surveys and OHPO's recommendations. Staff concurs with the OHPO that the project is not expected to have any adverse effect to historic properties.

The Applicant states that the exact placement of project components is subject to change during final engineering but would remain within the project area that has been studied by for environmental, engineering, and visual impacts. However, cultural resource surveys were based only on the facility footprint proposed in the application, also referred to as the preliminary design area, rather than the larger project area. As a result, additional cultural resource surveys would need to be completed before any part of the facility could extend beyond the facility footprint identified in the application. In the event the Applicant identifies a need to locate any facility components outside of the proposed facility footprint, the Applicant will file an amendment with the OPSB. The amendment would include a Phase I archaeological report and OHPO concurrence for the additional area studied within the project area.

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.

An anti-glare coating would be installed on the solar panels to maximize the amount of solar energy captured by the panels, which would also have the aesthetic benefit of glare reduction. Typically, the solar panels would be installed no higher than 15 feet above ground level. Based on the results of the Applicant's visual resources report, the solar panels would not likely be visible at locations beyond two miles of the perimeter of the project.

Staff reviewed the Applicant's visual impact analysis. As part of its stakeholder outreach efforts, the Applicant identified residences within a 0.5-mile radius of the project footprint. The Applicant also provided an analysis depicting man-made and natural features that may impede residential viewsheds. In response to a Staff data request, the Applicant specifically identified adjacent residences surrounding the project boundary by project participation status. Eight adjacent non-participating residences would be expected to have a direct line of sight view of the project boundary and related infrastructure.

Staff recommends that the Applicant incorporate a landscape and lighting plan 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 native vegetative plantings, alternate fencing, good neighbor agreements, or other methods in consultation with affected landowners and subject to Staff review. With implementation of Staff's condition, the overall expected aesthetic impact would be minimal.

Economics

The Applicant states that it would be responsible for the construction, operation, and maintenance of the proposed project. The Applicant currently owns all of the landowner agreements within the proposed project area. These agreements will not alter the ownership status of the properties within the proposed project area.

The Applicant chose to file its estimated capital and intangible costs, estimated operation and maintenance 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 farm applications.

Total cost comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant referenced *Lazard's Levelized Cost of Energy Analysis (2018)* which states that the average capital costs for thin-film utility scale solar PV projects range between \$950 to \$1,250 per kW and that its costs are below this range. Also, recent solar PV projects of comparable scale undertaken by Savion report similar capital costs. 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 Savion's similar facilities is not substantially different from Applicant's estimated costs for the proposed facility.

Operation and maintenance expense comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant referenced a 2018 report published by the U.S Department of Energy's National Renewable Energy Laboratory (NREL) that stated that, on average, utility scale solar operations reported O&M costs totaling \$9.1/kW/year for fixed-tilt PV facilities and \$10.4/kW/year for facilities using tracking systems. These reported costs do not include inverter replacements, which, when factored in, could bring

the estimated costs for fixed-tilt PV facilities to \$13/kW/year and \$14/kW/year for facilities using tracking systems. Staff verified that the figures put forth by the Applicant were contained in the report and also confirmed the Applicant's assertion that its O&M cost estimates were below this amount.

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 characterized permitting stage delay costs as being associated with an inability to procure necessary project components resulting in the facility's in-service date being pushed back. The Applicant's characterization of its estimated costs of delays appears reasonable to Staff.

Madison Fields Solar retained the services of Ecology and Environment, Inc (E&E) to report on the economic impact of the Madison Fields Solar project.¹⁶ E&E used the National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impact (JEDI) model, as well as data from the Ohio Department of Taxation, to estimate the economic impact of the construction and operation of the solar farm. Staff verified that the methodology of the JEDI model was 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 model analysis conducted by the Economics Center, the Madison Fields Solar project is expected to have the following impacts:

Jobs

- 1,364 construction related jobs for the State of Ohio
- 82 long-term operational jobs for the state of Ohio

Earnings

- \$39.4 million in local earnings during construction for the State of Ohio
- \$1.4million in annual earnings during facility operations for the State of Ohio

Output

- \$92.4million in local output during construction for the State of Ohio
- \$3.3 million in local annual output during facility operation for the State of Ohio.

The Madison Fields Solar project would generate an estimated \$1.62 million annually for Madison County taxing districts. This estimate is based on a Payment in Lieu of Taxes (PILOT) plan in which Savion would pay \$7000/MW annually for a 180 MW facility. The Applicant states that this revenue would be distributed to county and other local taxing districts according to millage.

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

¹⁶ Ecology and Environment, Inc is an environmental consulting firm that conducts analysis in the scientific, engineering, and planning fields.

reflection from solar panel could be a brief reduction in visibility, afterimage, a safety risk to pilots, or a perceived nuisance to neighbors.

