

# Staff Report of Investigation

Lordstown Energy Center

Case Number  
14-2322-EL-BGN

July 13, 2015



Power Siting  
Board

John Kasich, Governor Andre T. Porter, Chairman

<b>In the Matter of the Application by Clean Energy</b>	)	
<b>Future-Lordstown, LLC for a Certificate of Environmental</b>	)	
<b>Compatibility and Public Need for the Lordstown Energy</b>	)	<b>14-2322-EL-BGN</b>
<b>Center</b>	)	

## **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 by Clean Energy** )  
**Future-Lordstown, LLC for a Certificate of Environmental** ) **14-2322-EL-BGN**  
**Compatibility and Public Need for the Lordstown Energy** )  
**Center** )

Members of the Board:

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

To the Honorable Power Siting Board:

In accordance with provisions of the Ohio Revised Code (ORC) Section 4906.07(C), and the Commission's rules, the Staff has completed its investigation in the above matter and submits its findings and recommendations in this staff report for consideration by the Ohio Power Siting Board (Board).

The *Staff Report of Investigation* has been prepared by the Staff of the Public Utilities Commission of Ohio. The findings and recommendations contained in this report are the result of Staff coordination with the Ohio Environmental Protection Agency, the Ohio Development Services Agency, and the Ohio departments of Agriculture, Health, and Natural Resources. In addition, the 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 Federal Aviation Administration.

In accordance with ORC Sections 4906.07 and 4906.12, copies of this staff report have been filed with the Docketing Division of the Public Utilities Commission of Ohio on behalf of the Ohio Power Siting Board and served upon the Applicant or its authorized representative, the parties of record, and the main public libraries of the political subdivisions in the project area.

The staff report presents the results of the Staff's investigation conducted in accordance with ORC 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,



Patrick Donlon  
Executive Director  
Ohio Power Siting Board

## TABLE OF CONTENTS

ACRONYMS .....	iv
I. POWERS AND DUTIES .....	1
Ohio Power Siting Board .....	1
Nature of Investigation .....	1
Criteria .....	3
II. APPLICATION .....	5
Applicant .....	5
History of the Application .....	5
Project Description .....	5
Project Map .....	9
III. CONSIDERATIONS AND RECOMMENDED FINDINGS .....	11
Basis of Need .....	11
Nature of Probable Environmental Impact .....	12
Minimum Adverse Environmental Impact .....	22
Electric Grid .....	24
Air, Water, Solid Waste, and Aviation .....	28
Public Interest, Convenience, and Necessity .....	31
Agricultural Districts .....	34
Water Conservation Practice .....	35
IV. RECOMMENDED CONDITIONS OF CERTIFICATE .....	37

## ACRONYMS

<b>ATSI</b>	American Transmission Systems, Inc.
<b>CEMS</b>	continuous emission monitoring system
<b>CO</b>	carbon monoxide
<b>DLN</b>	dry low nitrogen oxide
<b>kV</b>	kilovolts
<b>MW</b>	megawatts
<b>NO<sub>x</sub></b>	nitrogen oxide
<b>OAC</b>	Ohio Administrative Code
<b>ODNR</b>	Ohio Department of Natural Resources
<b>Ohio EPA</b>	Ohio Environmental Protection Agency
<b>OPSB</b>	Ohio Power Siting Board
<b>ORC</b>	Ohio Revised Code
<b>PUCO</b>	Public Utilities Commission of Ohio
<b>SCR</b>	selective catalytic reduction
<b>SO<sub>2</sub></b>	sulfur dioxide
<b>SWPPP</b>	Stormwater Pollution Prevention Plan
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USFWS</b>	U.S. Fish and Wildlife Service

## **I. POWERS AND DUTIES**

### **OHIO POWER SITING BOARD**

The Ohio Power Siting Board (Board or OPSB) was created in 1972. The Board is a separate entity within the Public Utilities Commission of Ohio (PUCO). The authority of the Board is outlined in Ohio Revised Code (ORC) Chapter 4906.

The Board is authorized to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities as defined in ORC Section 4906.01. Included within this definition are: electric generating plants and associated facilities designed for, or capable of, operation at a capacity of 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity of 125 kilovolts (kV) or more; and gas pipelines that are greater than 500 feet in length, and their associated facilities, are more than 9 inches in outside diameter and are designed for transporting gas at a maximum allowable operating pressure in excess of 125 pounds per square inch. In addition, per ORC Section 4906.20, the Board authority applies to economically significant wind farms, defined in ORC 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 5 MW or greater but less than 50 MW.

Membership of the Board is specified in ORC Section 4906.02(A). The voting members include: the Chairman of the PUCO 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 OPSB has promulgated rules and regulations, found in Chapter 4906 of the Ohio Administrative Code (OAC), which establish application procedures for major utility facilities and 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 OPSB an application for a certificate of environmental compatibility and public need (ORC 4906.04 and 4906.20). The application must include a description of the facility and its location, 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 OPSB may consider relevant (ORC 4906.10(A)(1) and 4906.20(B)(1)).

Within 60 days of receiving an application, the OPSB must determine whether the application is sufficiently complete to begin an investigation (OAC 4906-5-05(A)). If an application is considered complete, the Chairman of the OPSB will cause a public hearing to be held 60 to 90 days after the official filing date of the completed application. At the public hearing, any person

may provide written or oral testimony and may be examined by the parties (ORC 4906.07). Parties include the Applicant, public officials, and any person who has been granted a motion of leave for intervention (ORC 4906.08(A)).

### **Staff Investigation and Report**

The Chairman will also cause each application to be investigated and a report published not less than 15 days prior to the public hearing. The report sets forth the nature of the investigation and contains the findings and conditions recommended by Staff. The Board's Staff, which consists of career professionals drawn from the Staff of the PUCO and other member agencies of the OPSB, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation, the Ohio Historical Society, and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted under guidance of the OPSB rules and regulations in OAC Chapter 4906. The recommended findings resulting from the Staff's investigation are described in the staff report pursuant to ORC Section 4906.07(C). The report does not represent the views or opinions of the OPSB 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 and is served upon all parties to the proceeding and is made available to any person upon request (4906.07(C) and 4906.10). A record of the public hearings and all evidence, including the staff report, may be examined by the public at any time (ORC 4906.09 and 4906.12).

### **Board Decision**

The OPSB may approve, modify and approve, or deny an application for a certificate of environmental compatibility and public need. If the OPSB 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 standards and rules adopted under the ORC (ORC 4906.10(A) and (B)).

Upon rendering its decision, the OPSB 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 (ORC 4906.11). A copy of the OPSB's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding (ORC 4906.10(C)). Any party to the proceeding that believes its issues were not adequately addressed by the OPSB may submit within 30 days an application for rehearing (ORC 4903.10 and 4906.12). An entry on rehearing will be issued by the OPSB within 30 days and may be appealed within 60 days to the Supreme Court of Ohio (ORC 4903.11, 4903.12, and 4906.12).

## CRITERIA

The recommendations and conditions in this *Staff Report of Investigation* were developed pursuant to the criteria set forth in ORC Section 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 generation 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 ORC and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the ORC. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the ORC, 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) through (A)(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 ORC 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 alternate site; and
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of the various alternatives.



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## **II. APPLICATION**

### **APPLICANT**

Clean Energy Future-Lordstown, LLC (Applicant) is a limited liability company that is privately owned. The Applicant partnered with Siemens AG, an international industrial firm, to assist with the development of this project.

### **HISTORY OF THE APPLICATION**

Prior to formally submitting an application, the Applicant consulted with OPSB Staff regarding application procedures. The Applicant met with Staff in December 2014 to discuss the timing of the application. On December 24, 2014, the Applicant filed a pre-application notification letter and advised the Board of a public information meeting for this project. At this same time, the Applicant also requested a waiver from the requirements set forth in OAC 4906-13-03(A) and (B), which requires the Applicant to provide an extensive site selection study a waiver from and OAC 4906-13-04(A)(4), which requires information relating to a cross-sectional view of geological features and test boring. Staff did not oppose this waiver request, and the Administrative Law Judge subsequently granted the waiver requests on January 23, 2015.

The Application for a Certificate of Environmental Compatibility and Public Need was filed on March 23, 2015, and was deemed complete on May 12, 2015. A local public hearing is scheduled for July 28, 2015, at 6:00 p.m., at the Administration Center Community Room, 1455 Salt Springs Road, Lordstown, Ohio. The adjudicatory hearing is scheduled for August 11, 2015, at 10:00 a.m., at 180 East Broad Street, 11<sup>th</sup> Floor Hearing Room 11-C, Columbus, Ohio.

This summary of the history of the application does not include every filing in case number 14-2322-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 proposes to construct, own, and operate an 800 MW natural gas-fired combined-cycle power plant in Lordstown, Trumbull County, Ohio. The Application in this case includes information describing the proposed generation facility as well as its associated transmission line and five-breaker ring bus. However, the OPSB rules prescribe separate application and certification processes for transmission facilities and generation facilities. Reasons for requiring separate processes for generation and transmission facilities include the differences in informational filing requirements for the two types of facilities as well as the separate fee requirement for the two application types. In this instance, Staff believes that the Applicant has provided sufficient information in its application for Staff to conduct its review, and Staff has reviewed both the generation and transmission facilities within the context of a single case. Staff notes that it has conducted its review in this fashion as an exception to normal practice, and that, in future cases, Staff expects that proposed generation and associated transmission facilities should be filed as separate applications.

