Application for Certificate of Need

Walleye Wind, LLC

Large Wind Energy Conversion System

MPUC Docket Number: IP7026/CN-20-269

Revised November 3, 2020

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FIGURES

APPENDICES

ACRONYM/TERM	DEFINITION
ABPP	avian bat protection plan
ADLS	aircraft detection lighting system
Applicant	Walleye Wind, LLC
capacity	the capability of a system, circuit, or device for storing electronic charge
Commission	Minnesota Public Utilities Commission
CON	certificate of need
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSAH	County State Aid Highway
distribution	relatively low-voltage lines that deliver electricity to a retail customer's home or business
FAA	Federal Aviation Administration
GE	General Electric
generator	a machine by which mechanical energy is changed into electrical energy
geotechnical	a science that deals with the application of geology to engineering
MMPA	Minnesota Municipal Power Agency
hub	the central component of the wind turbine that connects the rotors to the generator
interconnection	location of project connection to the power grid
IPP	independent power producer
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour

ACRONYM/TERM	DEFINITION
LEGF	large electric generating facility
micrositing	the process in which the wind resources, potential environmentally sensitive areas, soil conditions, and other site factors, as identified by local, state and federal agencies, are evaluated to locate wind turbines and associated facilities
Minn. R.	Minnesota Rules
MISO	Midcontinent Independent System Operator, Inc.
MNDNR	Minnesota Department of Natural Resources
MN/DOT	Minnesota Department of Transportation
MW	megawatt
MWh	megawatt-hour
NEER	NextEra Energy Resources, LLC
O&M	operation and maintenance
PPA	power purchase agreement
Project	Walleye Wind Project
PWP	Permanent Wetland Preserves
RES	Renewable Energy Standard
rotor	three blades mounted to a rotor hub
RD	rotor diameter; diameter of the rotor from the tip of a single blade to the tip of the opposite blade
SHPO	Minnesota State Historic Preservation Office
SPCC	spill prevention, control, and countermeasure
step-up transformer	a transformer that increases voltage
USFWS	U.S. Fish and Wildlife Service
WCS	wildlife conservation strategy

Rule	Required Information	Application Section(s)	Exemption
7849.0120	**Criteria – Probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, the applicant's customers, or to the people of Minnesota and neighboring states**	5.1	--
A(1)	Accuracy of the applicant's forecast	5.1, 7.0	No
A(2)	Effects of applicant's existing or expected conservation programs and state and federal conservation programs	5.1, 9.0	No
A(3)	Effects of promotional practices on demand	5.1, 6.3.1.11	No
A(4)	Ability of current and planned facilities, not requiring certificates of need, to meet future demand	5.1, 6.2.4.5	No
A(5)	Effect of proposed facility in making efficient use of resources	5.1	No
7849.0120	**Criteria – A more reasonable and prudent alternative has not been demonstrated**	5.2	--
B(1)	Appropriateness of size, type, and timing	5.2.1	No
B(2)	Cost of facility and its energy compared to costs of reasonable alternatives	5.2.2	No
B(3)	Effects of the facility upon natural and socioeconomic environments compared to the effects of reasonable alternatives	5.2.3	No
B(4)	Expected reliability compared to reasonable alternatives	5.2.4	No
7849.0120	**Criteria – Facility will provide benefits to society**	5.3	--
C(1)	Relationship of proposed facility to overall state energy needs	5.3.1	No
C(2)	Effects of facility upon the natural and socioeconomic environments compared to the effects of not building the facility	5.3.2	No
C(3)	Effects of facility in inducing future development	5.3.3	No
C(4)	Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	5.3.4	No
D	Facility or suitable modification will not fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments	5.4	No
7849.0210	**Filing Fees and Payment Schedule**	2.0	No
7849.0240	**Need Summary and Additional Considerations**	4.0	--
Subp. 1	Need Summary – summary of major factors justifying need for facility	4.1	No
Subp. 2(A)	Additional Considerations – Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	4.2.1	No
Subp. 2(B)	Additional Considerations – Promotional activities that may have given rise to the demand for the facility	4.2.2	Partial

Rule	Required Information	Application Section(s)	Exemption
Subp. 2(C)	Additional Considerations – Effects of the facility in inducing future development	4.2.3	No
7849.0250	**Proposed LEGF and Alternatives Application**	6.0	--
A(1)	Description – Nominal generating capability and effects of economies of scale on facility size and timing	6.1.1	No
A(2)	Description – Anticipated operating cycle, including annual capacity factor	6.1.2	No
A(3)	Description – Type of fuel, reason for selection, projection of availability over life of facility, and alternative fuels	6.1.3	No
A(4)	Description – Anticipated heat rate	6.1.4	No
A(5)	Description – Anticipated areas where facility will be located	6.1.5	No
B(1)	Discussion of Alternatives – Purchased power	6.2.1	Yes
B(2)	Discussion of Alternatives – Increased efficiency of existing facilities	6.2.2	Partial
B(3)	Discussion of Alternatives – New transmission lines	6.2.3	Partial
B(4)	Discussion of Alternatives – New generating facilities of a different size and energy resource	6.2.4	Partial
B(5)	Discussion of Alternatives – Reasonable combination of alternatives	6.2.5	Partial
C	Proposed Facility and Alternatives	6.3	--
C(1)	Capacity cost in current dollars per kilowatt	6.3.1.1	Yes - Limited
C(2)	Service life	6.3.1.2	Yes - Limited
C(3)	Estimated average annual availability	6.3.1.3	Yes - Limited
C(4)	Fuel costs in current dollars per kilowatt hour	6.3.1.4	Yes - Limited
C(5)	Variable operating and maintenance costs in current dollars per kilowatt hour	6.3.1.5	Yes - Limited
C(6)	Total cost in current dollars of a kilowatt hour provided by it	6.3.1.6	Yes - Limited
C(7)	Estimate of its effect on rates system-wide and in Minnesota	6.3.1.7	Partial
C(8)	Efficiency, expressed for a generating facility as the estimated heat rate	6.3.1.8	Yes - Limited
C(9)	Majoring assumptions made in providing information in subitems (1) to (8), including projected escalation rates for fuel costs and operating and maintenance costs, as well as projected capacity factors	6.3.1.9	Yes - Limited
D	System Map	6.3.1.10	Partial
E	Other relevant information about the facility and alternatives that may be relevant to a determination of need	--	

Rule	Required Information	Application Section(s)	Exemption
7849.0270	**Peak Demand and Annual Consumption Forecast**	7.0	Partial
7849.0280	**System Capacity**	8.0	Partial
7849.0290	**Conservation Programs**	9.0	Partial
7849.0300	**Consequences of Delay**	10.0	Partial
7849.0310	**Environmental Information – Provide environmental data in response to part 7849.0250, Item C, or 7849.0260, Item C, and information as requested in part 7849.0320 to 7849.0340**	11.0	No
7849.0320	**Generating Facilities**	12.0	No
A	Estimated range of land requirements, including water storage, cooling systems, and solid waste storage	12.1	No
B	Estimated amount of vehicular, rail, and barge traffic generated by construction and operation of facility	12.2	No
C	Fossil-fuel facilities – Fuel	12.3.1	No
D	Fossil-fuel facilities – Emissions	12.3.2	No
E	Water Use for Alternate Cooling Systems	12.4	No
F	Sources and types of discharges to water	12.5	No
G	Radioactive releases	12.6	No
H	Types and quantities of solid wastes in tons/year	12.7	No
I	Sources and types of audible noise attributable to facility operation	12.8	No
J	Estimated work force required for facility construction and operation	12.9	No
K	Minimum number and size of transmission facilities required to provide a reliable outlet for the generating facility	12.10	No
7849.0330	**Transmission Facilities**	--	Yes
7849.0340	**No-Facility Alternative**	6.2.4.7	Partial

1.0 INTRODUCTION

Walleye Wind, LLC (Walleye Wind or Applicant) respectfully submits this application for a certificate of need (CON) to the Minnesota Public Utilities Commission (Commission) in accordance with Minnesota Statutes (Minn. Stat.) § 216B.243 and Minnesota Rules (Minn. R.) Chapter 7849.

Walleye Wind is a wholly-owned indirect subsidiary of NextEra Energy Resources, LLC (NEER). NEER is a global leader in development and operation of renewable energy resources, with a total generating capacity of 15,000 megawatts (MW) of wind generation in operation as of January 1, 2020. Although the Applicant does not own or have a direct financial interest in any other Large Wind Energy Conversion Systems located in Minnesota, NEER has indirect ownership and financial interests in: (1) the 98.2 MW Mower County Wind facilities in Mower County; (2) the 62.25 MW Marshall Solar facilities in Lyon County; (3) the proposed 170 MW Dodge County Wind facilities in Dodge and Steele counties; (4) the proposed 109 MW Buffalo Ridge Wind facilities in Lincoln County; and (5) several battery storage and distributed generation solar projects throughout the state.

1.1 The Walleye Wind Project

Walleye Wind respectfully requests that the Commission issue a CON for the approximately 109.2 MW Walleye Wind Project (the Project).[1] The Project is a "large energy facility" as defined in Minn. Stat. § 216B.2421, subd. 2(1).

Walleye Wind is an independent power producer (IPP) that will develop, construct, own, and operate the Project. The Project includes turbines, a project collector substation, collection lines, an operation and maintenance (O&M) building, a permanent meteorological (MET) tower, and gravel access roads. The Project site is located on 31,095 acres (49 square miles) Rock County in southwestern Minnesota, west of the City of Luverne.

The Project's 109.2MW capacity will be generated using no more than 40 wind turbines. The total capacity will be generated using a combination of three potential General Electric (GE) models including: the 2.82 MW, 114-meter hub height turbine; the 2.82 MW, 89-meter hub height turbine; and the safe harbor 2.32 MW, 80-meter hub height turbine.

The turbine layout submitted in the July 2020 Application included 51 prospective turbine locations; the three locations that were removed included a turbine designated as primary. The turbine layout submitted in this Application amendment spatially matches the July 2020 Application, including the terms primary and alternate. The current preliminary turbine layout includes 6 alternative wind turbines locations utilizing the same potential turbine models. A

[1] Walleye Wind will also be requesting a Site Permit related to the Project.

maximum of 40 wind turbines are proposed for construction, with the inclusion of the alternative locations to provide for flexibility in the event development or constructability issues are encountered.