The Applicant's consultant conducted a glint and glare analysis to identify any potential impacts to roads and nearby residents.¹⁷ The Applicant found that no glare from the project is predicted to impact cars or large trucks using the roadways, adjacent residents (at both single or second story heights), and that the project will be compliant with the Federal Aviation Administration's (FAA) interim policy for FAA review of Solar Energy System Projects on Federally Obligated Airports. Staff concurs with that study's 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.

Decommissioning

The Applicant holds land rights to and estimates that the solar farm can operate for 30 years or more. The Applicant has prepared a decommissioning plan and total decommissioning cost estimate of \$7,115,326.¹⁸ Staff has reviewed that decommissioning plan. According to the Applicant's plan at the end of the useful life of the facility the solar farm will be decommissioned, and the land be returned to its current use as agricultural land. Over a course of approximately 12 months, the Applicant will coordinate with Staff prior to the start of any decommissioning activities and the Applicant will remove all solar components constructed above ground and any structures up to thirty-six (36) inches below-grade for disposal. Access roads or driveways on private property at landowner request, switchyard, interconnection facilities and other similar utility facilities not owned by the Applicant will be left in place. The Applicant will also revegetate disturbed land if desired by the landowner. The Applicant will restore the land significantly to its original topography to allow for resumption of agricultural use.

The Applicant states it will 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 would include 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. If necessary, the US EPA's toxicity characteristics leachate procedure (TCLP) test will be conducted by the Applicant to ensure that the panels are properly categorized and disposed.

The Applicant will obtain all required approvals and necessary permits prior to the start of decommissioning. The decommissioning sequence consists of but is not limited to reinforce access roads, install temporary construction fencing and best management practices to protect sensitive environmental resources, de-energize solar arrays, dismantle panels and racking, remove inverters and transformers, grade site, de-compact subsoils and revegetate disturbed land to pre-construction conditions to the extent practicable.

The Applicant will also provide for financial security to ensure that funds are available for decommissioning/land-restoration. The Applicant states that thirty days prior to the preconstruction conference it will calculate the net decommissioning costs (total decommissioning

17. Application at Exhibit N.

18. Application at Exhibit K.

cost less salvage/resale value of solar components) to decommission the solar farm as outlined in the plan.¹⁹ If the net decommissioning cost is a positive value, the Applicant will post a performance bond where the company is the principal, the insurance company is the surety, and the OPSB is the obligee. The decommissioning plan and cost estimates will be recalculated in year 10 of operation and then every five years thereafter over the life of the project.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Socioeconomic Conditions** heading of the Recommended Conditions of Certificate section.

Ecological Impacts

Public and Private Water Supply

There are two water wells within the project area and 83 water wells within one mile of the project area. The Applicant does not anticipate adverse impacts to the two nearest water wells, because there would be limited excavation during construction, the structural support pile driving would occur at depths of 11 feet or less, the private wells are more than 40 feet deep, and the private wells are more than 1,000 feet away from the nearest proposed solar component. Staff conferred with the Madison County Health Department which regulates private water wells. The Madison County Health Department indicated that the nearest solar components are further than the minimum isolation distances outlined in Ohio Adm.Code 3701-28-7 between potential contamination sources and private water wells.

There is one Source Water Protection Area located within one mile of the project area for the Rosedale Bible College. Ohio's Source Water Assessment and Protection Program is designed to help public water systems protect their sources of drinking water from becoming contaminated. Staff consulted with Ohio EPA personnel and found that Rosedale Bible College does not have an endorsed source water protection plan. Staff found that the proposed solar farm and components are outside the outer protection zone for the groundwater wells used at Rosedale Bible College. The outer protection zone protects the calculated area around the well that provides ground water to Rosedale Bible College's water well within five years of pumping. Because the distance from the solar farm equipment to the well is over 3,000 feet, the Applicant and Staff do not expect that construction of the solar farm will affect groundwater at the Rosedale Bible College.

The Applicant will implement a Stormwater Pollution Prevention Plan (SWPPP) and a spill prevention, control, and countermeasure plan (SPCC) during construction to minimize and prevent potential discharges to surface waters in the project area and surrounding area.

Site Geology

Physiographic Region

The proposed project area is in Pike Township, Madison County. This area is in the Darby Plain physiographic region. This region is characterized by moderately low relief and few large streams. The region is primarily made up of broadly hummocky ground moraine and includes several

19. Application at p. 36 and Exhibit K.

indistinct recessional moraines. Loamy till that is Wisconsinan in age with a high lime concentration covers Silurian and Devonian-aged carbonate and shale bedrock.²⁰

Glacial/Surficial Geology

The project area lies within the glaciated margin of the state and includes several Wisconsinan-aged glacial features. The area is covered by a ground moraine made up of Late Woodfordian ice deposits. Terrain is flat to undulating.²¹ Glacial drift throughout most of the study area is between 16 and 165 feet thick. Drift is thinnest in the northeast and gets thicker towards the west and south.²²