## **Project Area**

The proposed location for the Lordstown Energy Center facility would be located on a 17-acre parcel of land located in Lordstown along the east side of State Route 45 and south of Henn Parkway. The site is located 0.1 mile to the east of State Route 45 and is generally bounded by Henn Parkway to the north and Mud Creek to the South and East. The project area is shown on the project map in this report.

## **Construction Laydown Areas**

The Applicant intends to deliver construction materials directly to the construction area. The Applicant would use a 23.5-acre parcel that is located south of Henn Parkway and is adjacent and immediately south of the project site as a temporary construction laydown/staging area for material and equipment storage, construction trailers, and parking. The Applicant would have a second temporary construction laydown area immediately north of the site. This northern laydown area would use a 4.5-acre parcel located to the north of Henn Parkway and also adjacent to the site.

## **Generating Equipment**

The Lordstown Energy Center would have two 312 MW combustion turbine generators. The Applicant is considering the Siemens SCC6-8000H or General Electric 7HA.01 models. The heat rate for the combined-cycle power plant would be approximately 5,800 British thermal units per kilowatt hour.<sup>1</sup> The combustion turbine would include evaporative coolers as an inlet air cooling system, which would utilize water to increase the density of the turbine inlet air and increase performance on hot summer days. The facility would be capable of year-round operation but actual hours would depend upon energy needs in the region and would incorporate downtime for planned and unplanned maintenance events.

The facility would also include one three-pressure heat recovery steam generator (HRSG) with auxiliary duct burners and one reheat condensing steam turbine generator (with an output capacity of 323 MW) that would be powered by the output from the HRSG.<sup>2</sup> For faster facility startup, an auxiliary steam boiler would be used for heating steam. The facility would be designed to operate in combined-cycle mode only. The facility has the potential to generate a maximum net output of 947 MW but would be limited to 800 MW. Any proposed increase above 800 MW would be submitted to the Board in a separate application at a later date.

A standby/backup diesel generator would be used to safely shut the facility down in the event of a power delivery disruption. The generator would power essential services to protect the equipment.

## **Air Emission Control and Monitoring Equipment**

The Applicant proposes the following air pollution control technology. In order to minimize emissions of nitrogen oxides (NO<sub>x</sub>), the combustion turbines would have dry low NO<sub>x</sub> (DLN) burners. Selective catalytic reduction (SCR) systems would be installed in the HRSG exhausts to further reduce NO<sub>x</sub> concentrations. NO<sub>x</sub> emissions would increase during limited periods of startup and shutdown, due to less efficient combustion at these times.

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<sup>1</sup> Heat rate is a measure of the efficiency of electric power generation.

<sup>2</sup> A HRSG is a heat exchanger that recovers heat from a hot gas stream and produces steam.

In order to control carbon monoxide (CO) emissions, the Applicant would use good combustion practices and an oxidation catalyst which is the best available control technology for control of CO levels. This would also minimize volatile organic compounds pollution.

Particulate matter (PM/PM<sub>10</sub>/PM<sub>2.5</sub>) and sulfur dioxide (SO<sub>2</sub>) emissions would be controlled through the use of low-sulfur, pipeline-quality natural gas fuel in conjunction with good combustion practices. Particulate matter may be emitted from the cooling tower; these emissions will be minimized by the installation and use of drift eliminators.

A continuous emission monitoring system (CEMS) would be installed within each HRSG exhaust stack to maintain compliance with air permit requirements.

### **Water Supply, Treatment, Storage, and Discharge**

Water would be supplied to the site by the City of Warren and Meander Water District (also known as Mahoning Valley Sanitary District) water treatment plants at a flow rate of up to 5.5 million gallons per day. The water would be stored on site in a 260,000-gallon fire and raw water storage tank. Some of the water would receive demineralization polishing treatment for use in the evaporative cooler and makeup water to the HRSG and steam turbine. Demineralized water would be stored in a 160,000-gallon demineralized water storage tank.

The wastewater discharge to the City of Warren's wastewater treatment plant would consist of evaporative cooler blowdown, HRSG blowdown, equipment drains, reverse osmosis rejection water, and sanitary wastewater.

### **Cooling Towers**

The facility would use one 380-foot long, 14-cell mechanical draft cooling tower for steam condensing and other plant cooling needs. The majority of water consumption of the facility would be for makeup water to the cooling tower. The cooling tower provides heat rejection through evaporation of the circulating cooling water and flowing air.

### **Electrical System**

The power generated by the combustion and steam turbine generators would be stepped up from the native turbines' voltage of 20 kV to 345 kV with generator step-up transformers. The step-up transformers would connect to a 345 kV transmission line approximately 0.75 miles in length. The Applicant has presented two possible routes for the 345 kV transmission line which are illustrated in the map in this report. The transmission line would then connect to a five-breaker ring bus configuration. The ring bus site would connect to the American Transmission Systems, Inc. (ATSI) bulk transmission system via an electric transmission line interconnection. The Applicant or ATSI would need to file an application with the Board for this transmission line prior to its construction.

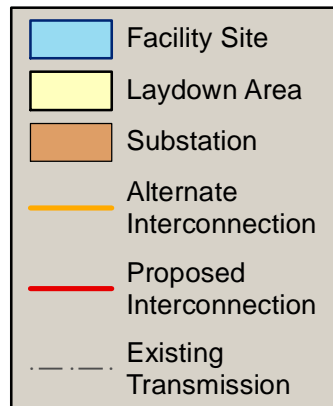
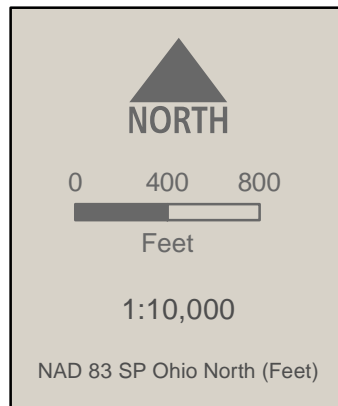
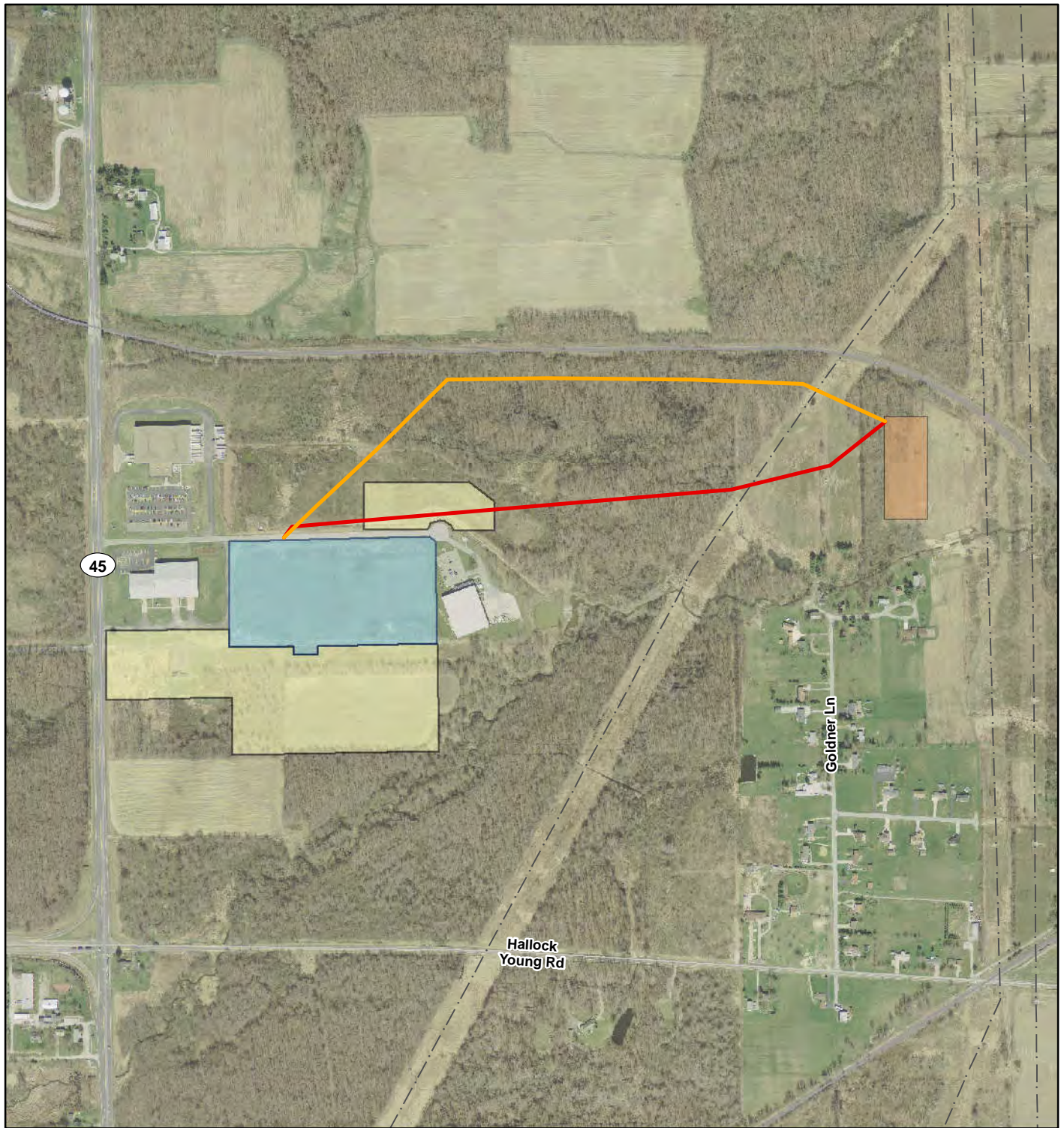
### **Gas Supply**

The procurement of adequate natural gas supplies and pipeline capacity is necessary for the successful operation of the facility. The Applicant intends to enter a 10-year contract with Dominion East Ohio to provide firm natural gas service to the project and plans to submit a separate application to the Board to construct a natural gas pipeline that would connect the facility to Dominion East Ohio's nearby pipeline. The facility would require approximately 130 million cubic feet of natural gas per day, and the Dominion East Ohio pipeline can deliver approximately 280 million cubic feet per day.