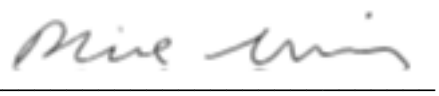
Walleye Wind has entered into a power purchase agreement (PPA) with Minnesota Municipal Power Agency (MMPA). In the PPA, MMPA agreed to purchase the full output of the Project for a 30-year term. The Project, as a generator of wind energy, qualifies as an "eligible energy technology" for the purposes of the Minnesota Renewable Energy Standard (RES), as set forth in Minn. Stat. § 216B.1691, and, therefore, will serve as a significant renewable generation addition to assist MMPA in meeting and exceeding its RES requirements, in addition to its own voluntary renewable energy goals.

1.2 Project Contacts

The authorized representatives for the Applicant are:

Mike Weich
Project Director, Development
NextEra Energy Resources, LLC
700 Universe Blvd
Juno Beach, FL 33408
Mike.Weich@nexteraenergy.com
(561) 694-3987

Brian Murphy
Managing Attorney
NextEra Energy Resources, LLC
700 Universe Blvd
Juno Beach, FL 33408
Brian.J.Murphy@nexteraenergy.com
(561) 694-3814



November 3, 2020

2.0 FEES AND PAYMENT SCHEDULE (MINN. R. 7849.0210)

Table 1. Certificate of Need Application Schedule of Payments

Fee Calculation	Amount
Fee Calculation Equation	$10,000 + ($50×MW)
Due with CON Application	$3,893.75
Due 45 Days after Application Submittal Date	$3,893.75
Due 90 Days after Application Submittal Date	$3,893.75
Due 135 Days after Application Submittal Date	$3,893.75
Total Calculated Fee	**$15,575**

3.0 FILING REQUIREMENT EXEMPTION REQUEST

Minn. R. Ch. 7849 permits applicants to request exemptions from filing requirements that are not applicable to a project. Specifically, an applicant may be exempted from providing certain information if the applicant requests an exemption in writing that shows that the data requirement is either unnecessary to determine the need for the proposed facility or may be satisfied by submitting another document. Minn. R. 7849.0200, subp. 6.

On February 2, 2020, Walleye Wind filed with the Commission a request for exemptions from certain CON filing requirements based on Walleye Wind's status as an IPP. This request is included with this application as **Appendix A**. On April 8, 2020, the Commission issued an Order (attached as **Appendix B**) granting the following requested exemptions from the CON filing requirements:

1. Granted exemptions to the following Minnesota Rules conditioned upon Walleye Wind providing equivalent data from MMPA:

    - 7949.0240, subp. 2 (B): Promotional Activities;
    - 7849.0250 (B) (2), (3), and (5): Description of Certain Alternatives;
    - 7849.0250 (C) 7: Effect of Project on Rates Systemwide;
    - 7849.0270: Peak Demand and Annual Consumption Forecast;
    - 7849.0280: System Capacity;
    - 7849.0290: Conservation Programs;
    - 7849.0300: Consequences of Delay; and
    - 7849.0340: No-Facility Alternative.

2. Granted a partial exemption to the following Minnesota Rules such that the information to be provided is limited to renewable alternatives or the scope of the Project:

    - 7849.0250 (B) (4): Description of Certain Alternatives (New Generating Facilities of a Different Size or Source);
    - 7849.0250 (C) (1) to (6), (8), and (9): Details Regarding Alternatives; and
    - 7849.0250 (D): Map of Applicant's System.

3. Approved the following exemptions as requested:
    - 7849.0250 (B) (1): Description of Certain Alternatives (Purchased Power); and
    - 7849.0330: Transmission Alternatives.

4.0 NEED SUMMARY AND ADDITIONAL CONSIDERATIONS (MINN. R. 7849.0240)

4.1 Need Summary (Minn. R. 7849.0240, subpart 1)

The Project is needed to assist in providing electricity for MMPA's members and to further MMPA's efforts to exceed the Minnesota RES and other clean energy requirements. As background, the Next Generation Energy Act of 2007 requires that utilities in Minnesota provide 25% of their total retail electric sales from eligible renewable resources by 2025.[2] Additionally, the Minnesota legislature has specified aggressive goals for the reduction of greenhouse gas emissions across all sectors, including the electric sector. The legislature's specific goal is to "reduce statewide greenhouse gas emissions across all sectors producing those emissions to a level at least 15 percent below 2005 levels by 2015, to a level at least 30 percent below 2005 levels by 2025, and to a level at least 80 percent below 2005 levels by 2050".[3] Between the RES and state greenhouse gas emission reduction goals, additional renewable resources will continue to be needed in Minnesota. Therefore, the Project will serve to meet this broader legislative need as well as the specific electricity and renewable energy needs of MMPA.

4.2 Additional Considerations (Minn. R. 7849.0240, subpart 2)

4.2.1 Socially Beneficial Uses of the Output

The Project will produce affordable, clean, renewable energy that will help MMPA to: (1) exceed its RES requirements; (2) meet the energy demands of its members; and (3) further the state's goals of reducing carbon emissions. The Project will produce enough clean, renewable energy to meet the full electrical needs of approximately 25,000 Minnesota households annually. In addition, as described in greater detail below, the local economy will benefit from the landowner lease payments for turbines, production taxes, the income from temporary and permanent jobs associated with the Project, and local spending.

4.2.2 Promotional Activities that May Have Given Rise to the Demand for the Facility

Walleye Wind was granted an exemption from the requirement of Minn. R. 7849.0240, subp. 2(B), conditioned on MMPA providing equivalent data on its promotional activities. MMPA, however, has indicated that it has conducted no promotional activities associated with the Project, and, therefore, there is no information to submit.

4.2.3 Effects of the Facility on Inducing Future Development

The Project is not expected to directly induce development in Rock County. However, the Project will positively impact the County by adding infrastructure, temporary and permanent jobs,

[2] Minn. Stat. § 216B.1691.
[3] Minn. Stat. § 216H.02, subd. 1.

increasing the counties' tax base, and providing lease payments to Project participants. For example, landowners involved in the Project will benefit from annual lease payments. The Project will pay a Wind Energy Production Tax to the local units of government of $0.0012 per kilowatt-hour (kWh) of electricity produced. This would result in an annual Wind Energy Production Tax ranging from approximately $80,000 to $600,000 in the first year, and between $400,000 and $600,000 annually after the first year in Rock County. During the first year, energy production taxes may not be maximized due to partial energy generation during the startup months when the facility is not running at optimal capacity and may also only include a partial calendar year of energy production.

In addition, communities near the Project are also expected to receive positive economic benefits as construction will necessitate the need for temporary and full-time positions. During construction of the Project, approximately 150 to 185 temporary construction personnel will be required. Over the duration of construction (approximately 5-7 months), these personnel will abide in or around Rock County. During the operations phase of the Project, which is expected to be 30 years, approximately 4 permanent O&M staff will support Project operations locally.

5.0 CERTIFICATE OF NEED CRITERIA (MINN. R. 7849.0120)

The Commission has established criteria to assess the need for a large electric generating facility (LEGF) in Minn. R. 7849.0120. The Commission must grant a CON to an applicant upon determining that:

> A. [T]he probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states;
>
> B. [A] more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record;
>
> C. [B]y a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health; and
>
> D. [T]he record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

5.1 The Probable Result of Denying the Walleye Wind CON Application Would Be an Adverse Effect on the Future Adequacy, Reliability, or Efficiency of Energy Supply (Minn. R. 7849.0120(A))

The Project is needed to help meet the electricity needs of MMPA's members and assist MMPA in its efforts to exceed the Minnesota RES and other clean energy requirements. Denying the application would deny MMPA energy from a clean, low-cost renewable resource that would count toward exceeding its RES requirements and which MMPA has contracted for under the PPA.

The Project is the result of Walleye Wind and MMPA working together to bring additional renewable energy to MMPA's members. As noted in its 2018 Integrated Resource Plan (IRP), MMPA has been working with NEER to secure competitively priced renewable wind generation for its members.[4] This coordination has led to MMPA's execution of the PPA with Walleye Wind in which MMPA has agreed to purchase the full output of the Project for a 30-year term. MMPA's commitment to renewable energy and surpassing its RES requirements is supported by its 12 municipal utility members. These members serve approximately 74,000 retail customers in

[4] MMPA 2019-2033 Integrated Resource Plan, Docket No. ET-6133/RP-18-524 at 38-39 (July 30, 2018), *available at:* https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={2029F264-0000-C620-8B7E-92CF842B03A7}&documentTitle=20187-145424-02.

Minnesota with a combined population of approximately 160,000.[5] Denial of this application, therefore, would reduce the amount of renewable energy made available to MMPA's members.

The Project's ability to reliably and efficiently deliver wind energy also advances the goal of adding zero-carbon generation resources to Minnesota's energy mix in keeping with the state's long-term plans to reduce greenhouse gas emissions, as discussed in **Section 4.1**.

Accordingly, the Project will improve the adequacy, reliability, and efficiency of renewable wind energy supply to MMPA and its member utilities; assist MMPA in exceeding its RES requirements; and advance Minnesota's long-term plans to reduce greenhouse gas emissions statewide. Without the Project, both MMPA and electric customers in Minnesota would need to identify alternative renewable resources to meet these needs.

5.2 A More Reasonable and Prudent Alternative to the Project Has Not Been Demonstrated (Minn. R. 7849.0120(B))

Minn. R. 7849.0120(B) requires a CON applicant to examine possible project alternatives so that the Commission can determine whether a more reasonable and prudent alternative exists. Applying the factors set forth in Minn. R. 7849.0120(B), the Project has many advantages when compared to other renewable alternatives.