Bedrock Geology

The uppermost bedrock unit in the project area is the Salina Undifferentiated. This unit is Silurian-aged and consists of a gray to brown dolomite which contains argillaceous partings, brecciated intervals, algal laminations and anhydrite/gypsum zones. This unit covers the northeast portion of the project area. Underlying the Salina Undifferentiated is the Silurian-aged Tymochtee Dolomite. This unit is characterized by an olive gray to yellowish brown dolomite. It frequently contains brownish-black to gray shale laminae. This unit covers the southern and western portions of the project area. It should be noted that bedrock is not exposed at the surface within the boundaries of the project area due to significant glacial drift.²³

Oil, Gas and Mining

ODNR has record of no oil and gas wells within one mile of the proposed project area. The nearest well to the project area is approximately 1.4 miles north of the site. It is listed as a dry hole.²⁴

ODNR does not have record of any mining operations within the project area. The nearest mine to the project area is #1336 Mechanicsburg Pit operated by Shelly Materials, Inc. This mine is a sand and gravel quarry in Champaign County, approximately seven miles from the western boundary of the site.²⁵

Seismic

Several small earthquakes have historically been recorded near the site. The three events closest to the site are listed in the chart below.²⁶

20. Ohio Department of Natural Resources, Division of Geological Survey, (1998). *Physiographic Regions of Ohio*. Ohio Department of Natural Resources, Ohio Department of Natural Resources, Division of Geological Survey, 2 p., scale 1:2,100,000.

21. Pavey, R., Goldthwait, R., Brockman, C.S. Hull, D., Swinford, E.M., and Van Horn, R. (1999). *Quaternary Geology of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, scale 1:500,000.

22. Powers, D.M., and Swinford, E.M. (2004). *Shaded drift-thickness map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, scale 1:500,000.

23. Slucher, E., Swinford, E., Larsen, G., Schumacher, G., Shrake, D., Rice, C., Caudill, M., Rea, R. and Powers, D. (2006). *Bedrock Geologic Map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, scale 1:500,000.

24. Ohio Department of Natural Resources, Division of Oil and Gas, *Ohio Oil and Gas Wells Locator*, <https://gis.ohiodnr.gov/MapView/?config=oilgaswells>.

25. Ohio Department of Natural Resources, Division of Mineral Resources, *Mines of Ohio*.

26. Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Earthquake Epicenters*, <https://gis.ohiodnr.gov/MapView/?config=earthquakes>.

SEISMIC ACTIVITY				
Distance to site boundary	Magnitude	Date	County	Township
16 miles	3.5	June 19, 1843	Champaign	Urbana
23.5 miles	2.0	October 4, 1980	Clark	Green
25.5 miles	3.8	January 4, 1873	Delaware	Orange

Karst

There are no known karst features in this area.²⁷

Soils

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till. Crosby and Kokomo are the most common soil series found within the boundaries of the project area. These soils cover over 92 percent of the project area. Other soils that are present include Patton (five percent) and less than one percent of Lippincott, Odell, Lewisburg and Brookton soils. There is a moderate risk of shrink-swell potential in these soils. Other limiting factors include ponding and other issues associated with poor drainage. Slope remains relatively flat, with slope seldom exceeding a six percent grade.²⁸

Groundwater

Groundwater resources are plentiful throughout the project area. Wells developed in bedrock are likely to yield between five and 500 gallons per minute. Sustainable yield varies depending on the bedrock unit and thickness. The Ground Water Resources of Madison County map indicated that test wells developed in the bedrock aquifers in Pike Township have yielded in excess of 1,000 gallons per minute.²⁹ Wells developed in the unconsolidated sand and gravel lenses interbedded within the till are likely to yield between five and 25 gallons per minute. Most of the project area overlies the Prairie Ground Moraine Aquifer. The western and southern borders of the project area overly the Prairie Complex Aquifer.³⁰

ODNR has record of 88 water wells drilled within one mile of the study area. These wells range in depth from 30 to 246 feet deep. With an average depth of 217.4 feet. The most common aquifer listed is limestone. While most of the wells are developed in the carbonate aquifers, 19 of these wells were developed in the overlying sand and gravel aquifer. Twenty-five wells contained data on sustainable yield. A sustainable yield of seven to 500 gallons per minute is expected from wells

27. Ohio Department of Natural Resources, Division of Geological Survey, *Ohio Karst*, https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/.

28. USDA Web Soil Survey, (Last modified 2019). *Web Soil Survey Interactive Map*, United States Department of Agriculture, National Resources Conservation Service, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

29. Hallfrisch, M. (1994). *Groundwater Resources of Madison County*, Ohio Department of Natural Resources, Division of Geological Survey, map, scale 1:62,500.

30. Ohio Department of Natural Resources, Division of Water, (2000). *Statewide Unconsolidated Aquifer Map*, GIS coverage.

drilled in this area based on well log records. The average sustainable yield from these records within one mile was 41.5 gallons per minute.³¹

Staff recommends that the final detailed engineering drawings of the final project design shall account for geological features (including but not limited to karst topography) 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.