To obtain sufficient natural gas quality and quantity on site prior to entering the combustion turbines, the Applicant would install a preheating system and knock-out drum to remove liquids. Filters and separators would be installed to remove debris.

**Project Timeline**

The Applicant proposes to commence construction in September 2015 and begin commercial operation by May 2018.



**Overview Map**

**14-2322-EL-BGN**

**Lordstown Energy Center**

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 certificate application and supplemental materials.

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### **III. CONSIDERATIONS AND RECOMMENDED FINDINGS**

In the matter of the application of Clean Energy Future-Lordstown, LLC, the following considerations and recommended findings are submitted pursuant to ORC Section 4906.07(C) and ORC Section 4906.10(A).

#### **Considerations for ORC Section 4906.10(A)(1)**

##### **BASIS OF NEED**

The basis of need as specified under ORC Section 4906.10(A)(1) is not applicable to this electric generating facility.

##### **Recommended Findings**

Staff recommends that the Board find that the basis of need as specified under ORC Section 4906.10(A)(1) is not applicable to this electric generating facility.



## **Considerations for ORC Section 4906.10(A)(2)**

### **NATURE OF PROBABLE ENVIRONMENTAL IMPACT**

Pursuant to ORC Section 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**

##### *Demographics*

The proposed facility is located in Trumbull County. In 2010, the population of Trumbull County was 210,307, and the population density was 340.1 per square mile.<sup>3</sup> The 2010 population of Ohio was 11,536,725, and the population density was 282.3 per square mile. Further, the population of Trumbull County is projected to decrease approximately 0.95 percent between 2010 and 2020.<sup>4</sup> The facility is unlikely to limit future population growth or have a measurable impact on the demographics of the region.

##### *Land Use*

The Applicant proposes to construct the facility on a 182-acre parcel. The proposed facility would occupy 17 acres, while approximately 23.5 acres would be utilized for construction laydown, staging, parking, and access. Eight acres would be utilized for the ring bus site and the necessary construction laydown area for the ring bus.

The facility site is currently in agricultural use. However, the site is zoned by the Village of Lordstown for industrial development, and is located in an area designated by the Village as the Lordstown Industrial Park. Other properties within proximity of the proposed facility site are aligned with the current zoning plan provided by the Village of Lordstown Planning and Zoning Department. The GM Lordstown Assembly Plant is located across State Route 45 from the proposed facility.

Of the land uses within one mile of the facility site, approximately 30 percent of the area is currently utilized for agricultural purposes, 39 percent is forested/open space, and 19 percent is utilized as an industrial area or utility/rail easement. Further, 10 percent of the surrounding land within a one-mile radius of the site is comprised of residential parcels, while approximately 1 percent of that area has a commercial land use.<sup>5</sup>

With the exception of some residential impacts during construction, the proposed facility is compatible with, and would not permanently impact, surrounding land uses. Staff recommends that the Applicant limit the hours of construction and have a complaint resolution plan in place to address potential construction related concerns from nearby residents.

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<sup>3</sup> “State and County Quick Facts: Trumbull County, OH,” United States Census Bureau, accessed July 1, 2015, <http://quickfacts.census.gov/qfd/states/39/39155.html>.

<sup>4</sup> “Population Characteristics and Projections: 2010 to 2040 Projected Population for Ohio Counties,” Ohio Development Services Agency, accessed July 1, 2015, [http://development.ohio.gov/reports/reports\\_pop\\_proj\\_map.htm](http://development.ohio.gov/reports/reports_pop_proj_map.htm).

<sup>5</sup> “Application for a Certificate of Environmental Compatibility and Public Need for the Lordstown Energy Center,” (Application), Clean Energy Future-Lordstown, LLC, March 23, 2015, 145.

### *Residential Impacts*

No residences are located on the facility site. However, one residential structure exists on facility site, and is used as a Lion's Club meeting place. The closest residences are located approximately 0.35 mile to the northwest, southwest, and southeast. A neighborhood of approximately 35 residences is also located approximately 0.6 mile from the facility property line.<sup>6</sup> Nearby residents are likely to experience temporary noise and traffic impacts associated with construction activities. The Applicant has coordinated with the Lion's Club, and the structure is anticipated to be demolished or repurposed with the Lion's Club moving to another location.

### *Recreation Areas*

Ten parks, recreation areas, or golf courses are located within 5 miles of the facility site.<sup>7</sup> The nearest recreational feature is Lordstown Village Park, approximately 1.5 miles north of the site. The 60-acre park, located off Ohio Route 45, includes sports facilities, picnic pavilions, and a nature trail.<sup>8</sup> The Warren Wildlife Area, a 40-acre area maintained by the ODNR, is located approximately 3.5 miles northeast of the site. The area, along the banks of the Mahoning River, consists of bottomland hardwoods and a small marsh and is used for public hunting and fishing.<sup>9</sup> The Mill Creek Metroparks Bikeway and the Meander Golf Course are each located approximately 4 miles from the site.

None of the recreational areas identified within the 5-mile radius are expected to be negatively impacted by the proposed facility, and recreational land use is not expected to be altered as a result of the construction or operation of the proposed facility.

### *Aesthetics*

The facility site is located within an existing industrial-zoned area with wooded areas to the south, east, and northeast. The tallest structures at the facility site would be the two 160-foot tall exhaust stacks. Ribbed siding and neutral-colored coatings would be used on exterior building surfaces.<sup>10</sup>

The ring bus site is bounded on the north by a railroad line and to the east and west by existing 345 kV transmission corridors. The majority of the switchyard equipment would have a height of approximately 20 feet, and existing vegetation would help screen the ring bus site from the residences on Goldner Lane a short distance to the south. For security purposes, the ring bus site would be lit. Lighting would be activated either by darkness or motion sensors around the perimeter of the site. Lighting would be focused inward rather than outward onto neighboring property.<sup>11</sup>

The six proposed poles located in the ring bus interconnection corridor would not exceed 100 feet in height. The Applicant would clear a 100-foot right-of-way through the wooded interconnection property, and remaining vegetation would partially screen the structures from view.

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<sup>6</sup> Application, 120.

<sup>7</sup> Application, 156-157; also, figures 07-7A through 07-7H.

<sup>8</sup> "Parks Department," Village of Lordstown, Ohio, accessed June 1, 2015, <http://www.lordstown.com/parksdept.html>.

<sup>9</sup> "Warren Wildlife Area," Ohio Department of Natural Resources, Division of Wildlife, accessed June 1, 2015, <http://wildlife.ohiodnr.gov/warren>.

<sup>10</sup> Application, 58.

<sup>11</sup> Staff data request, June 26, 2015.

Due to the visual buffers described above and the primarily industrial nature of the immediate vicinity, the facility, ring bus interconnection corridor, and ring bus site are anticipated to have minimal permanent aesthetic impacts to the surrounding area. Impacts associated with construction activities would be temporary in nature.

### *Regional Planning*

The facility site and laydown area are located within an area of the village of Lordstown that has been designated for industrial development, and industrial use exists on properties adjacent to the facility site.<sup>12</sup> The ring bus site is located in an area designated for residential development and adjacent to existing electric transmission corridors. The proposed facility is consistent with the zoning map and planning of the Village of Lordstown.

### **Cultural and Archaeological Resources**

The Applicant completed a cultural resources management investigation for the project. The investigation included literature review, a Phase I archaeological survey, and a historic structures report.<sup>13</sup> An addendum Phase I investigation was later completed following the initial application submittal.<sup>14</sup>

### *Archaeology*

In November 2014, the Applicant conducted an archaeological resources literature review within a 1-mile study radius of the facility site. The review identified seven previously recorded archaeological sites – five sites within the project area and two additional sites within the study radius. The literature review also revealed that earlier Phase I surveys had been conducted within the project area. The earlier surveys identified five archaeological sites within the project area. None of these sites were regarded as significant or National Register of Historic Places (NRHP) eligible.

Based on the existence of the earlier surveys, the Applicant focused its December 2014 archaeological field work on portions of the project area that had not already been surveyed. The Applicant's field investigation did not identify any previously unrecorded archaeological sites. In its initial Phase I findings, the Applicant recommended no further archaeological survey work for the 31-acre project area. In a letter dated April 16, 2015, the Ohio Historic Preservation Office (OHPO) concurred with this recommendation.

Following completion of the initial Phase I investigation, the Applicant identified a broader area of potential facility activities and, in May 2015, returned to the site. The literature review of the expanded area revealed that earlier Phase I surveys had been conducted, and the Applicant's subsequent field work yielded one previously unrecorded archaeological site (33TR0269). This site was recommended by the Applicant as not eligible for listing in the NRHP, and no further archaeological work was recommended for the project area. In June 2015, the Applicant filed addendum Phase I results for the 146-acre expansion area. As of the writing of this report, the OHPO was still reviewing the findings and recommendations provided in the addendum.

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<sup>12</sup> Application, Figure 07-6.

<sup>13</sup> Application, Appendix I and Appendix J.

<sup>14</sup> "Phase I Cultural Resource Management Investigations for the Approximately 59.1 ha (146 ac) Lordstown Energy Center Expansion Areas in the Village of Lordstown, Trumbull County, Ohio," Clean Energy Future-Lordstown, LLC, June 30, 2015.