5.2.1 Size, Type, and Timing

The Project is intended to help satisfy the RES needs of MMPA and the state's carbon reduction goals, which can only be satisfied by eligible energy technologies that will reduce carbon emissions. In recognition of this limitation, the Commission granted Walleye Wind an exemption from Minn. R. 7849.0250(B) with respect to evaluating fossil fuel alternatives because such alternatives do not meet the Project's objective of providing energy to MMPA that will satisfy the RES and other clean energy standards. Of the remaining eligible technologies, wind energy is the most proven and low-cost resource at the size contemplated for the Project (approximately 109.2 MW), and a resource that can be in commercial operation by the fourth quarter of 2021. Therefore, the type of resource, a wind generation facility, is appropriate to help exceed MMPA's RES requirements and the transition of the production of energy to zero-based emissions. Similarly, the size and timing of the development of the Project is congruent with MMPA's stated needs over the planning period in its last resource plan and advances the clean energy goals of Minnesota.

5.2.2 Cost Analysis

The Project will provide renewable electricity to MMPA at a cost that is likely lower than other renewable technologies. The PPA associated with Walleye Wind is the result of an arms-length negotiation between MMPA and Walleye Wind, and, thus, the price and other terms were attractive to MMPA given its needs. Also, the Project will likely generate electricity at a lower cost per

[5] *Id.* at 3.

kilowatt hour than would other possible renewable energy options, such as solar and biomass. Therefore, the Project will provide competitively-priced wind energy at a lower-cost than other renewable energy resource alternatives.

5.2.3 Potential Natural and Socioeconomic Impacts

The Project's generation of a renewable form of energy will provide significant natural and societal benefits. As a zero-emission energy resource, the Project has significant positive attributes on the natural environment when compared to fossil generating plants. For example, the Project will not discharge air pollutants that can affect the environment, such as particulate matter, mercury, or carbon dioxide. During operations, the Project will also not need valuable water resources to generate electricity and will not release pollutants into any water body. The land area impacted by the Project is also significantly less than other renewable technologies such as solar. While the Project site encompasses approximately 31,095 acres, only an average 1.32 acres of land per turbine will be taken out of agricultural production for the siting of turbine pads and access road construction. Also, landowners may continue to plant crops near, and graze livestock up to, the turbine pads. In addition, as a renewable natural resource, wind power does not require the extraction, processing, or combustion of fuel as does a fossil fuel plant or biomass facility. Walleye Wind has sought input from the Minnesota Department of Natural Resources (MNDNR), the Minnesota State Historic Preservation Office (SHPO) and the U.S. Fish and Wildlife Service (USFWS) to assist with the design of the Project in order to minimize any potential impact on cultural resources, birds, bats, and wildlife habitat.

From a socioeconomic impact, the Project will provide benefits to participating landowners in the form of a supplementary source of income for easements to site wind turbines and obtain wind rights. Changes in agricultural equipment maneuvering routes around turbine structures will be required, but this maneuvering should only have a nominal effect on overall production.

During construction of the Project, approximately 150 to 185 temporary construction personnel will be required. Over the duration of construction (approximately 5-7 months), these personnel will abide in or around Rock County. During the operations phase of the Project, which is expected to be 30 years, approximately 4 permanent O&M staff will support Project operations locally. Wages and salaries paid to contractors and workers will contribute to the total personal income of the region. At least part of the wages paid to temporary and permanent Project workers will be circulated and recirculated within the counties and the state. Expenditures made by the Applicant for equipment, fuel, operating supplies, and other products and services will also benefit businesses in the counties and the state.

Moreover, the communities near the Project are also expected to receive positive economic benefits as construction will necessitate the need for numerous temporary and full-time positions that include good-paying jobs which help develop a skilled clean-energy workforce.

Also, as mentioned, the county's tax base will increase as a result of the Project approximately $400,000 and $600,000 annually after the first year in Rock County.

5.2.4 Reliability

The projected annual net capacity factor for the Project is expected to be approximately 40.7% – 48.1%. The projected average annual output of approximately 431,947 megawatt-hours (MWh) is anticipated for the Project.

5.3 The Project Will Provide Benefits to Society in a Manner Compatible with Protecting the Natural and Socioeconomic Environments (Minn. R. 7849.0120(C))

Minn. R. 7849.0120(C) requires a CON applicant to address whether the proposed project will benefit society in a manner that is compatible with protecting the natural and socioeconomic environments, including human health. The following application of the factors set forth in Minn. R. 7849.0120(C) shows the energy produced by the Project will provide significant societal benefits.

5.3.1 Overall State Energy Needs

As explained in **Section 5.1** above, the Project addresses two state energy needs: (1) the RES requirement and (2) the reduction in statewide carbon emissions. Thus, the Project is compatible with Minnesota's energy needs.

5.3.2 Potential Environmental and Socioeconomic Impacts Compared to No-Build Alternative

As explained in **Section 5.2.3**, the Project provides significant socioeconomic benefits while minimizing the impact on the natural environment. A no-build alternative would not provide these same socioeconomic benefits to the local community, and, also, would not provide the benefit of increasing the amount of renewable energy generation in the state. Therefore, the Project has significant socioeconomic and other benefits and minimal impact on the environment in comparison to a no-build alternative.

5.3.3 Inducing Future Development

The Project is not expected to directly induce development in Rock County. As described in **Section 5.2.3**, the Project will, however, provide significant benefits to the local economy and local landowners, which, in turn, may induce future development in the County.

5.3.4 Socially Beneficial Uses of Output

The Project will produce affordable, clean renewable energy that will help MMPA to meet and exceed its RES requirements and the energy demands of its members and will further the state's goals of reducing carbon emissions. The Project will produce enough energy to meet the energy

needs for approximately 25,000 average Minnesota households annually. In addition, as described above, the local economy will benefit from the landowner lease payments for turbines, production taxes, income from the additional jobs created, and local spending.

5.4 The Project Complies with Relevant Policies, Rules, and Regulations of Other State and Federal Agencies and Local Governments (Minn. R. 7849.0120(D))

5.4.1 The Project Is Consistent with Minnesota Energy Policy

As explained, the Project is consistent with Minnesota's energy policies for the production of electricity, including the RES, preference for renewable energy sources, and goals to reduce carbon emissions. With respect to the reduction of carbon emissions, the state's goal is to reduce statewide greenhouse gas emissions across all sectors producing those emissions to a level at least 30% below 2005 levels by 2025 and to a level at least 80% below 2005 levels by 2050. Adding the Project is consistent with meeting these goals.

Minnesota remains committed to achieving its current renewable energy goals and expanding those goals for the future. In March 2019, Governor Tim Walz and Lieutenant Governor Peggy Flanagan announced their One Minnesota Path to Clean Energy – a set of policy proposals intended to lead Minnesota to 100 percent clean energy in the state's electricity sector by 2050.[6]

Further support for the conclusion that the Project is consistent with state energy policy can be found in the favorable tax treatment for wind energy facilities. The state legislature has exempted all real and personal property of a wind energy conversion system from property taxes. A wind energy conversion system, as well as the materials used to manufacture, install, construct, repair, or replace the wind system are also exempt from state sales tax.

5.4.2 The Project Is Consistent with Applicable Minnesota Statutory Provisions

Minnesota law provides a preference for renewable resources. Minn. Stat. § 216B.243, subd. 3a provides a preference for renewable resources in CON proceedings. Additionally, Minn. Stat. § 216B.2422, subd. 4 requires a finding that a renewable energy resource is not in the public interest before approving a new or refurbished nonrenewable energy facility. The Project is consistent with Minnesota's preference for renewable energy and satisfies these statutory criteria by furthering available resources to meet this renewable energy preference.

5.4.2.1 Distributed Generation

Pursuant to Minnesota Statutes § 216B.2426, the Commission is required to "ensure opportunities for the installation of distributed generation" are considered in CON proceedings. Distributed generation projects are less than 10 MW in size, and, therefore, do not offer the same economies

[6] *Walz, Flanagan propose plan to achieve 100 percent clean energy in Minnesota by 2050*, Newsroom, Office of Governor Tim Walz & Lt. Governor Peggy Flanagan (March 4, 2019), *available at*: https://mn.gov/governor/news/?id=1055-374280.

of scale and efficiencies as a utility-scale facility like the Project. Thus, the Project is more appropriately sized to achieve the state's renewable energy policies efficiently and in a cost-effective manner.

5.4.2.2 Innovative Energy Preference

Minnesota also requires the Commission to consider an innovative energy project before authorizing construction or expansion of a fossil-fueled generation facility. Minn. Stat. § 216B.1694, subd. 2(a)(5). Because the Project is not a fossil-fuel facility, this requirement is not applicable.

5.4.2.3 Environmental Cost Planning

Minn. Stat. § 216B.243, subd. 3(12) requires the Commission to evaluate the extent to which an applicant has considered the risk of environmental costs and regulation. This statute, however, does not apply to renewable generation facilities such as the Project.[7]

5.4.2.4 Transmission Planning Compliance

Minn. Stat. § 216B.243, subd. 3(10) requires consideration of whether the entity seeking a CON is in compliance with applicable provisions of Minn. Stat. §§ 216B.1691 and 216B.2425, subd. 7. These statutes involve compliance with the state's renewable energy objectives and reporting requirements for owners of existing transmission and distribution. Neither statute is applicable to Walleye Wind. While the Project supports the state's renewable energy objective by providing renewable energy to a retail provider in the state, Walleye Wind, as an IPP, is not itself subject to these requirements since it does not own existing transmission and distribution infrastructure.

5.4.3 The Project Is Consistent with Federal Energy Policy

The Project is consistent with federal energy policy in that it provides a domestically produced form of carbon-free energy. In a July 2018 report, the Congressional Research Service recognized the decades-old overarching federal policy of reducing dependence on foreign sources of energy and embracing domestic sources of renewable forms of energy, stating as follows:[8]

> Recognition of the implications of dependence on foreign sources of energy, coupled with concerns over the volatility of prices driven by fluctuations in supply spurred by world events, prompted federal efforts to increase U.S. energy independence and reduce domestic consumption. A major result has been the establishment of a number of programs focused on energy efficiency and conservation of domestic resources and on research programs that target the

[7] *Elm Creek*, Docket No. IP6631/CN-07-789, Commission Order Granting Certificate of Need at 12 (Jan. 15, 2008).
[8] *Renewable Energy and Energy Efficiency Incentives: A Summary of Federal Programs*, Congressional Research Service (July 11, 2018), *available at: https://fas.org/sgp/crs/misc/R40913.pdf.*

development of renewable sources of energy. Many of these programs have roots going back almost 40 years and have been redesigned many times over that period.