Surface Waters

The Applicant delineated two Category 1 wetlands within the project area. The Applicant states no wetlands would be impacted by the construction, operation, or maintenance of the project.

No streams or ponds are located within the project area. The project does not cross a 100-year floodplain. The Applicant provided a frac-out contingency plan detailing monitoring, containment measures, cleanup, and restoration in the event of an inadvertent return from potential horizontal directional drilling (HDD) operations at sensitive areas. The Applicant states it may use HDD, but do not anticipate using HDD at the time of this application. Staff has reviewed the frac-out contingency plan and believes it is sufficient. The Applicant will inform Staff of all construction plans throughout the entire construction process.

Specifics about how surface waters would be further protected from indirect construction stormwater impacts using erosion and sedimentation controls would be outlined in the Applicant's SWPPP. The Applicant will obtain an Ohio National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit through the Ohio EPA prior to the start of construction.

Threatened and Endangered Species

The Applicant requested information from the ODNR and the 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 table provides the results of the information requests, field assessments, and document review.

MAMMALS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	Historical range includes the project area. Presence within project area has been documented.
northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Threatened	Historical range includes the project area. Presence within project area has been documented.

31. Ohio Department of Natural Resources, Division of Water, Ohio Water Wells, <https://gis.ohiodnr.gov/MapView/?config=waterwells>.

INVERTEBRATES

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
clubshell	<i>Pleurobema clava</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
Rayed bean	<i>Villosa fabalis</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
rabbitsfoot	<i>Quadrula cylindrica</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
Elephant-ear	<i>Elliptio crassiden</i>	N/A	Endangered	Historical range includes the project area. No in-water work proposed
Wavy rayed lampmussel	<i>Lampsilis fasciola</i>	N/A	Species of Concern	Historical range includes the project area. No in-water work proposed

BIRDS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Upland sandpiper	<i>Bartramia longicauda</i>	N/A	Endangered	Suitable habitat in project area. Construction must avoid suitable habitat during species' nesting period of April 15 to July 31
northern harrier	<i>Circus cyaneus</i>	N/A	Endangered	Records exist within the project area
King rail	<i>Rallus elegans</i>	N/A	Endangered	Records exist within the project area

FISH

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Scioto madtom	<i>Noturus trautmani</i>	Endangered	Endangered	Historical range includes the project area. No in-water work proposed
Spotted darter	<i>Etheostoma maculatum</i>	Species of Concern	Endangered	Historical range includes the project area. No in-water work proposed
Tippecanoe darter	<i>Etheostoma tippecanoe</i>	N/A	Threatened	Historical range includes the project area. No in-water work proposed

The Applicant did not identify any listed plant or animal species during field surveys. Further, the ODNR and the USFWS did not identify any concerns regarding impacts to listed plant 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 a final access plan to be provided to Staff prior to the preconstruction conference.

The project area is within the range of state and federal endangered Indiana bat (*Myotis sodalis*) and the state and federal threatened northern long-eared bat (*Myotis septentrionalis*). As tree roosting species in the summer months, the habitat of these species may be impacted by the project. In order to avoid impacts to the Indiana bat and northern long-eared bat, Staff recommends the Applicant adhere to seasonal tree cutting dates of October 1 through March 31 for all trees three inches or greater in diameter, unless coordination efforts with the ODNR and the USFWS reflects a different course of action.

The project lies within the range of the state endangered upland sandpiper (*Bartramia longicauda*), northern harrier (*Circus cyaneus*), and king rail (*Rallus elegans*). The Applicant has designed the project to avoid the areas of suitable habitat for these species. No impacts to these species are anticipated.

Impacts to other listed species will be avoided as no in-water work is planned for the project.

The Applicant states 4.3 acres of tree clearing will be required for construction of the project. As a best management practice, Staff recommends that the Applicant leave narrow areas of woodlot-connecting trees and shrubs intact unless the clearing would be a small area needed for installation of collection lines or access roads. In these instances, the corridors would retain some functionality due to the small size of gaps in habitat.

Vegetation

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

VEGETATION	
Vegetation Community Type	Total (Acres)
Old Field	1.2
Wetlands	1.7
Forestland	4.3
Scrub Shrub	4.5
Agricultural Lands	1,917.7
Total	1,932

The estimated vegetative impact includes the entire project area presented within the application. However, the entire project area would not be developed as part of this project. As a result, permanent impacts associated with this project would be less than the amount shown. Permanent vegetative impacts would occur primarily within agricultural lands. The estimated impact to forestland of less than one acre is the result of geographic information system (GIS) calculations and actual forest clearing may be more or less. Further, Staff's recommendation to preserve wooded corridors would reduce total tree clearing.