### *Historic Structures*

The Applicant's initial cultural historic records review identified 11 previously recorded Ohio Historic Inventory (OHI) properties within the intensive survey area of potential effect (APE).<sup>15</sup> The subsequent field survey revealed that six of these properties have been razed and are no longer present. One NRHP listed property is located within the intensive survey APE, and an additional site within the intensive survey APE is considered NRHP eligible by the OHPO.

Within the larger 5-mile survey area (including the intensive survey APE), five NRHP listed properties, three NRHP Determination of Eligibility properties, and one property considered eligible by the OHPO are present. All but two of these properties are located more than 3 miles from the proposed facility.

While portions of the proposed facility, specifically the two exhaust stacks, would be visible from certain properties, the proposed facility is not likely to adversely affect these properties, due to their distance from the facility and the presence of existing communications and utility infrastructure and other modern and industrial features in the area. The OHPO concurred with the Applicant's initial recommendation that the project would not affect historic properties.

Further assessment conducted during the Applicant's May 2015 investigations yielded one previously unrecorded historic structure (OHI TRU0294222). The Applicant did not consider this structure significant and recommended that no further cultural resource management work is necessary. As of the writing of this report, the OHPO was still reviewing the findings and recommendations provided in the Applicant's addendum.

### **Ecological Impacts**

#### *Surface Waters*

The project area contains two perennial streams, Mud Creek and an unnamed tributary to Mud Creek. No in-water work is proposed for the project. A permanent access road across Mud Creek would be required for the ring bus site. This crossing would be via an existing culverted crossing, and it is not anticipated that the existing culvert would require any upgrading. The unnamed tributary would be crossed by both the proposed and alternative interconnection routes to the ring bus site. No structures would be placed within the stream, and if access across the stream becomes necessary, Staff recommends that the Applicant use timber matting or other raised bridge structures. The proposed facility is not located within a Federal Emergency Management Agency flood zone.

Twenty-four wetlands have been delineated near the project site, including one category 3 wetland. Of the 24 wetlands in the project area, five would need to be filled for a total of 1.95 acres of permanent wetland fill. No poles or fill of any kind would be placed within the category 3 wetland. However, approximately 0.1 acres of tree clearing within the category 3 wetland would be necessary for the proposed ring bus interconnection route, and approximately 0.5 acres would be necessary for the alternative. No mechanized clearing would occur within any delineated wetland boundaries. The Applicant has taken measures to avoid wetland fill where it would not be

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<sup>15</sup> For purposes of historic structures for this application, the intensive survey APE is defined as a systemic survey of all architectural resources 50 years of age or older within a 1-mile radius of the proposed facility. Beyond the 1-mile radius, only NRHP listed and NRHP Determination of Eligibility properties were surveyed within a 5-mile radius of the proposed facility.

necessary, including working around certain wetlands identified within the laydown areas. The Applicant would clearly mark these wetlands and leave a vegetative buffer of approximately 25 feet to minimize indirect impacts. As a part of separate activities associated with the Lordstown Industrial Park, the U.S. Army Corps of Engineers (USACE) issued a permit for the fill on the facility site. Wetland fill permits were previously issued for the site by the USACE to another applicant for a project that was not constructed. The Applicant has been coordinating with the USACE and the Ohio EPA to obtain, transfer ownership, and update all applicable wetland fill permits for wetland impacts associated with construction of the facility on the site. Mitigation required by the current USACE permit includes the creation of a 2.64 acres wetland and a conservation easement to protect the property containing the category 3 wetland. The mitigation wetland has already been created, and the Applicant plans to assume monitoring responsibilities. Wetlands would be further protected by the Applicant's erosion and sedimentation controls outlined in the Stormwater Pollution Prevention Plan (SWPPP).

### *Vegetation*

The proposed facility is located primarily within fallow agricultural fields. Selection of the proposed interconnection route would result in approximately seven acres of total forest clearing, while selection of the alternative interconnection route would result in approximately 10.3 acres of total clearing.

For both construction and future right-of-way maintenance, Staff recommends that the Applicant limit, to the greatest extent possible, the use of herbicides in proximity to surface waters, including wetlands, along the right-of-way. Individual treatment of tall-growing woody plant species is preferred, while general, widespread use of herbicides during initial clearing or future right-of-way maintenance would only be used where no other options exist. Staff recommends that the Applicant submit a plan to Staff describing the planned herbicide use for all areas in or near any surface waters during initial project construction and/or future right-of-way maintenance.

### *Threatened and Endangered Species*

The Applicant requested information from the ODNR and the USFWS regarding state and federally-listed threatened and endangered plant and animal species. Additional information was provided through field assessments and review of published ecological information. The following table of federal and state-listed species known to occur in the project area reflects the results of the information requests, field assessments, and document review.

<b>BIRDS</b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Presence in Project Area</b>
northern harrier	<i>Circus cyaneus</i>	N/A	Endangered	Habitat includes large marshes and grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1.
upland sandpiper	<i>Bartramia longicauda</i>	N/A	Endangered	Habitat includes grasslands, grazed and ungrazed pasture, and hayfields. If this type of habitat would be impacted, construction must be avoided during the species' nesting period of April 15 to July 31.

### REPTILES & AMPHIBIANS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
eastern massasauga	<i>Sistrurus catenatus</i>	Candidate Species	Endangered	Habitat includes wet meadows and other wetlands. Suitable habitat is present. The Applicant is in the process of a presence/absence survey.
spotted turtle	<i>Clemmys guttata</i>	N/A	Threatened	Habitat includes fens, bogs and marshes, but is also known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location and the type of habitat present at the project site and within the vicinity of the project area, this project is not likely to impact this species.

### MAMMALS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	If trees must be cut, cutting must occur between October 1 and March 31. If trees must be cut during the summer months, a mist net survey must be conducted between June 1 and August 15, prior to cutting.
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Species of Concern	If trees must be cut, cutting must occur between October 1 and March 31. If trees must be cut during the summer months, a mist net survey must be conducted between June 1 and August 15, prior to cutting.
black bear	<i>Ursus americanus</i>	N/A	Endangered	Due to the mobility of this species, the project is not likely to impact this species.

### FRESH WATER MUSSELS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
clubshell	<i>Pleurobema clava</i>	Endangered	Endangered	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
black sandshell	<i>Ligumia recta</i>	N/A	Threatened	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.

FISH				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
northern brook lamprey	<i>Ichthyomyzon fossor</i>	N/A	Endangered	Due to the location, and the fact that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.

Suitable habitat for the upland sandpiper is not present within the facility site or laydown area. However, the balance of the project area has the potential for small areas that could be suitable. In order to avoid impacts to this species the ODNR recommends that construction in areas of potential habitat be avoided during the species' nesting period of April 15 through July 31.

Suitable habitat for the Northern harrier is not present within the facility site or laydown area. However, the balance of the project area has the potential for small areas that could be suitable. In order to avoid impacts to this species the ODNR recommends that construction in areas of potential habitat be avoided during the species' nesting period of May 15 through August 1.

The Applicant has retained an ODNR-approved herpetologist to conduct a habitat suitability survey for the eastern massasauga. Suitable habitat was found to be present at the project site, and a presence/absence survey is currently being conducted. The results of the survey will be submitted to the ODNR and the USFWS and used to provide further recommendations.

To avoid potential take of both Indiana bats and northern long-eared bats, suitable habitat and surrounding trees shall be saved wherever possible. If tree removal is unavoidable, any tree removal should only occur between October 1 and March 31. If seasonal clearing for these bat species cannot be implemented, then a summer survey shall be conducted to document the presence or likely absence of the Indiana bat and the northern long-eared bat within the project area during the summer. The survey must be conducted by a permitted surveyor and be designed and conducted in coordination with the ODNR and the USFWS.

### *Geology and Soils*

The Applicant conducted a preliminary geotechnical investigation to determine the suitability of the site for construction and operation of the proposed facility. The investigation included six soil borings and two bedrock borings to determine the character of the subsurface materials. The collected samples were evaluated in the field and laboratory to determine various chemical and physical attributes such as grain size distribution, Atterberg limits, and permeability.

The investigation identified three distinctive soil layers, including topsoil from zero to 10 inches below the ground surface, a fine-grained glacial layer from 10 inches to nine feet, and a residual soil layer from nine feet to 16 feet. The topsoil layer is an organic mix of clay, silt, and sand. The fine-grained glacial layer is brown and gray silty clay with varying amounts of sand and gravel. The residual soil layer is a dark gray silty clay with varying amounts of sand and gravel. The bedrock samples revealed highly-weathered gray shale below 16 feet.

The geotechnical investigation revealed no major obstacles to site development. Further, ODNR maps and records show no karst features or abandoned underground mines in the area. The nearest mine is located approximately 3.5 miles southeast.

The Applicant noted the potential presence of frost-heaving soils in the area. That conclusion is consistent with the U.S. Department of Agriculture Soil Survey of Trumbull County, which identifies the dominant soil component on the site to be a Wadsworth silt loam with zero to two percent slopes. The Wadsworth soil series is rated as severely limited for roads and streets due to frost action. The geotechnical investigation recommends an inspection of all subgrade surfaces by a qualified engineer to identify any frost-heaving soils. Any such identified soils should be excavated and replaced with suitable fill.

### *Seismology*

According to the ODNR Division of Geological Survey, seismic risk is difficult to determine in Ohio due to the relative infrequency of earthquake events. However, given the fact that earthquake damage is typically associated with liquefaction of soils, and that the liquefaction potential of the identified soils is relatively low, the geotechnical consultant concluded that the potential for earthquake damage to the proposed facility is unlikely.