Since 2005, Congress has enacted several major energy laws: (1) the Energy Policy Act of 2005; (2) the Energy Independence and Security Act of 2007; (3) the Energy Improvement and Extension Act, enacted as Division B of the Emergency Economic Stabilization Act; and (4) the American Recovery and Reinvestment Act. Each of those laws established, expanded, or modified energy efficiency and renewable energy research, development, demonstration, and deployment programs.[9] The Project advances these longstanding federal policy initiatives.

5.4.4 The Project Complies with Federal, State, and Local Environmental Regulation

The Project will meet or exceed the requirements of all applicable federal, state, and local environmental laws and regulations. **Table 2** lists the approvals the Project may need from applicable governmental entities. Walleye Wind is committed to obtaining all necessary environmental and other approvals required under federal, state, and local requirements.

Table 2. List of Approvals and Consultations

Regulatory Authority	Permit/Approval
FEDERAL	
Federal Aviation Administration (FAA)	• Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard) • Form 7460-2 Notice of Actual Construction or Alteration
Federal Communications Commission (FCC)	• Non-Federally Licensed Microwave Study
U.S. Army Corps of Engineers	• Clean Water Act § 404 Permit (if needed) • Wetland Delineation Approvals
U.S. Fish and Wildlife Service	• Informal consultation under Section 7 of the Endangered Species Act
Environmental Protection Agency (Region 5) in Coordination with the Minnesota Pollution Control Agency	• Spill Prevention Control and Countermeasure (SPCC) Plan
STATE	
Minnesota Public Utilities Commission	• Site Permit for Large Wind Energy Conversion System • Certificate of Need for Large Wind Energy Conversion System
Minnesota Department of Labor and Industry	• Electrical Plan Review, Permits, and Inspections

[9] *See id.*

Regulatory Authority	Permit/Approval
Minnesota Historical Society	• Informal coordination through State Historic Preservation Office – State and National Register of Historical Sites review
Minnesota Pollution Control Agency	• National Pollutant Discharge Elimination System/State Disposal System Permit– General Storm Water Permit for Construction Activity • SPCC Plan • Clean Water Act Section 401 Water Quality Certification and Antidegradation Assessment (if needed)
Minnesota Department of Health	• Plumbing Plan Review (if needed) • Water Well Permit
Minnesota Department of Natural Resources	• General Permit for Water Appropriations, Dewatering (if needed) • License to Cross Public Lands and Waters (if needed) • Endangered Species Statutes – Permits and Coordination • Avian and Bat Protection Plan Coordination • Public Water Works Permit (if needed)
Minnesota Department of Transportation (MnDOT)	• Oversize/Overweight Permit for State Highways • Access Driveway Permits for MnDOT Roads • Tall Structure Permit • Utility Access Permit
Office of the State Archaeologist	• Informal Coordination for archeological resources and sites
LOCAL	
Rock County	• Zoning Permits – Conditional Use Permit • Land Use Permits - Building Permits • Interim Use Permits • Roadway Access Permits • Drainage Permits • Working in ROW Permits • Overweight/Over-Dimension Permits • Utility Permits • Floodplain Permit or Shoreland District Permitting • WCA Approval
Townships (Beaver Creek, Springwater, Mound, Luverne, Martin, Clinton)	• Right-of-way Permits for Construction and Electrical Collection System • Crossing Permits • Road Access Permits
OTHER	

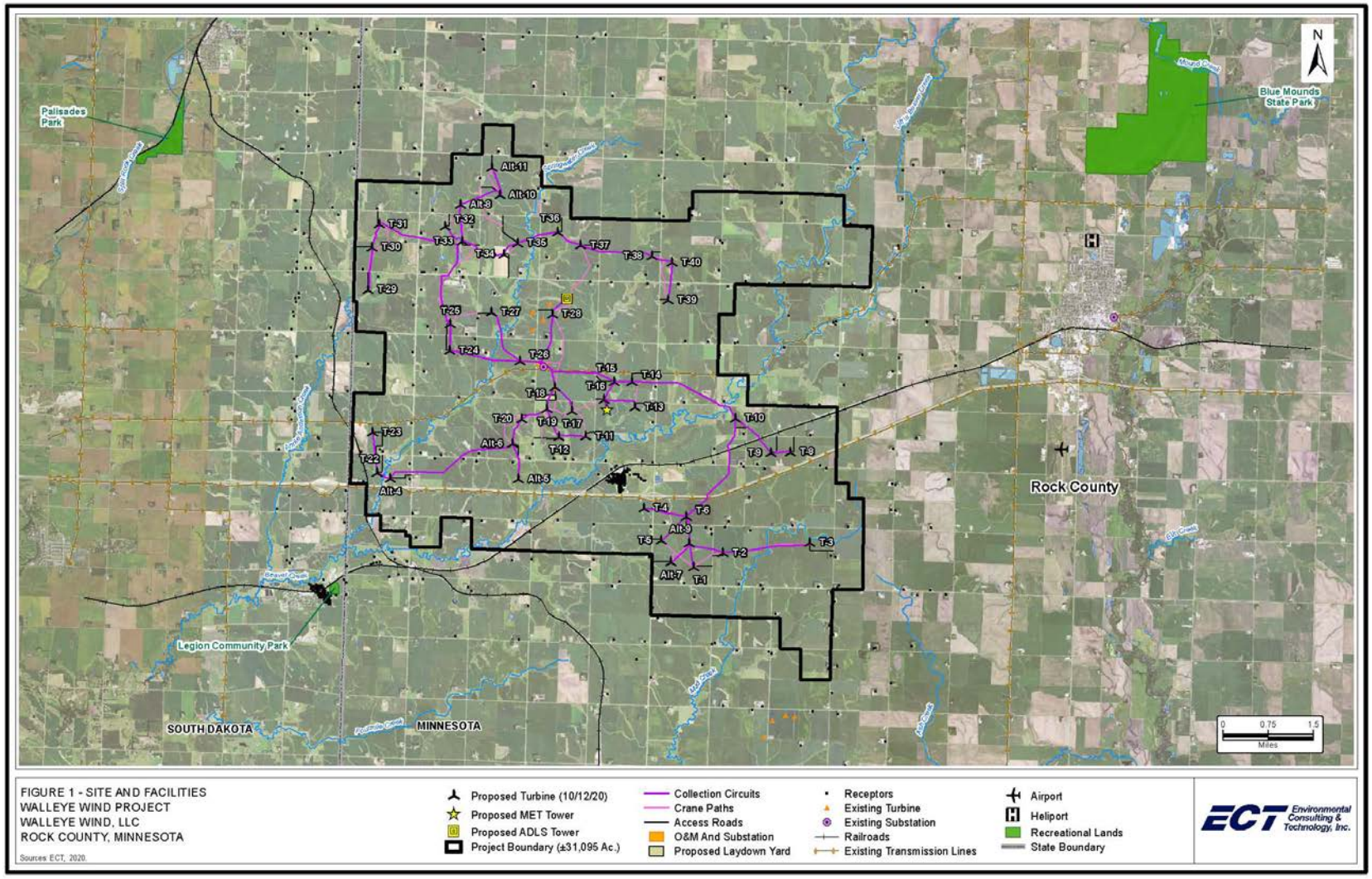
Regulatory Authority	Permit/Approval
Midcontinent Independent System Operator	• Generator Interconnection Agreement

6.0 DESCRIPTION OF LEGF AND ALTERNATIVES (MINN. R. 7849.0250)

6.1 Proposed Project (Minn. R. 7849.0250(A))

The Project will consist of an array of no more than 40 wind turbines. The turbines will be located in Rock County located in southwestern Minnesota, west of the City of Luverne, near the South Dakota/Minnesota border. The total capacity will be generated using a combination of three potential GE models including the 2.82 MW, 114-meter hub height turbine; the 2.82 MW, 89-meter hub height turbine; and the safe harbor 2.32 MW, 80-meter hub height turbine. The GE 2.32 MW turbine model has a 116.5-meter (382-foot) rotor diameter (RD) and a hub height of 80 meters (262.5 feet), one GE 2.82 MW turbine model has a 127.2-meter (417-foot) RD and a hub height of 114 meters (374.0 feet), and the second GE 2.82 MW turbine model has a 127.2-meter (417-foot) RD and a hub height of 89 meters (292 feet). Each of the Project's turbines will have a step-up transformer pad-mounted outside at the base of unit. Energy from the turbines will be routed through underground electrical collection systems that will deliver power to the Project's collector substation. This power will be stepped up at the Project's collector substation from the collection line voltage of 34.5 kV to the interconnection voltage of 161 kV. In all, the Project facilities include turbines, collection lines, a collector substation, an O&M facility, a construction laydown yard, crane paths, gravel access roads, a meteorological MET tower, and a generation tie line connecting to an existing substation. A map showing the Project is provided below in **Figure 1**.

Figure 1. Project Layout



6.1.1 Nominal Generating Capacity and Effect of Economies of Scale (Minn. R. 7849.0250(A)(1))

The total nominal generating capacity of the Project is approximately 109.2 MW. The Project size produces economies of scale gains in procurement, construction, O&M, and interconnection costs compared to a smaller project. For example, mobilization costs for delivery of turbines and construction of the Project are lower on a per-turbine basis than they would be for a smaller wind project with fewer turbines. The result of gains in the economics of scale is a lower cost of production for electricity.

6.1.2 Annual Capacity Factor (Minn. R. 7849.0250(A)(2))

The projected annual net capacity factor for the Project is approximately 40.7% - 48.19% annually. The projected average annual output of approximately 431,947 MWh is anticipated for the Project.

6.1.3 Fuel (Minn. R. 7849.0250(A)(3))

The fuel for the Project is wind.

6.1.4 Anticipated Heat Rate (Minn. R. 7849.0250(A)(4))

Heat rates are specific to fossil generation, and, therefore, are not applicable to a wind generation facility.