Staff recommends the implementation and maintenance of native pollinator-friendly plantings in selected locations along the outside border of the solar fields and incorporate plantings of legumes and wildflowers in areas between the solar panels. Plantings should be selected in consultation with the Ohio Pollinator Habitat Initiative. These features would enhance the visual appeal of the project, enrich local wildlife habitat, and benefit the local farming community. Pollinator plantings would: help reduce erosion; reduce fertilizer, herbicide, and pesticide use; discourage invasive species; and improve water quality. The project would implement permanent vegetative cover, such as native grass seed mix under the solar array and a pollinator-friendly seed mix in select open areas outside of the array and within the project perimeter fence line. This is due to the elimination of frequent tilling, fertilizer and pesticide application, and increased plant diversity.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Ecological Conditions** heading of the Recommended Conditions of Certificate section.

Public Services, Facilities, and Safety

Wind Velocity

The Applicant analyzed historical wind velocities from the Ohio State University College of Food, Agricultural, and Environmental Sciences closest weather station in Columbus, Ohio. The Applicant found that wind velocities were typically between two and six miles per hour for a significant majority of time. During the detailed engineering phase, the Applicant will minimize any potential damage from high wind velocities by proper structural design of the project support equipment at sufficient depths based on the site-specific soil conditions to preclude any adverse influence from high wind velocities.

The Applicant has also indicated that its racking system will likely include a stowing feature that would tilt panels to a certain angle to reduce wind loading on the solar panels during high wind speeds events. Also, the Applicant will have several anemometers throughout the project to monitor local wind conditions. Staff has also found that components of the proposed facility are generally not susceptible to damage from high winds except for tornado-force winds, because generally panels and racking systems have wind speed design load ratings inherent in their design.

Roads and Bridges

The Applicant has yet to finalize its delivery route, although it is expected that deliveries to the project site would be by way of county routes 11 and 25. These roads would be accessed from state routes 4 and 161. Four bridges and one culvert were identified in the transportation study and were determined to be in adequate condition. County route 11 has a permanent load restriction of 11 tons. No overhead obstructions were identified along the proposed delivery routes.

Conventional heavy equipment which does not require special permitting would make up the majority of construction traffic. The electrical transformers are likely to be overweight and would require special permitting and route coordination for delivery.

The Applicant did not identify any active railroads that would be crossed by construction material deliveries. The Applicant stated 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, the Applicant does not anticipate any additional traffic for the project

beyond routine maintenance. The Applicant stated that all necessary permits from ODOT, the Madison County Engineer, and Pike Township would be obtained at least 30 days prior to construction. No road closures are expected.

Once the transportation permitting process has been completed, Staff recommends that the Applicant develop a final transportation management plan which would include the county-required road use maintenance agreement. Any damaged public roads and bridges would be repaired promptly to their previous condition by the Applicant under the guidance of the appropriate regulatory authority. Any temporary improvements would be removed unless the appropriate regulatory authority requests that they remain in place.

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 12-15 months of construction. 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, the step-up transformer at the new substation, and tracking motors.

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 a representative inverter model. The model showed that operational noise impacts would be approximately the same as or less than ambient noise levels. 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. Once an inverter model is chosen the Applicant will 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.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the **Public Services, Facilities, and Safety Conditions** heading of the Recommended Conditions of Certificate section.

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 initial site selection focused on four primary criteria: transmission proximity, geophysical and environmental review, landowner and community interest, and competition research. The Applicant selected the subject site for development due to interest and positive feedback from landowners and local officials, positive results from initial transmission studies, and the compatibility of previously disturbed cultivated cropland for solar development.

During the four public informational meetings held for the project, the Applicant solicited comments and questions from attendees. Comments and questions received covered a range of topic areas including the economic impact for the local community, employment opportunities, increased traffic during construction, potential impacts to property value, concerns regarding flooding and damage to drainage tile systems, viewshed impacts, environmental concerns, and loss of farmland. The Applicant states that, to the extent possible, comments from local officials and the public have been incorporated into the proposed construction and design of the project.

Minimizing Impacts

The OHPO recommended that no further archaeological surveys were required. Staff has reviewed the Applicant's architectural and archaeological surveys and OHPO's recommendations. Staff concurs with the OHPO that the project as presented in the application, supplements, and responses to data requests is not expected to have any adverse effect to historic properties. In the event the Applicant identifies a need to locate any facility components outside of the proposed facility footprint, the Applicant will file an amendment with the OPSB. The amendment would include a Phase I archaeological report and OHPO concurrence for the additional area studied within the project area.

The proposed facility would have an overall positive 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 Madison County does not 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.

No direct wetland or stream impacts are anticipated and no in-water work is proposed. 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 project would not cross a 100-year floodplain.

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. Staff has also recommended that the Applicant submit an updated noise study, using noise data from the inverter chosen for the project. The updated noise study would confirm that sound levels would not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor to assure that operational noise impacts are minimal. Further, the Applicant has developed a complaint resolution plan which would be implemented throughout construction and operation.