## **Public Services, Facilities, and Safety**

### *Public Services and Traffic*

Construction staffing would be met regionally, with no significant need for workers to relocate to the area. Workers arriving and departing during construction would increase traffic. However, the principal impact on public services would be short-term increases in traffic on routes leading to the proposed facility due to deliveries of equipment and materials during construction. Some traffic management during the construction phase may be necessary in the immediate vicinity of the project area to ensure safe and efficient maintenance of existing traffic patterns and usages. The Applicant has committed to coordinating with local officials regarding shift times and travel routes.

The proposed facility would permanently employ 25 to 27 people during operation. Workers would commute to the project area on a daily basis and would not place major demands on local infrastructure. Potential emergency service requirements would be coordinated with local officials. Local emergency response personnel would be familiar with the facility's emergency response system.

### *Roads and Bridges*

The Applicant's preliminary transportation management plan considers delivery of major components and other materials for the construction phase of the proposed facility. Transportation to the site would be via road or rail spur from rail nodes, regional ports, and/or major highways in the vicinity of the project. The transportation management plan would be finalized following the selection of a construction contractor, as well as finalized calculations of the load and dimensional requirements for equipment transportation. Equipment deliveries to the site would be primarily by truck and would be planned as to minimize impact to local traffic patterns.

Rail access to the site would be achieved through the Ohio Commerce Center, a 1.5 million-square foot storage and distribution facility located approximately 2 miles north of the proposed facility. Facility components would be delivered to the Ohio Commerce Center via rail car. When ready for installation, components would be loaded onto specially-designed, multi-wheeled trailers and driven via State Route 45 to the proposed facility site. The equipment would be removed from the trailers by crane at the site. All systems, including rail and rail car capacity, crane access and lifting



capacity, and impact to rail traffic patterns, would be analyzed in a detailed off-loading plan prior to transportation.

Road access to the site would be achieved by Henn Parkway, which is connected to the U.S. Interstate Highway system via State Route 45, and U.S. routes 80 and 76. State Route 45 can accommodate traffic with excessive weight. No upgrades to local roads and bridges are anticipated for the transportation of construction vehicles and facility equipment. The Village of Lordstown has planned for industrial traffic within the area and has upgraded road bearing capacities.

Staff recommends that the Applicant be required to develop a final Transportation Management Plan that would include a Road Use 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 agency. Any temporary improvements would be removed unless the appropriate regulatory agency requests that they remain in place.

### *Noise*

Noise impacts from construction activities would include site clearing and grading, placement of major structural concrete foundations, erection of building structural steel, installation of mechanical and electrical equipment, and commissioning and testing of equipment. Many of the construction activities would generate significant noise levels during the final 4 to 6 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 equipment mitigation practices, personal protective equipment such as hearing protection devices, and limitations on duration of noise exposure in high noise areas in order to reduce noise impacts further.

The Applicant conducted a background ambient noise level study in order to understand the existing noise levels in the vicinity of the proposed facility. The study included measurements at five locations on November 20 and 21, 2014. The results of that study showed that for measurement location 1, the equivalent continuous noise level ( $L_{eq}$ ) for the two-day monitoring period was 53 decibel A-weighting (dBA) for daytime hours and 52 dBA for nighttime hours. For measurement location 2, the  $L_{eq}$  for the two-day monitoring period was 60 dBA for daytime hours and 54 dBA for nighttime hours. For measurement location 3, the  $L_{eq}$  for the two-day monitoring period was 49 dBA for daytime hours and 45 dBA for nighttime hours. For measurement location 4, the  $L_{eq}$  for the two-day monitoring period was 48 dBA for daytime hours and 45 dBA for nighttime hours. For measurement location 5, the  $L_{eq}$  for the two-day monitoring period was 46 dBA for daytime hours and 38 dBA for nighttime hours.<sup>16</sup>

The Applicant estimated construction noise levels based upon typical ranges of energy equivalent noise levels at construction sites, as documented by the United States Environmental Protection Agency (USEPA) and the USEPA “Construction Noise Control Technology Initiatives.”<sup>17,18</sup> The USEPA methodology distinguishes between type of construction and construction phase. Construction noise levels would increase during certain phases and would vary over time. Based off of the USEPA methodology, construction noise levels are predicted to range from 38-56 dBA

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<sup>16</sup> Application, Appendix F.

<sup>17</sup> “Technical Document NTID300.1,” USEPA, December 1971.

<sup>18</sup> “Technical Report No. 1789,” USEPA, September 1980.

at the five measurement locations. Periodically, noise levels may be higher or lower than the model predicted. However the overall noise levels would generally be lower. No adverse or long-term effects from construction are expected.

The Applicant estimated noise levels from the operation of the proposed facility by using the Cadna-A computer noise model. Noise levels during operation would range from 34-46 dBA  $L_{eq}$  at the five measurement locations. Ambient nighttime noise levels range from 38-54 dBA  $L_{eq}$ . The largest net increase in sound level at a monitoring location was modeled to be 4 dBA. Therefore, the project would be expected to have minimal adverse impacts on the adjacent community.

In order to minimize adverse impacts associated with increased noise levels, Staff recommends that the Applicant use the mitigation measures included in the mitigated model and include procedures in its complaint resolution process for resolving noise complaints.

### **Recommended Findings**

The Staff recommends that the Board find that the nature of the probable environmental impact has been determined for the proposed facility, and therefore complies with the requirements specified in ORC Section 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 report entitled Recommended Conditions of Certificate.

## **Considerations for ORC Section 4906.10(A)(3)**

### **MINIMUM ADVERSE ENVIRONMENTAL IMPACT**

Pursuant to ORC Section 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 market analysis identified the Northeastern Ohio region as one where the planned shutdown of existing coal-fired capacity will create the need for new power generation. After identifying this region, the Applicant proceeded to further refine the facility's site selection based on a range of key characteristics. Locations deemed suitable for the project siting required adequate size for a generating facility, compatible zoning and land use, natural gas alternatives, proximity to an electric, natural gas, water and transportation infrastructure, transmission interconnection alternatives, and community support. Potential sites in Northeastern Ohio were considered using the above characteristics. As the sites were identified and evaluated, the Lordstown Industrial Park site met all of the characteristics. While the site selection methodology utilized by the Applicant lacked a formal evaluation of alternative project sites, the chosen site nonetheless minimizes potential ecological and socioeconomic impacts and is suitable for a large scale generation station.

#### **Minimizing Impacts**

The Applicant has sited and designed the Lordstown Energy Center to minimize potential impacts. The proposed project site is currently in agricultural use, but is located in a designated industrial park. In addition, the project site is within proximity to other properties that are aligned with the current zoning plan provided by the Village of Lordstown Planning and Zoning Department. The facility site is adjacent to other commercial and industrial uses. Land use and residential impacts would be minimal.

The facility would minimize impacts to ecological resources through avoidance of wildlife habitat during breeding seasons, and continued coordination with the ODNR and the USFWS. Additionally, surface waters would be protected through the USACE and Ohio EPA permitting. Staff recommends selection of the proposed ring bus interconnection route over the alternate due to ecological impacts associated with tree clearing, including reduced clearing within a category 3 wetland.

Potential noise impacts associated with the operation of the proposed facility would comply with the Village of Lordstown noise ordinance. With mitigation measures in place, minimal noise impacts are anticipated.

The facility is expected to have direct and indirect positive impact on the local economy. Positive impacts would include purchasing of construction material from local vendors and the use of goods and services by facility personnel. In addition, the proposed facility would generate revenue from construction spending, permanent employment and state and local taxes.

#### **Conclusion**

Staff concludes that the proposed project would result in both temporary and permanent impacts to the project area and surrounding areas. Staff concludes that the project represents the minimum

adverse environment impact because of its low potential to impact land use, cultural resources, streams, wetlands, and residences, with Staff's recommended conditions to mitigate these impacts.

### **Recommended Findings**

The Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in ORC Section 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 report entitled Recommended Conditions of Certificate.

## **Considerations for ORC Section 4906.10(A)(4)**

### **ELECTRIC GRID**

Pursuant to ORC Section 4906.10(A)(4), the Board must determine that the proposed electric 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.

The purpose of this section is to evaluate the impact of interconnecting the proposed Lordstown Energy Center into the existing regional electric transmission system. The Applicant proposes to build an 800 MW natural gas fired combined-cycle plant. Electrical power would be produced at approximately 20 kV and stepped-up by transformers to 345 kV.

The Applicant plans to simultaneously interconnect to the regional transmission grid via ATSI, Highland-Sammis 345kV and Highland-Mansfield 345kV transmission lines in five-breaker ring bus configuration.

#### **PJM Interconnection**

PJM Interconnection, LLC (PJM) is the regional transmission organization charged with managing the regional transmission system and the wholesale electricity market. In addition, PJM administers the interconnection process of new generation to the system. Generators wishing 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 Applicant submitted the proposed project to PJM on February 21, 2014. PJM gave the application a queue position of Z2-028.

PJM studied the interconnection as a simultaneous injection into ATSI's, Highland-Sammis 345 kV and Highland-Mansfield 345 kV transmission lines. The facility has the potential to generate a maximum net output of 947 MW, but the Applicant requested a maximum facility interconnection of 800 MW, of which all would be capacity. Any proposed increase above 800 MW would be submitted to the Board in a separate application at a later date. Capacity represents the need to have adequate generating resources to ensure that the demand for electricity can be met at all times. In PJM's case, that means that a utility or other electricity supplier is required to have the resources to meet its customers' demand plus a reserve amount. Suppliers can meet that requirement with generating capacity they own, with capacity purchased from others under contract, or with capacity obtained through PJM's capacity market auctions.