6.1.5 Facility Location (Minn. R. 7849.0250(A)(5))

The Project's turbines will be located in Rock County located in southwestern Minnesota, west of the City of Luverne, near the South Dakota/Minnesota border. The estimated size of the Project Area is approximately 31,095 acres (~49 square miles) of mostly agricultural land. The substation equipment will be installed on concrete foundations and will consist of a graveled footprint area of approximately 20,000 sq. feet. Within this area, there will be a chain link perimeter fence and an outdoor lighting system. The O&M facility will be located adjacent to the Project's collector substation where approximately 10-acres will be purchased or leased. The footprint of the O&M facility is anticipated to be approximately 3,500 sq. feet, with a fenced-in area of up to one acre.

6.2 Availability of Alternatives (Minn. R. 7849.0250(B))

Consistent with the Commission-granted partial exemption, non-renewable energy sources have been excluded from this alternatives analysis. Thus, the criteria used in this analysis includes whether: (1) the energy source is cost-effective; (2) the energy source is commercially proven and reliable for the electrical generation output needed; and (3) the energy source is appropriate for the site selected.

Developing and operating generating sources that are cost-effective and use proven technology is particularly important to an IPP like Walleye Wind. Walleye Wind does not have access to

ratepayer funds that could provide a resource for retirement of capital investments. In addition, as a seller of electricity within the terms of an agreed-upon PPA price, Walleye Wind must keep its prices – and, thus, its costs – low and competitive.

Commercial feasibility and reliability with respect to the generation output needed are important considerations in selling the power generated. Wind is a proven and reliable resource. Further, the site chosen for the Project is appropriate given the ability to achieve the approximately 41.6% - 48.8% capacity factor, while minimizing the impact to the environment and human settlement.

6.2.1 Purchased Power (Minn. R. 7849.0250(B)(1))

Walleye Wind is an IPP, and, therefore, does not purchase power. Instead, Walleye Wind will sell power to the MMPA pursuant to a PPA. As such, this data requirement is not applicable, and the Commission granted Walleye Wind an exemption.

6.2.2 Upgrades to Existing Resources (Minn. R. 7849.0250(B)(2))

Walleye Wind has no existing facilities in Minnesota. Therefore, there is no facility for Walleye Wind to improve. However, consistent with Walleye Wind's request for certain CON exemptions, Walleye Wind agreed to provide equivalent data from the purchaser of the Project's output. Since MMPA is in need of additional renewable energy, there is no potential upgrade to an existing MMPA facility suitable to produce approximately 109.2 MW of wind energy.

6.2.3 New Transmission (Minn. R. 7849.0250(B)(3))

Walleye Wind has no plans to own or operate transmission voltage level lines for the interconnection of the Project. According to MMPA, there are no transmission alternatives that would provide approximately 109.2 MW of wind energy, as only a wind generating plant can produce the approximately 109.2 MW of renewable energy contracted for in the PPA.

6.2.4 New Generating Facilities (Minn. R. 7849.0250(B)(4))

6.2.4.1 Solar Power

Solar is not an alternative to the Project. The cost and reliability of wind power continues to be more favorable than for solar power despite recent substantial reductions in cost for solar. Wind continues to be more cost-effective than solar-powered electricity and remains the lowest-cost new source of renewable energy. For example, the levelized total system cost for wind power in the EIA's Annual Energy Outlook 2020 was $36.65/MWh compared with $37.44/MWh for solar photovoltaic.[10] Also, from a land-use perspective, a MW of solar requires that more land be temporarily used for the life of the project to achieve the same number of MW. Further, as

[10] U.S. Energy Information Administration, Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2020, *available at:* https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf.

explained, crop production with the Project will not be significantly impacted, whereas for a solar facility the acres used would be taken out of use for the life of the solar plant. Thus, the Project, as a wind generating facility, has benefits over a solar facility.

6.2.4.2 Hydropower

There has been very little increase in the use of hydropower in Minnesota since 2005. The use of hydropower increased from 774,729 MWh in 2005 to 849,054 MWh in 2015, an increase of less than 10% over that 10-year period.[11] In that same time period, electricity generated from wind power increased more than 517%.[12] According to the 2016 Quad Report, the reason for the minimal investment in hydroelectric power is likely due to the "[c]osts of maintaining and operating dams compared to other sources of energy. . . as well as increased concern about the potential negative effect dams can have on Minnesota's river ecosystems." Finally, hydropower facilities of the same size as the Project do not qualify under the RES, and, thus, do not meet the objective of the Project. Therefore, hydropower is not an alternative to the Project.

6.2.4.3 Biomass

Minnesota communities do have accessible and low-value biomass feedstocks. However, the cost of these feedstocks vary widely, and the unsubsidized levelized cost of energy from biomass tends to be much greater than that of wind. Further, the environmental impacts of a biomass facility may be greater than the Project, due to both the facility itself and the machinery and equipment needed to gather and transport the biomass fuel. For these reasons, a biomass plant is not an alternative to the Project.

6.2.4.4 Emerging Technologies

Emerging renewable power technologies continue to be developed. These technologies are not sufficiently mature to provide the output needed or to be cost-effective and reliable.

Pumped Storage

The proposed site in Rock County is not suited to pumped storage, because of the need to store large amounts of water in an elevated reservoir. In addition, there is currently no net generation from pumped storage in Minnesota. Therefore, this technology is not an alternative to the Project.

Compressed Air

[11] Minnesota Department of Commerce, Energy Policy and Conservation Quadrennial Report 2016 at 28 (the 2016 Quad Report) available at: http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwivscvd09jbAhWOrVkKHRYyDv8QFggnMAA&url=http%3A%2F%2Fmn.gov%2Fcommerce-stat%2Fpdfs%2Fquad-report-2016.pdf&usg=AOvVaw1esivJ8In3md_S5ubtiO_P

[12] *Id.*

Highly specialized geological sites are needed to make use of compressed air technology. Such sites do exist, but are not located in the vicinity of the Project site. Also, this technology is not yet commercially-proven; accordingly, it is not an alternative to the Project.

Superconducting Magnets

This technology, which makes use of coils that can store electric energy, is not yet commercially-proven. Accordingly, it is not an alternative to the Project.

Hydrogen and Fuel Cells

While much research is being done regarding hydrogen and fuel cells, the technology is not yet available on a commercial scale. It is possible, however, that as research and commercial applications advance in years to come, this technology may be used to enhance other renewable technologies, such as the Project.

Table 3 provides comparative costs for the abovementioned technologies and compares them to the costs of wind generation.

Table 3. Renewable Energy Technology Costs[13]

Technology	Size (MW)	Total Overnight Cost (2019$/kW)	Variable O&M (2019$/MWh)	Variable O&M (2019$/kWh)	Fixed O&M (2019$/kW/yr)
Fuel Cells	10	7,339	0.59	0.00059	30.65
Biomass	50	4,104	4.81	0.00481	125.19
Conventional Hydropower	100	2,752	1.39	0.00139	41.63
Wind	200	1,319	0.00	-	26.22
Photovoltaic	150	1,331	0.00	-	15.19
Solar Thermal	115	7,191	0.00	-	85.03

6.2.4.5 Non-CON Facilities (Minn. R. 7849.0120(A)(4))

Under Minn. Stat. §§ 216B.2421 and 216B.243, subd. 2, and Minn. R. Ch. 7849, a CON is required for the Project because it is a "large energy facility," i.e., larger than 50 MW. As an IPP, Walleye Wind executed a PPA with MMPA following an arms-length negotiation, with MMPA determining that the Project was well-suited to meeting its renewable energy needs. Smaller facilities that do not require a CON would not be able to economically provide the amount of electricity that MMPA is seeking, and, therefore, MMPA chose the Project as the best solution for

[13] The figures in this table are taken from a report of the U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2020: Electricity Market Module* (Jan. 2020), at 6, available at: https://www.eia.gov/outlooks/aeo/assumptions/pdf/electricity.pdf.

its needs. In addition, Walleye Wind has the advantages of economies of scale, which would not be available in a smaller project.

6.2.4.6 Reasonable Combinations of Alternatives (Minn. R. 7849.0120(B)(5))

There is no combination of the aforementioned renewable alternatives that would be appropriate to consider as a substitute for the Project, because, as compared to the proposed Project, those alternatives would not produce electric output more cost-effectively or reliably than the Project.

6.2.4.7 No Facility Alternative (Minn. R. 7849.0340)

Minn. R. 7849.0340 requires an applicant to submit data for the alternative of "no facility," including a discussion of the impact of this alternative on the applicant's generation and transmission facilities, system, and operations. This rule also requires an analysis of "equipment and measures that may be used to reduce the environmental impact of the alternative of no facility." Minn. R. 7849.0340(C). Walleye Wind does not have a "system," nor does it have other generation and transmission facilities in Minnesota, and, therefore, the Commission provided a partial exemption of this requirement, conditioned upon Walleye Wind providing equivalent data from MMPA regarding a no build alternative. On this point, MMPA represents that the "no-facility" alternative would have a detrimental impact to MMPA in that the purpose of the Project is to help it address and exceed its RES requirements and provide carbon-free energy to its customers and the state. Therefore, consideration of the no facility alternative is not appropriate or warranted given the needs of MMPA and the state.

6.2.4.8 Facility Information for Alternatives Involving Construction of a Large High-Voltage Transmission Line (Minn. R. 7849.0330)

Minn. R. 7849.0330 requires the applicant to provide certain data for each alternative that would involve construction of a large high-voltage transmission line. Transmission facilities are not true alternatives to the Project, since the purpose of the Project is to increase the supply of available renewable wind energy. Access to transmission facilities beyond the point of interconnection will be arranged by the grid operator, MISO, and MMPA, as applicable. Thus, the electricity generated by the Project will be transmitted over transmission and distribution facilities owned or operated by others. For these reasons, Minn. R. 7849.0330 is not applicable, and the Commission granted Walleye Wind an exemption from this data request.