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 components for the entire project would be delivered by truck. The transportation management plan would be finalized once the engineering layout is determined. 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 in order 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, and used engineering, such as GIS data, to determine the locations of drain tile mains. In order 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 promptly repair any drain tile found to be damaged by the project during the operational life of the project. Following decommissioning of the facility, land can be restored for agricultural use.

The Applicant has prepared a 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.

While the Applicant has not identified the precise final layout of the facility, it has identified an acceptable maximum extent of impacts. This has been accomplished through identifying limits of disturbance and maximum dimensions of equipment such as fences, panels, and access roads. Ancillary impacts which may change as a result of final equipment selection, such as noise, would be minimized through Staff recommended conditions. The Applicant explained that given the time length of the certification process and market factors for utility-scale solar facilities it is not economically feasible to identify the models to be used and give the precise location within the fence of the various components at the time of submittal of the application. Utility scale solar components are a rapidly advancing technology, both in cost and performance, and final model selections must occur close to construction start. The financing for procurement and construction of a project is affected by the final model choices and the final engineering and design is based on those models. Submission of the final design with the Application would result in procurement

decisions and final design and engineering that would likely be obsolete by the time of financing and construction start.

Conclusion

Staff concludes that the proposed project would result in both temporary and permanent impacts to the project and surrounding areas. Due to the low potential to impact land use, cultural resources, surface water resources, wildlife, and Staff's recommended conditions to further mitigate these 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 facility proposed by the Applicant is a solar photovoltaic generating facility located in Madison County, capable of producing 180 MW. The proposed facility would interconnect to a newly proposed 138 kV three ring bus POI switchyard. The proposed switchyard would be owned and operated by FE. The proposed switchyard would loop in FE's existing East Springfield -Tangy 138 kV transmission line.

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).³²

PJM

The Applicant submitted a generation interconnection request for the proposed facility to PJM on March 26, 2018. PJM assigned the project queue position AD2-163. The Applicant requested an energy injection of 180 MW, of which 120.7 MW could be available in the PJM capacity market. The capacity market ensures the adequate availability of necessary generation resources can be called upon to meet current and future demand. PJM has completed the Feasibility Study and the System Impact Study.^{33, 34} The Applicant states that once the Facility Study has been completed by PJM, it plans to sign the Interconnection Service Agreement (ISA) and Construction Interconnection Service Agreement (CISA).

The Applicant proposes to build a 34.5 kV collection system which would collect direct current (DC) power from the solar panels and deliver it to the Applicant's project substation. The project station would invert the DC power to 34.5 kV alternating current (AC) and transform the energy

32. 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.

33. PJM Interconnection, "New Services Queue," Feasibility Study for Queue ID: AD2-163, accessed October 20, 2020, <https://pjm.com/planning/services-requests/interconnection-queues.aspx>.

34. PJM Interconnection, "New Services Queue," System Impact Study for Queue ID: AD2-163, accessed October 20, 2020, <https://pjm.com/planning/services-requests/interconnection-queues.aspx>.

into 138 kV. The transformed energy would be injected into the BPS via the POI switchyard which is connected to FE's East Springfield -Tangy 138 kV transmission line.

Network Impacts

PJM analyzed the proposed facility interconnected to the BPS. A 2021 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 System Impact Study for the PJM regional footprint.

PJM REGIONAL SYSTEM IMPACTS (2021 Summer Peak)	
Generator Deliverability - System Normal & Single Contingency Outage	
<i>Plant Output: Capacity Level – 120.7 MW</i>	No problems identified
Category C and D - Multiple Contingency Outages	
<i>Plant Output: 180 MW</i>	No problems identified

Contribution to Previously Identified Overloads

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 are at the discretion of the Applicant. The results identified no energy delivery impacts.

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 electric 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 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.

Air

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 such as using water to wet soil and to minimize dust. These methods of dust control are 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.

Water

Neither construction nor operation of the proposed facility would require the use of significant amounts of water. Therefore, the requirements under R.C. 1501.33 and 1501.34 are not applicable to this project.

The Applicant anticipates obtaining environmental permits if necessary. The Applicant would mitigate potential water quality impacts associated with aquatic discharges by obtaining NPDES construction storm water general permits from the Ohio EPA with submittal of a SWPPP to direct the implementation of construction related storm water BMP.

The applicant will obtain, if required, the following permits:

- The U.S. Army Corps of Engineers Section 404 or nationwide permit for stream crossings and wetland impacts.
- Ohio EPA Water Quality Certification under Section 401 of the Clean Water Act.

The Applicant will develop an SPCC to mitigate the unlikely release of hazardous substances.

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 Waste

The project area will require the removal of some woody vegetation debris. Debris generated from construction activities would include items such as plastic, wood, cardboard, metal packing/packaging materials, construction scrap, and general refuse. The amount of refuse generated during construction would be approximately 5,000 cubic yards. The Applicant stated that all construction-related debris would be disposed of at an authorized solid waste disposal facility.