PJM has completed the Feasibility Study and System Impact Study for the Lordstown Energy Center, which includes local and regional transmission system impacts.<sup>19, 20</sup> These studies summarize the impacts of adding the proposed generating facility to the regional bulk electric system and identified any transmission system upgrades caused by the project that would be required to maintain the reliability of the regional transmission system. The Applicant has not yet

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<sup>19</sup> "Feasibility Study, Queue Number Z2-028," PJM Interconnection, accessed Jun 15, 2015, <http://pjm.com/planning/generation-interconnection/generation-queue-active.aspx>.

<sup>20</sup> "System Impact Study, Queue Number Z2-028," PJM Interconnection, accessed June 15, 2015, <http://pjm.com/planning/generation-interconnection/generation-queue-active.aspx>.

signed a construction service agreement or an interconnection service agreement with PJM for the proposed facility. Signature on the interconnection service agreement must be obtained before PJM will allow the Applicant to interconnect the proposed facility to the bulk electric transmission system.

Staff reviewed the System Impact Study report prepared by PJM. The study was evaluated for compliance with reliability criteria for 2018 summer peak load conditions.<sup>21</sup> The studies revealed circuit breaker issues during the short circuit analysis.

### **Transmission Planning Requirements**

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 bulk power system. The bulk power system, with the exception of a few exclusions, is defined as, all transmission elements operated at 100 kV or higher and real power and reactive power resources connected at 100 kV or higher.<sup>22</sup> NERC requires planners of the bulk electric transmission system to meet Reliability Standards TPL-001-0.1 through TPL-004-0 under transmission outage conditions for categories A, B, C, and D contingencies.<sup>23</sup> According to NERC, a contingency is an unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. Below is a partial list of the NERC categories and their meanings:

- Category A: (no contingencies, all facilities in-service, system normal);
- Category B: (loss of a single bulk electric system element, N-1), the planning authority and transmission planner shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand;
- Category C: (loss of two or more bulk electric system elements, N-1-1), the planning authority shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand and may rely upon the controlled interruption of customers or curtailment of firm transmission service. The N-1-1 criterion anticipates that a second N-1 contingency will occur on the system after the first N-1 event occurs; and
- Category D: (extreme events resulting in multiple elements removed or cascading out of service), the planning authority shall demonstrate that the interconnected transmission system is evaluated for the risks and consequences of a number of each of the extreme contingencies that are listed in the standard.

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<sup>21</sup> Ibid

<sup>22</sup> "Glossary of Terms Used in NERC Reliability Standards," North American Electric Reliability Corporation, accessed June 15, 2015, <http://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx>.

<sup>23</sup> "Reliability Standards, Transmission Planning (TPL-001-0.1-TPL-004-0)," North American Electric Reliability Corporation, accessed June 15, 2015, <http://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx>.

In addition to NERC reliability requirements, NERC reliability councils, PJM, and transmission owners reliability planning criteria must be followed.

### **PJM Network Impacts**

PJM analyzed the bulk electric system with the Lordstown Energy Center interconnected to the bulk power system. A 2018 summer peak power flow model was used to evaluate the regional reliability impacts. Only one issue, relating to circuit breakers, was revealed during the regional studies. The results of the PJM System Impact Study for the PJM regional footprint are as follows.

#### **PJM Regional System Impacts**

<b>Generator Deliverability - System Normal &amp; Single Contingency Outage</b>	
<i>Plant Output: Capacity Level - 800 MW</i>	No problems identified
<b>Category C and D - Multiple Contingency Outages</b>	
<i>Plant Output: Capacity Level - 800 MW</i>	No problems identified

### **Contribution to Previously Identified Overloads - Network Impacts**

PJM studied overloading that the proposed Lordstown Energy Center may have on earlier projects in the PJM Queue.

#### **Contribution to Previously Identified Overloads**

<i>Plant Output: Capacity Level - 800 MW</i>	No problems identified
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### **Short Circuit Analysis**

The short circuit analysis study, which is part of the System Impact Study, evaluates the interrupting capabilities of circuit breakers impacted by the proposed generation addition. The results identified 11 circuit breakers that would be over duty in ATSI. The Lordstown Energy Center would be responsible for replacing these breakers at a cost of \$13.2 million.

### **Conclusion**

The facility has the potential to generate a maximum net output of 947 MW, but the Applicant requested a maximum facility interconnection of 800 MW, of which all would be capacity. Any proposed increase above 800 MW would be submitted to the Board in a separate application at a later date.

PJM analyzed the bulk electric system, with the Lordstown Energy Center interconnected to the transmission grid, for compliance with ATSI, NERC, and PJM reliability criteria. The PJM system studies indicated reliability violations during short circuit analysis. To correct these violations and meet the required compliance, PJM will require upgrade to the breakers.

The Lordstown Energy Center would interconnect to the regional grid via a 345 kV, five-breaker ring bus configuration. This configuration is more reliable than other types and allows for isolation of bus sections and circuit breakers for maintenance without circuit disruption

The proposed facility is expected to provide reliable generation to the bulk electric transmission system and is consistent with plans for expansion of the regional power system, and will serve the interests of electric system economy and reliability. The facility will serve the public interest, convenience, and necessity by providing additional electrical generation to the regional transmission grid.

### **Recommended Findings**

The 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, the facility complies with the requirements specified in ORC Section 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.



## **Considerations for ORC Section 4906.10(A)(5)**

### **AIR, WATER, SOLID WASTE, AND AVIATION**

Pursuant to ORC Section 4906.10(A)(5), the facility must comply with specific sections of the ORC regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

#### **Air**

The proposed project site is within an area classified as attainment for all National Ambient Air Quality Standards criteria air pollutants. Operational impacts on air quality would be minimized through the use of efficient new gas turbine technology and the incorporation of air pollution controls.

The turbines would use natural gas, thereby ensuring low emission rates throughout its operation. The combustion of natural gas produces NO<sub>x</sub> and carbon dioxide, but in lower quantities than burning other fuel sources, such as coal or oil. The combustion of natural gas would also minimize particulate matter and SO<sub>2</sub>.

Air pollution controls are proposed for the facility to minimize impacts to air quality. The primary air pollution control devices include DLN burners in the gas turbines, SCR systems, and oxidation catalysts in the heat recovery steam generators.

The proposed combustion turbine and duct burner utilize DLN burners within the combustion turbines. The DLN burners would control the formation of NO<sub>x</sub> by pre-mixing fuel and air immediately prior to combustion. Pre-mixing inhibits formation of NO<sub>x</sub> by minimizing the flame temperature and the concentration of oxygen at the flame.

SCR is an air pollution control technology that is used to remove NO<sub>x</sub> from the flue gases that are produced during combustion of fossil fuels in turbines or boilers. SCR removes NO<sub>x</sub> through a catalyzed chemical reduction of NO<sub>x</sub> by ammonia that is introduced as a reactant in the flue gas in the presence of excess oxygen. This reaction generates nitrogen gas and water as the end products that are emitted from the stack into the atmosphere. The SCR systems would reduce emissions of NO<sub>x</sub> to 2 parts per million by volume (ppmv).

An oxidation catalyst system would be located within the heat recovery steam generators to control emissions of CO and volatile organic compounds. Exhaust gases from the turbines pass over a catalyst bed (a catalyst support media) where excess air would oxidize the CO and volatile organic compounds. The oxidation catalysts would reduce emissions of CO to 2 ppmv and volatile organic compounds to between 1.0 and 2 ppmv.

Emissions from the facility would be tracked using a CEMS. The CEMS would continuously extract flue gas samples near the exhaust of the heat recovery steam generators and measure flue gas parameters. The CEMS would detect a deterioration of performance before a failure of the catalyst occurs. The facility would not operate if its SCR system is not functioning properly. Project emissions under all operating conditions would comply with permit requirements.

The air permit-to-install application for the project was submitted to the Ohio EPA in February 2015. In the Applicant's dispersion modeling report, details were provided on the modeling completed for the facility to demonstrate compliance with air quality standards. The

permit-to-install serves as the air construction permit and the initial operating permit. The Applicant would be required to apply for a Title V air operating permit within 12 months after initial startup. Additionally, the Applicant would need to submit a Title IV Acid Rain Program permit application for emissions of SO<sub>2</sub> and NO<sub>x</sub>. The Title IV permit must be submitted at least 24 months prior to beginning operation.

Construction impacts on air quality primarily consist of relatively minor emissions from the construction equipment and from fugitive dust emissions. Construction vehicles would emit insignificant amounts of volatile organic compounds, SO<sub>2</sub>, CO, NO<sub>x</sub>, and particulate matter. These emissions are not expected to cause any significant adverse impacts to air quality. Fugitive dust rules adopted pursuant to the requirements of ORC Chapter 3704 (air pollution control laws) are applicable to the proposed facility. Fugitive dust would be controlled, when necessary, through best management practices.

### **Water**

Construction of the proposed facility would not require the use of significant amounts of water. Operation of the proposed facility would require the use of up to 5.5 million gallons of water per day. Water would be obtained through the City of Warren and Meander Water (also known as Mahoning Valley Sanitary District), and thus the requirements under ORC 1501.33 and 1501.34 are not applicable to this project.

The Applicant intends to submit a Notice of Intent for coverage under Ohio EPA's National Pollutant Discharge Elimination System (NPDES) general permit for stormwater discharges associated with construction and industrial activities. The Applicant would submit a SWPPP to the Ohio EPA as part of the NPDES permit. This SWPPP would be developed for the project pursuant to the Ohio EPA regulations and would conform to the ODNR's Rainwater and Land Development Manual and associated requirements of the Village of Lordstown. Prior to operation of the facility, the Applicant would obtain a general NPDES permit for stormwater discharges associated with operation, if necessary.