6.3 Discussion of Proposed Facility and Alternatives (Minn. R. 7849.0250(C))

The Commission granted Walleye Wind a partial exemption from Minn. R. 7849.0250(C)(1–6, 8, 9), which would require an analysis of various details pertaining to both the proposed facility and each of the alternatives discussed in response to Minn. R. 7849.0250(B). Consistent with the Commission granting Walleye Wind a partial exemption from the data requirements in Minn. R. 7849.0250(B), which limits the discussion required to only renewable alternatives, the

Commission also limited the information required under this data requirement to only those renewable alternatives discussed in response to Minn. R. 7849.0250(B)(4) that could provide electric power at the asserted level of need. As explained above, there is no such alternative. Therefore, consistent with the partial exemption, only information regarding the Project is applicable.

6.3.1 Wind Facility

6.3.1.1 Capacity Cost (Min. R. 7448.0250 C (1))

Costs for wind energy facilities are typically not expressed in terms of capacity costs. Rather, the Project will deliver energy to MMPA on an as-generated basis and will receive payment in the form of a $/kWh payment. Walleye Wind's estimated cost for the Project is $150 million, equating to approximately $1,354/kilowatt (kW).

6.3.1.2 Service Life (Minn. R. 7849.0250(C)(2))

The Project's service life of 30 years has been assumed to estimate annualized capital costs, which is based on the extensive experience of affiliates of Walleye Wind with other wind generating plants.

6.3.1.3 Estimated Average Annual Availability (Minn. R. 7849.0250(C)(3))

Walleye Wind estimates that the Project will be available approximately 80% - 90% of the year.

6.3.1.4 Fuel Costs (Minn. R. 7849.0250(C)(4))

The Project will be powered by wind, and, therefore, does not have fuel costs like fossil generation. Walleye Wind will make nominal purchases of emergency station service when the wind turbines are idle, and this station service may involve a generation mix that includes embedded fuel costs.

6.3.1.5 Variable Operating and Maintenance Costs (Minn. R. 7849.0250(C)(5))

General costs associated with project operation, maintenance, initial spare parts, operating equipment, and operating supplies will be $1.75 million the first year and average approximately $1.9 million per year over the following 29 years. An advantage of a wind energy facility the size of the Project is that it typically does not require a complete plant outage for maintenance. Individual turbines can be serviced, while the rest of the facility continues to deliver energy.

The Project's variable O&M costs in current dollars per kilowatt hour are approximately $0.001/kWh - $0.004/kWh in the first year of the Project's operation, and approximately $0.003/kWh - $0.006/kWh thereafter. The total cost of the Project in current dollars per kilowatt hour is approximately $0.004/kWh - $0.006/kWh.

Variable O&M figures for other renewable energy resources are provided in **Table 3**, above.

6.3.1.6 Total Cost (Minn. R. 7849.0250(C)(6))

The capital expenditure for the wind component of the Project is estimated to be $150 million. This includes all costs associated with development, design, and construction. General costs associated with project operation, maintenance, initial spare parts, operating equipment, and operating supplies will be $1.75 million the first year and average approximately $1.9 million per year over the following 29 years.

6.3.1.7 Effect of Project on Rates System-Wide (Minn. R. 7849.0250(C)(7))

The Commission provided a partial exemption of Minn. R. 7849.0250(C)(7), that would otherwise require Walleye Wind to seek information on the effect of the Project on rates system-wide from the purchaser. MMPA represents that it is too early to state a positive or negative impact on rates due to the relative value of the project depending on MISO market prices, but MMPA expects the addition of a competitively-priced renewable energy resource to be a benefit to its membership.

6.3.1.8 Efficiency (Minn. R. 7849.0250(C)(8))

No fuel is burned in the production of energy at the Project, and, therefore, there is no information to provide on this subject.

6.3.1.9 Assumptions (Minn. R. 7849.0250(C)(9))

There are no specific assumptions other than those already identified that impacted the provision of information in response to Minn. R. 7849.0250(C)(1–8).

6.3.1.10 Map of System (Minn. R. 7849.0250(D))

The Commission granted Walleye Wind an exemption from Minn. R. 7849.0250(D), which requires an applicant to include a map showing the applicant's system.[14] As an IPP, Walleye Wind does not have a "system." In lieu of a system map, Walleye Wind is providing with this application maps showing proposed site of the Project in **Appendix C (Wind Maps)**.

6.3.1.11 Promotional Activities (Minn. R. 7849.0240(B))

The Commission granted Walleye Wind a partial exemption from Minn. R. 7849.0240, subp. 2 (B), requiring that it request the purchaser, MMPA, to provide equivalent data on promotional activities. According to MMPA, it has not conducted any promotional activities associated with the Project.

[14] *Id.*

7.0 PEAK DEMAND AND ANNUAL CONSUMPTION FORECAST (MINN. R. 7849.0270)

The Commission granted Walleye Wind a partial exemption from Minn. R. 7849.0270, subps. 1-6, which require the applicant to provide "data concerning peak demand and annual electrical consumption within the applicant's service area and system." Walleye Wind does not have a "service area" or "system" and, as such, the requested data is inapplicable to Walleye Wind. The Commission, however, required Walleye Wind to provide a general overview of the purchaser's system and future renewable resource needs.

MMPA's most recent IRP was filed with the Minnesota Public Utilities Commission on July 30, 2018. According to that document, MMPA indicated its expectation that a compounded annual growth rate of 0.8% in energy, and a growth rate of 0.8% in demand over the 2019–2033 planning period.[15]

As also indicated in MMPA's IRP, MMPA's annual RES requirements are projected to grow from approximately 312,000 in 2019 to 511,000 in 2033.[16] The RES requirements are based on total retail electric sales. The calculations account for a 4.49% system loss between wholesale and retail sales. **Table 4** below summarizes the RES obligation for MMPA for the period 2019-2033.

[15] MMPA 2019-2033 Integrated Resource Plan, Docket No. ET-6133/RP-18-524 at 1 (July 30, 2018), *available at:* https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={2029F264-0000-C620-8B7E-92CF842B03A7}&documentTitle=20187-145424-02.

[16] *Id.* at 37.

Table 4. MMPA Projected RES Requirements

Year	Projected Wholesale Load (MWh)	RECs for RES Obligations
2019	1,925,452	312,617
2020	1,950,524	372,574
2021	1,963,088	374,974
2022	1,979,777	378,162
2023	1,995,207	381,109
2024	2,016,234	385,125
2025	2,025,785	483,687
2026	2,040,921	487,301
2027	2,055,635	490,814
2028	2,076,571	495,813
2029	2,084,796	497,777
2030	2,099,060	501,183
2031	2,112,665	504,431
2032	2,133,062	509,301
2033	2,140,227	511,012

8.0 SYSTEM CAPACITY (MINN. R. 7849.0280)

Minn. R. 7849.0280 requires a CON applicant to provide information on the ability of its existing system to meet the forecasted demand. As an IPP, Walleye Wind does not have a "system" as defined by Minn. R. 7849.0280. Accordingly, the Commission granted Walleye Wind an exemption from this requirement, with the understanding that Walleye Wind would provide a general overview of the purchaser's system and future renewable resource needs.

MMPA projected in its most recent IRP that its power supply portfolio will consist of 434 MW of both contractual resources and MMPA-owned generation for planning year 2019.[17] MMPA projects that its first year of capacity need is 2030 for 86 MW.[18]

[17] *Id.* at 28.

[18] *Id.* at 33.

9.0 CONSERVATION PROGRAMS (MINN. R. 7849.0290)

Walleye Wind is not a utility, and does not have a system or retail customers, nor does Walleye Wind maintain a conservation program. The Commission thus granted Walleye Wind an exemption from Minn. R. 7849.0290, with the direction that Walleye Wind provide an overview of the conservation programs operated by MMPA's members.

As discussed in MMPA's most recent IRP, in 2007, the State Legislature revised the Conservation Improvement Program (CIP) statute to set an annual energy savings goal for each electric utility beginning in 2010.[19] Seven of the twelve MMPA member communities participate in the CIP program managed by MMPA. The other five member communities manage their own energy efficiency programs at the municipal utility level.[20] Based upon data for 2017, MMPA's CIP program cost an average of $0.12/kWh of electricity saved. MMPA's Agency-managed CIP portfolio aims to incorporate programs that help to maintain an average rebate cost-to-electricity savings ratio of $0.10/kWh or less.[21]

Programs offered in the MMPA-managed 2018 CIP Portfolio include:[22]

Residential:

- ENERGY STAR Appliance Rebate (Clothes Washer, Dishwasher, Refrigerator, Freezer, Dehumidifier)
- Secondary Refrigerator or Freezer Recycling Rebate
- LED Lighting Rebate
- Quality Installed Central Air Conditioning (AC) and Air Source Heat Pump Rebate
- AC Tune Up Rebate
- Custom Rebates

Commercial and Industrial:

- Lighting Retrofit Rebate
- Lighting New Construction Rebate
- Variable Frequency Drives (VFD) Rebates
- Vending Machine Controller Rebate
- Custom Rebates

[19] *Id.* at 24.

[20] *Id.*

[21] *Id.* at 25.

[22] *Id.* at 26.

A comprehensive discussion of MMPA's conservation efforts is provided in its most recent IRP at pages 24-27.[23]

[23] *Available at:* https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={2029F264-0000-C620-8B7E-92CF842B03A7}&documentTitle=20187-145424-02.

10.0 CONSEQUENCES OF DELAY (MINN. R. 7849.0300)

The Commission granted a partial exemption of this requirement with the understanding that Walleye Wind would provide equivalent data from the purchaser, MMPA. According to MMPA, delay of the Project would detrimentally impact MMPA's ability to address the RES requirements and would likely result in the cancellation of the PPA. Delay would also likely result in a lost opportunity to provide MMPA and the state with clean, cost-effective renewable energy. Delay of the Project could also nullify the environmental, policy, and socioeconomic benefits of the Project set forth herein, including the creation of jobs and the advancement of the greenhouse gas emissions reduction goals.

11.0 ENVIRONMENTAL INFORMATION FOR PROPOSED PROJECT AND ALTERNATIVES (MINN. R. 7849.0310)

A Site Permit application will be submitted by Walleye Wind in addition to this application. The following is a summary the environmental information that will be set forth in detail in the Site Permit application.