Operation of the project would generate small amounts of non-hazardous solid waste, which would be reused, recycled, or disposed of in accordance with federal, state, and local requirements.

The Applicant's solid waste disposal plans would comply with solid waste disposal requirements set forth in R.C. Chapter 3734.

Aviation

The height of the tallest above ground structures would be the gen-tie line poles which would not exceed 110 feet tall. That height is under the height requirement from the FAA, pursuant to 14 CFR Part 77.9(a), for filing a Form 7460-1.

There are no public-use airports, helicopter pads, or landing strips within five miles of the project area. The closest private airport is the Darby Airport in Milford Center approximately five miles from the project. According to the FAA, the closest public-use airport is the Madison County Airport (UYF) which is just over nine miles from the proposed solar farm project operation and maintenance building.

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. The ODOT Office of Aviation indicated that the proposed project will not exceed 14 CFR Part 77 obstruction standards. Also, no portion of the proposed project will impact the clear zone, horizontal, conical, primary, approach and transitional surfaces of any airport that has been issued a commercial operating certificate.

All Staff recommendations for the requirements discussed in this section can be found under the **Air, Water, Solid Waste, and Aviation Conditions** heading of the Recommended Conditions of Certificate.

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.

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 comply with those safety standards applicable to commercial scale solar farms set by the Occupational Safety and Health Administration. In addition, the Applicant has indicated that it would use equipment compliant with applicable Underwriters Laboratories, Institute of Electrical and Electronics Engineers, National Electrical Code, National Electrical Safety Code, and American National Standards Institute standards. The facility electrical system will be designed/certified by a licensed professional engineer. The Applicant intends that components will also be regularly inspected for safe and reliable operation.

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 the fence to public roads, from the above-ground equipment to public roads, from its fence and adjacent property lines, from the above-ground equipment to public roads, and from above-ground equipment to habitable residences.

The Applicant would work with local fire departments and other emergency responders to provide training for response to emergencies related to a solar farm. The Applicant stated that it intends to restrict public access to the facility during construction by enclosing the project area with a plastic mesh fence during construction and seven feet tall chain-link fence during operation. The Applicant also intends to develop and implement an emergency response plan and consult with potentially affected local officials and emergency response personnel.

Public Interaction and Participation

The Applicant hosted four public informational meetings for this project. Attendees were provided the opportunity to view maps of the project, ask questions, and provide comments.

The Applicant has developed a complaint resolution plan to handle complaints during the construction and operation of the facility. The Applicant has committed to notify, by mail, affected property owners and tenants, no later than seven days prior to the start of construction. The Applicant stated that this notice will include a copy of the complaint resolution plan. Staff recommends that a similar notice be mailed to these same individuals at least seven days prior to the start of facility operation. Staff also recommends that the Applicant submit to Staff a quarterly complaint summary report during construction and the first five years of operation of the facility.

As of November 18, 2020, six individuals have filed public comments in the record for this case. The Madison Soil and Water Conservation District filed comments in support of efforts to install native habitat to benefit wildlife and water quality. Residents in the local area expressed concerns with industrialization and changes to the community's way-of-life, the loss of agricultural land, potential impacts to water quality, aesthetic impacts, noise impacts, construction impacts, property value impacts, the economics of renewable energy, and the development of projects like this during a pandemic. All public comments are made available for Board members and the public to view online in the case record at <http://dis.puc.state.oh.us>.

The Administrative Law Judge scheduled a public hearing and an evidentiary hearing for this proceeding. Due to the continued state of emergency, and given the passage of Am. Sub. H.B. 197, the hearings will be held using remote access technology that facilitates participation by telephone and/or live video on the internet. The public hearing will be held on December 3, 2020, beginning at 6 p.m. The evidentiary hearing is scheduled for December 17, 2020, at 10:00 a.m.

All Staff recommendations for the requirements discussed in this section of the *Staff Report of Investigation* are included under the Recommended Conditions of Certificate section.

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.

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 or produce a minimum average gross annual income of \$2,500.

Two agricultural district parcels would be impacted by the construction of the proposed facility. The construction of the proposed facility would result in the loss of approximately 1,000 acres of agricultural lands including 154 acres of agricultural district land. However, the repurposed land could be restored for agricultural use when the project is decommissioned.

The construction and operation of the proposed facility would 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 damaging drain tile mains can help prevent the pooling of water on project parcels and adjacent parcels. When landowners lay down or repair drain tiles, they often keep records of the location of the drain tiles. The Applicant has consulted landowners and county records, and used engineering, such as geographic information system (GIS) data, to determine the locations of drain tile mains. The Applicant asserts that laterals are typically spaced 30-50 feet apart and can be avoided during construction of the project. In order to avoid impacts to drain tiles, the Applicant stated that it would locate drain tiles as accurately as possible prior to construction. Also, the Applicant has committed to promptly repair any drain tile found to be damaged by the project during the operational life of the project.