Stormwater flows from the developed site would be controlled through the use of a detention pond and other best management practices which would be identified in the SWPPP. The preliminary design reflects discharge of clean stormwater runoff from the stormwater collection pond into Mud Creek. If the outfall structure requires placement in any USACE-jurisdictional portion of Mud Creek, authorization from the USACE would also be obtained.

Wetland fill permits were previously issued for the site by the USACE to another applicant for a project that was not constructed. The Applicant has been coordinating with the USACE and the Ohio EPA to obtain, transfer ownership, and update all applicable wetland fill permits for wetland impacts associated with construction of the facility on the site.

Sanitary wastewater sources would be discharged directly to the sanitary sewer system. All other wastewater streams would be collected in a wastewater collection sump before discharge to the Village of Lordstown wastewater collection system and then the City of Warren publicly-owned treatment works (POTW). The POTW discharges to the Mahoning River in accordance with NPDES requirements. The facility would discharge to the POTW in accordance with the City of Warren's industrial pretreatment program regulations and limits developed by the City. The Ohio EPA would also provide review under its wastewater permit to install program where required.

## **Solid Waste**

The Applicant estimates that approximately 1,200 cubic yards of construction debris could be generated from the project. Solid waste generated from construction activities would include packing materials, office waste, scrap lumber, metals, cables, glass, cardboard containers, and other miscellaneous debris. In addition, during construction and pre-operational cleaning, some solvents and flushing materials would be used. SCR catalysts would be removed and returned to a catalyst vendor for regeneration, salvage, or disposal. Solid waste that can be neither recycled nor reused would be stored in on-site containers for disposal. The Applicant would develop procedures to ensure that potentially hazardous wastes are separated from normal waste, including segregation of storage areas and proper labeling of containers.

All solid waste generated would be trucked off site by licensed contractors in accordance with applicable regulatory requirements and managed in licensed facilities. The Applicant would have a Spill Prevention, Containment, and Countermeasure Plan in place and would follow manufacturers' recommendations for any spill cleanup. The Applicant's solid waste disposal plans comply with solid waste disposal requirements in ORC Chapter 3734, and the rules and laws adopted under this chapter.

## **Aviation**

The closest public-use airport is located approximately 8.8 miles from the facility site. The tallest anticipated structures would be two 160-foot tall stacks. The Applicant requested review by the Federal Aviation Administration (FAA). The FAA responded on April 17, 2015 and issued a Determination of No Hazard for each stack.

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

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**

The Staff finds that the proposed facility complies with the requirements specified in ORC Section 4906.10(A)(5), provided that any certificate issued by the Board for the certification of the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

## **Considerations for ORC Section 4906.10(A)(6)**

### **PUBLIC INTEREST, CONVENIENCE, AND NECESSITY**

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

#### **Public Interaction and Participation**

The Applicant held a public informational meeting for this project on January 13, 2015. Attendees were provided the opportunity to speak with facility representatives in an open house format. Public notices regarding the meeting were published in local newspapers. Additionally, the Applicant has participated in several meetings with local officials and has committed to continue engaging with the public prior to, during, and after construction of the facility.<sup>24</sup>

The Applicant served copies of the application on officials representing Trumbull County, the Village of Lordstown, the Trumbull County Planning Commission, the Trumbull Soil and Water Conservation District, and the Warren-Trumbull County Public Library.

As of the date of this report, one written public comment regarding the proposed facility has been received by the Board. This comment, from an adjacent property owner opposed to the proposed ring bus site, is available in the case record. American Transmission Systems, Inc. and Ohio Edison filed a petition for leave to intervene in this case.

The Administrative Law Judge issued an entry on May 26, 2015, scheduling a local public hearing and an adjudicatory hearing for this proceeding. The local public hearing, at which the Board will accept written or oral testimony from any person, is scheduled for July 28, 2015 at 6:00 p.m. at the Village of Lordstown Administration Center Community Room, 1455 Salt Springs Road, Lordstown, Ohio. The adjudicatory hearing is scheduled for August 11, 2015 at 10:00 a.m. at the offices of the PUCO, Hearing Room 11-C, 11th Floor, 180 East Broad Street, Columbus, Ohio.

#### **Economics**

The Applicant enlisted the expertise of an independent economic consulting firm to analyze both the direct and indirect economic impact of constructing and operating the proposed facility. Calypso Communications, LLC was retained to analyze the economic impacts in Trumbull and Mahoning Counties, as well as the state of Ohio, resulting from the construction and operation of the proposed facility. The Applicant would allocate \$853 million in project construction costs with \$789.5 million of this total representing capital and intangible costs.<sup>25</sup> Non-construction project finance costs would be \$63.5 million.<sup>26</sup>

Below is a list of potential indirect and direct economic impacts that are anticipated in Trumbull County and the state of Ohio during the construction and operational phases of the facility.<sup>27</sup>

- Construction expenditures of \$241 million would be directly spent in the Trumbull and Mahoning County region.

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<sup>24</sup> Application, 157-160.

<sup>25</sup> Application, 70 and Appendix H.

<sup>26</sup> Staff data request, June 3, 2015.

<sup>27</sup> Application, 71, 149, and Appendix H.

- Construction of the facility is estimated to generate \$453.7 million in total economic activity in Ohio.
- Construction of the project would support 1,026 jobs in Trumbull and Mahoning counties and potentially another 261 jobs in other parts of Ohio.
- In 2019, the facility's first entire year in operation, \$17 million annually would be generated in associated business activity in the Trumbull and Mahoning county region.
- During operation, the facility would employ approximately 28 full-time workers.
- Construction and ancillary economic activity would produce \$14.5 million in additional state and local tax revenues (not including property taxes) during the construction phase. The operational phase would increase state and local (non-property tax) revenues by \$1.6 million annually.
- Property tax payments of \$1 million to \$1.5 million would be made by the facility to the Village of Lordstown and its school district in each of the first 15 years of operation, after which time property tax payments would be based on the depreciated value of the facility times the local tax rate.

### **Facility Safety**

The Clean Energy Future-Lordstown project would be constructed, operated, and maintained in accordance with applicable safety regulations, including Occupational Safety and Health Administration requirements, and industry standards. The facility personnel would be trained to operate the equipment in a safe and reliable manner. The Applicant would secure pertinent federal and state environmental permits, and construct and operate the facility in accordance with all applicable environmental and safety regulations. The Applicant has committed to incorporate appropriate safety measures to prevent and contain any accidental spill of on-site chemicals.

A complete fire protection/detection system would be provided for the facility. The system would include fixed water fire suppression systems, fire hose stations, hydrants, portable fire extinguishers, and smoke/heat/flame/gas detection and control systems. The system would be designed and installed in accordance with National Fire Protection Association (NFPA) standards and insurer's recommendations. The Applicant has committed to use inert gases or compressed air for all cleaning of pipes during construction and consistent with the NFPA standards. All fire protection equipment and systems will be Underwriters' Laboratory-approved and comply with the local Lordstown Fire Department and Clean Energy Future-Lordstown, LLC's insurance carrier requirements.

The Applicant has committed to coordinate emergency service requirements with local emergency responders. Staff recommends that this coordination be incorporated into an Emergency Response Plan that would address different potential emergencies, levels of response, and resources (such as equipment or personnel).

### **Electromagnetic Fields**

Transmission lines, when energized, generate electromagnetic fields (EMF). Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, there have been concerns that EMF may have impacts on human health. Because these

concerns exist, the Applicant is required to compute the EMF associated with the new circuits. The fields were computed based on the maximum loadings of the lines, which would lead to the highest EMF values that might exist along the proposed transmission line. Daily current load levels would normally operate below the maximum load conditions, thereby further reducing nominal EMF values. The EMF profiles are shown in Appendix C in the application.

The electric field is a function of the voltage, the line configuration, and the distance from the transmission lines. Electric fields are produced by voltage or electric charge. For example, a plugged in lamp cord produces an electric field, even if the lamp is turned off. The electric field for the transmission line from the project site to the ring bus site would be less than 1.7 kilovolt/meter. Electric fields are easily shielded by physical structures such as the walls of a house, foliage, or other barriers.

The magnetic fields are a function of the electric current, the configuration of the conductors, and the distance from the transmission lines. The magnetic fields were estimated at the right-of-way edge to be less than 114 milligauss. The maximum magnetic field scenarios are also listed in Appendix C of the application. The EMF resulting from the generation equipment are expected to be confined to the site. The magnetic fields generated by the generation equipment are attenuated very rapidly as the distance from the equipment increases. The nearest residence is located more than 300 feet from the proposed ring bus site.

### **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 ORC Section 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 report entitled Recommended Conditions of Certificate.

## **Considerations for ORC Section 4906.10(A)(7)**

### **AGRICULTURAL DISTRICTS**

Pursuant to ORC Section 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 ORC 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.

No agricultural district lands were identified in the study area. No agricultural district land would be disturbed in association with the construction of the proposed facility. No impacts to field operations, irrigation, or field drainage systems associated with agricultural district lands would occur as a result of the construction, operation, or maintenance of the proposed facility. The Applicant has stated that if drainage tile systems utilized by adjoining parcels are affected, they would coordinate with the Village of Lordstown to repair, relocate, or facilitate suitable drainage alternatives.

### **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 ORC Section 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 report entitled Recommended Conditions of Certificate.

## **Considerations for ORC Section 4906.10(A)(8)**

### **WATER CONSERVATION PRACTICE**

Pursuant to ORC Section 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.