11.1 Wind Facility

11.1.1 Impacts to Visual Resources

The main visual focal points within the Site are aspects of an agricultural landscape, which are broken up by residences, buildings, shelter belts, and small wooded lots. Viewsheds in the area are generally long and open. Viewsheds are more limited in areas where vegetation, topography, or existing structures limit the larger view. Palisades Cemetery, West Palisades Cemetery, Pleasant View Cemetery, and Beaver Valley Cemetery, are located within the Site, while Springwater Cemetery and Pleasant View Cemetery, are located within 2-miles of the Site. For Clarity, there are two Pleasant View Cemeteries—one in the Site and one within 2-miles of the Site, in South Dakota.

Based on data publicly available through the U.S. Wind Turbine Database, there are two existing wind projects located northeast and southeast of the Site in Rock and Pipestone counties in Minnesota. The northern wind project, Prairie Rose Wind, is a commercial-scale wind project consisting of 119 wind turbines in Rock and Pipestone counties, Minnesota. The southeastern wind project, MinWind I and II, is a collection of four wind turbines in Rock County, Minnesota. Of the 123 wind turbines from these operating projects, 114 are located within a 10-mile extent around the Site, while 67 of these 123 turbines are located within 10 miles of a proposed turbine location for the Project.

There are two existing transmission lines running a total of approximately 14.9-miles in a northeast-to-southwest trending direction through the southern portion of the Site. The transmission line to the north is a 161 kV line owned by the NSP, and the transmission line to the south is a 345 kV line. Approximately 27.1-miles of additional existing transmission lines are located within 2-miles of the Site. A short (approximately 500 feet) new 161 kV generation tie line to the existing NSP substation is proposed as part of this Project. The existing transmission lines currently create visual impacts to the Site and its vicinity.

The FCC Antenna Structure Registration database identifies four antenna structures within the Site. Two additional existing antenna structures are located within 2-miles of the Site, creating existing visual impacts within the vicinity of the Project as well as the four structures within the Site itself. An additional 12 existing antenna structures exist within 10-miles of the Site in Rock County, Minnesota.

There are three turbine models currently proposed for the Project, the GE 2.32 MW and two models of the GE 2.82 MW. All are similar in appearance with three blades, a hub, and a monopole. The GE 2.32 MW turbine model has a 116.5-meter (382-feet) RD and a hub height of 80 meters (262.5 feet), one GE 2.82 MW turbine model has a 127.2-meter (417-foot) RD and a hub height of 114 meters (374.0 feet), and the second GE 2.82 MW turbine model has a 127.2-meter (417-foot) RD and a hub height of 89 meters (292 feet). In general, the larger the RD, the fewer turbines are required to produce the same energy output.

Table 5. Rotor Diameter and Number of Turbines

Turbine Model	Rotor Diameter (meters/feet)	Rotor Tip Height (meters/feet)	Ground Clearance (meters/feet)	Number of Primary Turbines	Number of Alternate Turbines
GE 2.32 MW	138.3/453.7	116.5/382	21.8/71.7	4	1
GE 2.82 MW	178.1/584.3	127.2/417	51/167.3	27	3
GE 2.82 MW	152.1/499	127.2/417	25/82	2	3
GE 2.82 MW-Noise Reduced Operation (NRO)[24]	178.1/584.3	127.2/417	51/167.3	3-	
GE 2.82 MW-NRO	152.1/499	127.2/417	25/82	2	1

The Project will be visible to permanent observers (residents) and temporary observers (motorists, tourists, or recreationists passing by or using the area intermittently). Visual impacts may also be noticeable to users of public lands and public snowmobile trails within and in the vicinity of the Site. The Project, however, will not be introducing a new feature type to the landscape because existing wind turbines are already located within and in the vicinity of the Site.

Turbines will likely be viewed in one of three perspectives:

- As a visual disruption;
- As generally compatible with the rural agricultural heritage of the area, which includes existing wind turbines, silos, and grain elevators; or
- As adding a positive aesthetic quality to the landscape.

[24] The NRO mode reduces the sound power level by lowering the rotor speed, which therefore lowers the blade tip speed, and can also modify the blade pitch. Utilizing these two techniques, where needed, specific turbines will meet the required noise levels.

The topography in the vicinity of the Project is generally rolling, the vegetation is low, and the Project will be visible to residents of the area and to people traveling on existing federal, state, county, and township roads as well as farmstead driveways and farming access roads within the Site and in the Project vicinity. The installation of wind turbines will not significantly alter the character of the regional landscape given the presence of existing wind turbines in the Site and in the vicinity of the Project; however, the degree of visual impact will vary based on the type of observer and individual preference.

Visual alterations of the land related to temporary construction activities, such as equipment staging and laydown areas, crane paths, and the installation of underground collection lines, will be short-term and converted back to cropland or replanted with grasses and vegetation native to the area following the completion of construction. The increase in traffic and human activity within the Site during construction will also be short-term as well. The long-term operation of the Project is not anticipated to increase visual impacts associated with human activity or traffic within the Site or in the Project's vicinity.

The use of 36 GE 2.82 MW turbines helps to mitigate the visual impact of the Project by minimizing the number of turbines needed. Walleye Wind will also implement the following mitigation measures to minimize potential visual impacts:

- Turbines will be uniform in color;
- Turbines will not be located in sensitive areas such as public parks, wildlife management areas (WMAs), scientific and natural areas, or Waterfowl Protection Areas;
- Turbines will be illuminated to meet the minimum requirements of FAA regulations for obstruction lighting of wind turbine projects and will utilize an Aircraft Detection Lighting System or Lighting Intensity Dimming Solution system when Walleye Wind can obtain these technologies based on commercial constraints and delivery scheduling;
- Electric collection lines will be buried to minimize above-ground structures within the Site;
- Existing roads will be used for construction and maintenance, as appropriate, to minimize the number of new roads constructed; and
- Temporarily disturbed areas will be converted back to cropland or otherwise reseeded with native seed mixes appropriate for the region.

11.1.2 Shadow Flicker Impacts

With respect to wind turbines, shadow flicker can be defined as an intermittent change in the intensity of light in a given area resulting from the operation of a wind turbine due to its interaction with the sun. While indoors, an observer experiences repeated changes in the brightness of the room as shadows cast from the wind turbine blades briefly pass by windows as the blades rotate. In order for this to occur, the wind turbine must be operating, the sun must be shining, and the window must be within the shadow region of the wind turbine, otherwise there is no shadow flicker. A stationary wind turbine only generates a stationary shadow similar to any other structure.

A Project-specific shadow flicker analysis was conducted using the software package, WindPRO. The WindPRO modeling was further refined by incorporating sunshine probabilities and wind turbine operational estimates by wind direction over the course of a year. The values produced by this further refinement are known as the "expected" shadow flicker. The results of the shadow flicker analysis will be included as an appendix to Walleye Wind's Site Permit application and will include details regarding the methodology and results of the assessment including calculated annual hours of shadow flicker at identified receptors based upon a worst-case scenario and an expected case scenario.

The predicted expected annual shadow flicker duration ranged from 0 hours, 0 minutes per year to 45 hours, 49 minutes per year. The maximum expected shadow flicker was at a participating receptor (#331). The maximum expected worst-case annual shadow flicker at a non-participating receptor (#84) is 38 hours, 36 minutes. The maximum modeled expected annual flicker at a targeted receptor (#94) is 42 hours, 34 minutes. Many of the receptors (227) were predicted to experience no annual shadow flicker. 152 locations were predicted to experience some shadow flicker but less than 10 hours per year. The modeling results showed that 53 locations would be expected to have 10 to 30 hours of shadow flicker per year. Eleven receptors are expected to have over 30 hours of flicker per year, four of which are non-participating receptors. The modeling results are conservative in that modeling receptors were treated as "greenhouses" and the surrounding area was assumed to be without vegetation or structures (bare earth).

The Project was designed to minimize shadow flicker exposure of the residences in the area. Walleye Wind will use site-specific mitigation measures to address shadow flicker impact, as appropriate, including the following:

- Meet with the homeowner to determine the specifics of their complaint;
- Investigate the cause of the complaint; and
- Provide the homeowner with mitigation alternatives including shades, blinds, awnings or plantings.

11.1.3 Impacts to Land Use

The Site occurs primarily within county-zoned agricultural districts. Walleye Wind is not likely to impact future zoning and expansion of incorporated areas in the vicinity of the Site, and development of the Project will allow the continued agricultural use of the Site. Development of the Project will allow continued agricultural use within the Project Area, while helping to strengthen the local economy through annual payments to landowners with Project infrastructure on their property, potential use of local contractors and suppliers, potential temporary jobs for local workers, and tax benefits to local governments.

Temporary and permanent impacts to current land use are anticipated to occur from the construction of the Project. Only the land for the turbines and associated pads, the Project's

collector substation, the MET tower, the O&M facility, certain electrical equipment, and the access roads will be permanently taken out of crop production. After construction is completed, remaining land surrounding the turbines and access roads may still be farmed. The permanent loss of approximately 47.4 acres of agricultural land will not result in the loss of agricultural-related jobs or net loss of income. Revenue lost from the removal of land from agricultural production will be offset by lease payments to individual landowners according to their respective contracts with Walleye Wind.

Walleye Wind has incorporated the locations of the Conservation Reserve Enhancement Program and Reinvest in Minnesota- Wetlands Reserve Program easements into the proposed layout so that these locations will be avoided and not disturbed by Project activities. Walleye Wind will work with participating landowners to identify any Conservation Reserve Program (CRP) easements. If CRP easements are determined to be present, the locations will be incorporated into Project design as it relates to turbine and road layout, and any other associated construction activities, and these lands will be avoided to the maximum extent practicable. If the Project requires the placement of permanent infrastructure within CRP land, the Applicant will work with the landowner to remove the land from the CRP program and will cover the costs of any penalties incurred due to the removal of the easement from the program.

Walleye Wind has and will continue to plan the Project to avoid direct permanent and temporary impacts to natural areas, including wetlands, native plant community types, and Minnesota Biological Survey Sites of Biodiversity Significance within the Site, including native prairies, to the extent feasible. Additionally, Walleye Wind will avoid impacts to conservation land such as WMAs. Based on landcover mapping, nearly all (97%) of Project permanent development is planned in lands currently under crop cultivation. Additionally, access roads will utilize existing roads or paths and will avoid grasslands, shrubland, and wooded areas to the greatest extent practicable.