The Applicant has committed to take steps in order to address such potential impacts to farmland, including repairing all drainage tiles damaged during construction and restoring temporarily impacted land to its original use. Excavated topsoil would be separated during construction and returned as topsoil after construction, unless otherwise requested by the landowner. Restored topsoil would be seeded after construction to prevent erosion.

The decommissioning plan for the proposed project calls for returning the affected land to original or similar conditions. This plan includes repairing any drainage tiles and the de-compaction of soil.

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 control during earthwork activities as needed.

Operation of the proposed facility would not require the use of significant amounts of water, and nearly no water or wastewater discharge is expected. The project would use water for occasional cleaning of panels a few times each year as needed. Therefore, the requirements under R.C. 1501.33 and 1501.34 are not applicable to this project.

Recommended Findings

The Staff recommends that the Board find that the requirements under R.C. 1501.33 and 1501.34 are not applicable to this project, or to the extent the Board determines that these requirements are applicable, that the proposed facility would incorporate maximum feasible water conservation practices, as required by R.C. 1501.33 and 1501.34.

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IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by the Madison Fields Solar Project, LLC, and the record compiled to date in this proceeding, Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. 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:

GENERAL CONDITIONS

Staff recommends the following conditions to ensure conformance with the proposed plans and procedures as outlined in the case record to date, and to ensure compliance with all conditions listed in this Staff Report:

- (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. 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) 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.
- (5) As the information becomes known, the Applicant shall file in this proceeding the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- (6) 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. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference.

- (7) 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.
- (8) At least 30 days prior to the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design 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. All final geotechnical study results shall be included in this submission. The detailed engineering drawings of the final project design shall account for geological features (including but not limited to karst topography) 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.
- (9) 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 including those individuals who were provided notice of the public informational meeting, residences located within one mile of the project area, parties to this case, county commissioners, township trustees, emergency responders, airports, schools, and libraries, as well as anyone who has requested updates regarding the project. These notices shall provide information about the project, including contact information and a copy of the complaint resolution plan. 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 for the first five years of operation. The report shall include a list of all complaints received through the Applicant's complaint resolution process, a description of the actions taken toward the resolution of each complaint, and a status update if the complaint has yet to be resolved.
- (10) The Applicant shall not commence any construction of the facility until it has executed an Interconnection Service Agreement and an Interconnection Construction Service Agreement with PJM Interconnection, 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 Agreement has been signed or a copy of the executed Interconnection Service Agreement and Interconnection Construction Service Agreement.

- (11) The facility shall be operated in such a way as to assure that no more than 180 MW would at any time be injected into the Bulk Power System.

SOCIOECONOMIC CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Socioeconomic Impacts** section of the Nature of Probable Environmental Impact:

- (12) 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 7:00 p.m. or until dusk when sunset occurs after 7:00 p.m. Impact pile driving may occur between 7:00 a.m. and 9:00 a.m. if the noise impact at non-participating receptors is not greater than daytime ambient Leq plus 10 dBA. 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.
- (13) Prior to commencement of 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 and also include a plan describing the methods to be used for fence repair. 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. 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 for review and confirmation that it complies with this condition.
- (14) The Applicant shall avoid, where possible, or minimize to the extent practicable, any damage to functioning field tile drainage systems and soils resulting from the construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems shall be promptly repaired to at least original conditions or

modern equivalent at the Applicant's expense. However, if the affected landowner(s) agrees to not having the field tile system repaired, they may do so only if the field tile systems of adjacent landowners are unaffected by the non-repair of the landowner's field tile system.

- (15) At least 30 days prior to construction, the Applicant shall submit an updated noise study, using noise data from the inverter chosen for the project. The updated noise study shall show that sound levels will not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor.

ECOLOGICAL CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Ecological Impacts** section of the Nature of Probable Environmental Impact:

- (16) The Applicant shall adhere to seasonal cutting dates of October 1 through March 31 for the removal of trees three inches or greater in diameter to avoid impacts to Indiana bats and northern long-eared bats, unless coordination with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) allows a different course of action.
- (17) 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.
- (18) Prior to the use of horizontal directional drilling (HDD), the Applicant shall inform Staff of all HDD plans and abide by the frac-out contingency plan filed in the application that details monitoring, environmental specialist presence, containment measures, cleanup, and restoration.

PUBLIC SERVICES, FACILITIES, AND SAFETY CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Public Services, Facilities, and Safety** section of the Nature of Probable Environmental Impact:

- (19) Prior to commencement of construction activities that require transportation permits, the Applicant shall obtain all such permits. 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. Coordination shall include, but not be limited to, the county engineer, the Ohio Department of Transportation, local law enforcement, and health and safety officials. The Applicant shall detail this coordination as part of a final traffic plan submitted to Staff prior to the preconstruction conference for review and confirmation by Staff that it complies with this condition.



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