Staff has reviewed the Applicant's proposed water balance and water consumption for the facility. Construction of the proposed facility would not require the use of a significant amount of water. Operation of the proposed facility would require the use of up to 5.5 million gallons of water per day. The water would be obtained through both the City of Warren and Meander Water District (also known as Mahoning Valley Sanitary District) water treatment plants (regulated public water suppliers), so requirements under ORC 1501.33 and 1501.34 are not applicable to this project.

The proposed facility would use water supplies obtained through regulated public water suppliers for process water, fire protection, and domestic uses. The proposed facility design incorporates significant water conservation measures. These measures include maximizing the cycles of concentration to reduce water intake requirements, utilizing a state-of-the-art cooling tower drift elimination system, and returning recovered boiler blowdown to the cooling tower.

### **Recommended Findings**

Staff recommends that the Board find that the requirements specified in ORC Section 4906.10(A)(8) are not applicable to this project.



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## **IV. RECOMMENDED CONDITIONS OF CERTIFICATE**

In order to ensure conformance with the proposed plans and procedures as outlined in the case record to date, Staff recommends that the following conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of input received subsequent to issuance of this report.

### **General Conditions**

- 1) The facility shall be installed at the Applicant's site and proposed ring bus interconnection route as modified and/or clarified by the Applicant's supplemental filings and further clarified by recommendations in this Staff Report of Investigation.
- 2) The Applicant shall utilize the equipment and construction practices 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.
- 3) The Applicant shall implement the 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.
- 4) The Applicant shall not commence construction of the facility until it has a signed interconnection service agreement with PJM, which includes construction, operation, and maintenance of system upgrades necessary to reliably and safely integrate the proposed generating facility into the regional transmission system. The Applicant shall provide a letter stating that the agreement has been signed or a copy of the signed interconnection service agreement to Staff.
- 5) The Applicant shall conduct a preconstruction conference prior to the start of any construction activities. Staff, the Applicant, and representatives of the prime 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 meetings for various stages of construction.
- 6) At least 30 days prior to the preconstruction conference, the Applicant shall have in place a complaint resolution procedure to address potential public grievances resulting from project construction. The resolution procedure must provide that the Applicant will work in good faith to mitigate or resolve any issues with those who submit either a complaint. The Applicant shall provide the complaint resolution procedure to Staff, for review and confirmation that it complies with this condition.
- 7) At least 30 days prior to the preconstruction conference, the Applicant shall submit to Staff for review, one set of detailed engineering drawings of the final project design, including the facility, temporary and permanent access roads, any crane routes, construction staging areas, and any other associated facilities and access points so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project

layout shall be provided in hard copy and as geographically referenced electronic data. The final design shall include all requirements of the certificate and references at the locations where the Applicant and/or its contractors must adhere to a specific requirement in order to comply with the certificate.

- 8) If any changes are made to the project layout after the submission of final engineering drawings, all changes shall be provided to Staff in hard copy and as geographically referenced electronic data. All changes outside the environmental survey areas and any changes within environmentally-sensitive areas shall be subject to Staff review to ensure compliance with all requirements of the certificate, prior to construction in those areas.
- 9) 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 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.
- 10) Prior to the commencement of construction activities 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.
- 11) Prior to the commencement of construction, the Applicant shall finalize coordination of the assessment of potential effects of the proposed facility on cultural resources, if any, with Staff and the Ohio Historic Preservation Office. If the resulting coordination discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion in the National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan to Staff. Any such mitigation effort, if needed, shall be developed in coordination with the Ohio Historic Preservation Office and submitted to Staff for review.
- 12) The Applicant shall limit general construction activities 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, hoe ram, and blasting operations, if required, shall be limited to the hours between 10:00 a.m. to 5:00 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 Rule 4906-5-08(C)(3), OAC, of upcoming construction activities including any potential for nighttime construction activities.
- 13) The Applicant shall avoid, where possible, or minimize to the maximum extent practicable, any damage to field tile drainage systems and soils resulting from construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems will be promptly repaired to at least original requirements at the Applicant's expense. If applicable, excavated topsoil will be segregated and restored in accordance with the Applicant's lease

agreement with the landowner. Severely compacted soils will be plowed or otherwise de-compacted, if necessary, to restore them to original requirements unless otherwise agreed to by the landowner.

- 14) The Applicant shall comply with fugitive dust rules by the use of water spray or other appropriate dust suppressant measures whenever necessary.
- 15) The Applicant shall retain a geotechnical engineer to provide soil engineering services during the site preparation, excavation, and foundation phases of the proposed project.
- 16) As the information becomes known, the Applicant shall provide to Staff the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- 17) 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.

#### **Public Services, Facilities and Safety Conditions**

- 18) The Applicant shall use inert gases or compressed air for all cleaning of pipes during construction, consistent with the NFPA 56 (PS) "Standard for Fire and Explosion Prevention during Cleaning and Purging of Flammable Gas Pipeline Systems."
- 19) The Applicant shall coordinate with fire, safety, and emergency personnel during all stages of the project. At least 30 days before the preconstruction conference, the Applicant shall submit an emergency response plan to be used during construction for Staff's review to ensure compliance with this condition. This plan should be developed in consultation with the fire department(s) having jurisdiction over the area.
- 20) The Applicant shall restrict public access to the facility with appropriately placed warning signs or other necessary measures.
- 21) Should site-specific conditions warrant blasting, the Applicant shall submit a blasting plan, at least 30 days prior to blasting, to Staff for review and confirmation that it complies with this condition. The Applicant shall submit the following information as part of its blasting plan:
  - a. The name, address, and telephone number of the drilling and blasting company.
  - b. A detailed blasting plan for dry and/or wet holes for a typical shot. The blasting plan shall address blasting times, blasting signs, warnings, access control, control of adverse effects, and blast records.
  - c. A plan for liability protection and complaint resolution.
- 22) 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 or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. The Applicant's process for coordination shall be detailed as part of a final traffic

plan submitted to Staff prior to the preconstruction conference for review and confirmation that it complies with this condition.

- 23) The Applicant shall repair damage to government maintained public roads and bridges caused by construction activity. Any damaged public roads and bridges shall be repaired promptly to their preconstruction condition by the Applicant under the guidance of the appropriate regulatory agency. Any temporary improvements shall be removed unless the appropriate regulatory agency requests that they remain. The Applicant shall provide financial assurance to the appropriate regulatory agency that it will restore the public roads it uses to their preconstruction condition. If county or township roads are utilized for the construction of this project, then the Applicant shall also enter into a road use agreement with the county engineer(s) prior to construction and submit to Staff for review to ensure compliance with this condition. The road use agreement shall contain provisions for the following:
- a. A preconstruction survey of the conditions of the roads;
  - b. A post-construction survey of the conditions of the roads;
  - c. An objective standard of repair that obligates the Applicant to restore the roads to the same or better condition as they were prior to construction; and
  - d. A timetable for posting of the construction road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.

### **Ecological Conditions**

- 24) The Applicant shall avoid construction in upland sandpiper preferred nesting habitat types during the species' nesting period of April 15 to July 31.
- 25) The Applicant shall avoid construction in Northern harrier preferred habitat types during the species' nesting period of May 15 to August 1.
- 26) The Applicant shall coordinate the results of the eastern massasauga presence/absence surveys with the Ohio Department of Natural Resources, the U.S. Fish and Wildlife Service, and Staff to determine if any further measures will be necessary to avoid or minimize impacts to this species.
- 27) The Applicant shall adhere to seasonal cutting dates of October 1 to March 31 for the removal of trees to avoid impacts to Indiana bats and Northern long-eared bats. If tree clearing must occur outside of these dates, the Applicant shall coordinate with the Ohio Department of Natural Resources, the U.S. Fish and Wildlife Service, and Staff for further recommendations to avoid or minimize impacts to these species.
- 28) The Applicant shall have a qualified environmental specialist on site during construction activities that may affect sensitive areas, as mutually agreed upon between the Applicant and Staff, and as shown on the Applicant's final approved construction plan. Sensitive areas include, but are not limited to, areas of vegetation clearing, designated wetlands and streams, and locations of threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential

threatened or endangered species of plants and animals that may be encountered during project construction.

- 29) The Applicant shall contact Staff, the Ohio Department of Natural Resources, and the U.S. Fish and Wildlife Service, within 24 hours if state or federal species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and the Ohio Department of Natural Resources in coordination with the U.S. Fish and Wildlife Service. Nothing in this condition shall preclude agencies having jurisdiction over the construction activities with respect to wildlife from exercising their legal authority over the facility consistent with law.
- 30) The Applicant shall have a construction access plan based on final plans for the access roads, and types of equipment to be used, that addresses the concerns outlined in this Staff Report of Investigation. Prior to commencement of construction, the Applicant shall submit the plan to Staff, for review and confirmation that it complies with this condition.
- 31) The Applicant shall have a vegetation management plan that addresses the concerns outlined in this Staff Report of Investigation. Prior to commencement of construction, the Applicant shall submit this plan to Staff, for review and confirmation that it complies with this condition.
- 32) During construction and maintenance, the Applicant shall limit, to the greatest extent possible, the use of herbicides in proximity to surface waters. Individual treatment of tall-growing woody plant species is preferred, while general, widespread use of herbicides during initial clearing or maintenance should only be used where no other options exist, and with prior approval from the Ohio Environmental Protection Agency. Prior to commencement of construction, the Applicant shall submit a plan to Staff for review and confirmation that it complies with this condition, describing the planned herbicide use for all areas in or near any surface waters during initial project construction and/or maintenance.



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