11.1.4 Impacts to Wildlife

The *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines* were issued, on March 23, 2012, to provide a structured and scientific approach to assessing and addressing wildlife concerns during all stages of land-based wind energy development. The guidelines use a tiered approach that provides for an iterative decision-making process for collecting information, with each tier increasing in the detail of research and information. The tiered approach allows a developer to evaluate the potential risk associated with developing a project at a given location and provides the opportunity for evaluation and decision-making at each step of a project to enable the developer to abandon or proceed with development or to collect additional information.

Tier 1 and Tier 2 Site Characterization Studies (SCS) were completed by Western EcoSystems Technology, Inc. in April 2016 and 2019 for areas initially being considered for the Project. The 2016 study contemplated facilities being sited in South Dakota since that time, the site has been

adjusted to be only in Minnesota. To the Applicants knowledge there is no active project within the old South Dakota boundary. Following the finalization of the current Site, Walleye Wind's consultant, ECT, completed an additional SCS for the Site and a surrounding 1-mile buffer in June 2020. Information for this 2020 study was gathered through MNDNR and USFWS database research, additional publicly available desktop resources, and a site visit by a qualified biologist in November 2019. Each Tier of the USFWS Land-based Wind Energy Guidelines offers a set of questions to help evaluate the potential risk of developing a project in a given location. Tier 1 questions help determine potential environmental risk at the landscape scale, while Tier 2 questions help to determine potential environmental risk at the Project scale. The conclusion for the 2020 SCS prepared by ECT confirmed that suitable habitat sensitive species, including bald eagles and listed bat species, are limited within the vicinity of the Site and the Site was suitable for development as a Wind Energy site.

Impacts to wildlife would primarily occur to avian and bat populations. There is a likelihood that bird and bat fatalities will occur at the Project, but these fatalities are unlikely to affect populations of most species, including species of a conservation concern. Direct impacts to birds and bats because of Project construction and operation are not expected to differ markedly from those reported by other previous studies in agricultural settings within Minnesota.

Walleye Wind has carefully sited the Project so as to avoid sensitive areas identified. Walleye Wind will continue to maintain communication with USFWS and MNDNR regarding appropriate mitigation measures for wildlife impacts. Further description of efforts to study and preserve wildlife will be provided in Walleye Wind's Site Permit application.

12.0 FACILITY INFORMATION FOR PROPOSED PROJECT AND ALTERNATIVES INVOLVING CONSTRUCTION OF AN LEGF (MINN. R. 7849.0320)

12.1 Land Requirements (Minn. R. 7849.0320(A))

The Project is located on land that is zoned for agricultural use. The Project will require approximately 1.32 acre per turbine for the turbine pad, transformer, access road, and associated infrastructure. The land requirements for the Project are consistent with the requirements for wind projects of a similar size. No relocation of people or businesses will be necessary for the Project.

12.1.1 Land Requirements for Water Storage

The Project will not require any land for water storage.

12.1.2 Land Requirements for Cooling System

The Project will not require any land for a cooling system.

12.1.3 Land Requirements for Solid Waste Storage

The Project will require minimal space for maintenance of the facilities, and will be used for the storage of used oil and other lubricants, as well as for spare parts and tools.

12.2 Traffic (Minn. R. 7849.0320(B))

Temporary impacts are expected to public roads during the construction phase of development as materials, personnel, and equipment will be brought in via existing highways and roads. Although exact routes will not be determined, in coordination with state and local jurisdictions, until closer to construction, U.S. Highways 75 and Interstate 90 are the main access routes into the region of the Site and would likely be used as corridors to bring materials and equipment to the site. The functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day, far greater than the maximum amount of construction traffic that is expected during peak construction. The peak amount of construction traffic is estimated to be 700 vehicles in a 10 to 12 hour workday. However, some minor, short-term traffic delays within and near the Project site may occur during turbine and equipment delivery and construction activities.

Consistent with the wind energy conversion facility siting criteria outlined in the Commission's Order Establishing General Wind Permit Standards, Docket No. E, G999/M-07-1102 (2008) turbines will be setback from roads no less than 250 feet. Walleye Wind has spaced turbines and access roads to reduce congestion. For example, the majority of access roads are proposed off of local roads and avoid major highways that cross and border the Project. Prior to construction, Walleye Wind will coordinate with applicable local and state road agencies to ensure all relevant permits are obtained, delivery plans are communicated, traffic management plans are implemented

where necessary, and weight limits are not exceeded. Walleye Wind will formalize road development agreements with applicable roadway authorities to ensure that impacted or damaged roadways will be restored to their original condition or better. Walleye Wind will require that the general contractor be in contact with the relevant road authorities during construction.

12.3 Information Pertaining to Fossil-Fueled Activities (Minn. R. 7849.0320(C–D))

12.3.1 Fuel

The Project is not a fossil-fueled facility.

12.3.2 Emissions

The Project is not a fossil-fueled facility and will not release any emissions from the power generation process.

12.4 Water Usage for Alternate Cooling Systems (Minn. R. 7849.0320(E))

Wind power plants do not utilize cooling systems. Water requirements therefore are limited to potable water needs for Project personnel. The water requirements of the O&M building will be met through the local rural water service or the installation of a well in accordance with applicable regulations.

12.5 Water Discharges (Minn. R. 7849.0320(F))

No wastewater discharges will occur as a result of the construction or operation of the Project except for domestic-type sewage discharges of Project personnel. Temporary sanitary facilities will be provided during construction, and the O&M building may require a septic system, which will be installed in accordance with applicable regulations.

12.6 Radioactive Releases (Minn. R. 7849.0320(G))

The Project will not produce any radioactive releases.

12.7 Solid Waste (Minn. R. 7849.0320(H))

Hazardous materials used and stored for the Project, within the Site, during construction may consist of fuel, lubricating oil, hydraulic oil, propylene glycol, and other materials required for the construction of a wind farm. Additionally, during operation of the wind farm, hazardous materials, such as hydraulic oil, lube oil, grease, and cleaning solvents will be used and stored on-site as they are necessary to maintain wind turbines and other equipment. Also, pad-mounted, and grounding transformers required for the operation of the Project contain large quantities of cooling fluids, typically consisting of mineral oil.

Due to the presence of hazardous materials during Project construction and operations, there is the potential for spills and/or leaks to occur. The primary concerns associated with these potential

spills and/or leaks are the potential impacts to surface and groundwater resources and the potential for soil contamination within the Site. To avoid potential impacts to water and soil resources, new and used oils will be stored within the O&M building or inside a secondary containment structure. Secondary containment will prevent impacts and will ensure that leaks, if they occur, will be contained. Additionally, a SPCC will be created for both the construction and operational phases of the Project. The SPCC will detail the appropriate storage, cleanup, and disposal of hazardous wastes to ensure potential impact are avoided.

12.8 Noise (Minn. R. 7849.0320(I))

The Project within is required to comply with the sound level requirements in Minn. R. Ch. 7030 for Noise Pollution Control. NAC 1 (primarily residential) receptors are protected by the lowest sound level limits of the MPCA. Since wind turbines can operate under conditions resulting in maximum sound power, during both the day and at night, the Project would need to comply during the period with more stringent limits, nighttime. Furthermore, because wind turbine sound is generally steady, the L_{50} (median) sound level is more likely to be affected by wind turbine sound than the L_{10}, which is controlled more by unsteady sound. The L_{50} limit is also more restrictive than the L_{10} limit. Therefore, NAC 1 receptors were evaluated against the L_{50} sound level limit of 50 dBA in Walleye Wind's analysis.[25] This is a total sound level limit which includes sound from the Project and existing sound sources.

Since ambient sound levels in the Project area vary, modeled Project-Only sound levels have been combined with modeled Existing Non-Project wind turbines sound levels and a range of non-wind turbine ambient sound levels in order to evaluate the Minnesota limit of 50 dBA. The highest Project-Only L_{50} sound level to be 47 dBA at receptors #94, 147, 83, 332, N9, 163, 316, 148, and 87. This includes 6 participating receptors, 3 targeted receptors. Accordingly, total sound levels (Project + Existing Non-Project + non-wind-turbine ambient) will meet the Minnesota limit of 50 dBA when non-wind-turbine ambient sound levels are less than or equal to 47 dBA. As found in the ambient measurement study, ambient nighttime sound levels can exceed 47 dBA. Non-wind-turbine ambient sound levels can fluctuate due to sound sources such as ground-level winds, vehicular traffic, birds, and vegetation rustle, all of which have the potential to cause ambient sound levels to be equal to or exceed the MPCA L_{50} nighttime limit of 50 dBA. In these instances, the increase to the non-wind-turbine ambient sound level will be zero to two decibels since the highest modeled Project-Only sound level is 47 dBA. Under conditions where two sound levels have the same or very similar characteristics a 2-dBA change is imperceptible to the average person.

[25] A full Project sound level assessment report is provided with Walleye Wind's Site Permit Application in Docket No. IP7026/WS-20-384.

12.9 Work Force for Construction and Operation (Minn. R. 7849.0320(J))

Approximately 150 to 185 jobs over the five to seven-month construction period and 4 full-time O&M jobs are expected as part of the Project. Some jobs may be filled by existing local or regional workers. The approximate distribution of the construction workforce for the Project is indicated in **Table 6**, below.

Table 6. Approximate Construction Workforce and Distribution

Labor Type	Average Headcount	Peak	Approx. Source Location	
			Non-Local	Local
Laborers	50-60	65	50%	50%
Equipment Operators	30-35	41	20%	80%
Crane Operators	5-10	12	20%	80%
Electricians	40-50	52	25%	75%
Supervision/Management	25-30	30	80%	20%

12.10 Number and Size of Transmission Facilities (Minn. R. 7849.0320(K))

The POI of the Project to the transmission system will be the existing 161 kV Rock County Substation owned and operated by NSP. The substation is located on the east side of 40th Avenue, north of the City of Beaver Creek in Rock County, Minnesota. The substation will be modified to accommodate the new generation tie line at the POI on the north side of the substation. This generation tie line will extend approximately 500 feet from the substation to the Project collection substation planned at the north side of proposed POI.