Fredrikson
& BYRON, P.A.

October 13, 2017

VIA ELECTRONIC FILING

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

Re: In the Matter of the Application of Nobles 2 Power Partners, LLC for a Certificate of Need for the up to 260 MW Nobles 2 Wind Project and Associated Facilities in Nobles County, Minnesota
Docket No. IP-6961/CN-16-289

Dear Mr. Wolf:

Enclosed for filing is the Certificate of Need Application of Nobles 2 Power Partners, LLC ("Nobles 2") in connection with the above-referenced matter.

In accordance with Minn. R. 7829.0500, and Minn. Stat. Ch. 13, Nobles 2 has designated as **TRADE SECRET** certain commercially sensitive information, *i.e.*, pricing information in the Power Purchase Agreement between Nobles 2 and Minnesota Power, included with the **TRADE SECRET** version of Appendix A of the Certificate of Need, and cost information, included with the **TRADE SECRET** version of Appendix C of the Certificate of Need, which, if released, would have a detrimental effect on Nobles 2 by providing potential competitors and others with valuable information not otherwise readily ascertainable and from which these persons would obtain economic value.

Given the need to include trade secret information, Nobles 2 has prepared and is e-filing both **NON-PUBLIC AND TRADE SECRET** and public versions of Appendices A and C of the Certificate of Need.

A check in the amount of $5,750.00 for payment of the processing fee, which is calculated in accordance with Minn. R. 7849.0210, subp. 1, is also enclosed with this filing.

In accordance with Minn. R. 7829.2500, Minn. R. 7849.0200, and staff consultation, Nobles 2 is providing the 5 copies of the CN Application and 3 copies of the **TRADE SECRET** Appendices A and C to the Minnesota Public Utilities Commission. Nobles 2 is also providing copies of the CN Application to other state agencies with regulatory responsibilities related to the proposed facility. A copy of this filing is also being served upon the persons on the Official Service List of record. Please let me know if you have any questions or concerns.

Sincerely,

/s/ *Jeremy P. Duehr*

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Certificate of Need Application to the Minnesota Public Utilities Commission

NOBLES 2 POWER PARTNERS, LLC

Docket Number: IP-6964/CN-16-289

Nobles County, Minnesota

October 13, 2017

Prepared For:

Nobles 2 Power Partners, LLC
14302 FNB Parkway
Omaha, NE 68154-5212

Project Name:	Nobles 2 Wind Farm
Project Location:	The Project's footprint spans approximately 42,550 acres in Bloom, Larkin, Leota, Lismore, Summit Lake, and Wilmont Townships in Nobles County
Applicant:	Nobles 2 Power Partners, LLC
Authorized Representatives:	Mr. Gregory B. Kelly
Signature:	
Address:	1701 East Lamar Boulevard, Suite 100 Arlington, TX 76006
Phone:	817-303-3600
Email:	gkelly@tnsk.com

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ACRONYMS

AADT	Annual Average Daily Traffic
Applicant or Nobles 2	Nobles 2 Power Partners, LLC
BBCS	Bird and Bat Conservation Strategy
Biennial Report	2015 Biennial Transmission Projects Report
BOP	Balance of Plant
CN	Certificate of Need
Commission	Minnesota Public Utilities Commission
CO_2	Carbon Dioxide
CPP	Clean Power Plan
CRP	Conservation Reserve Program
CSAH	County State Aide Highway
dB(A)	The dBA scale is A-weighted decibels
EIA	U.S. Energy Information Administration
EPC	Engineering, Procurement and Construction
Exemption Request	Request for Exemption from Certain Certificate of Need Application Content Requirements
FAA	Federal Aviation Administration
IRP	Integrated Resource Plan
ITC	Investment Tax Credit
LEGF	Large Electric Generating Facility
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt hour
LHVTL	Large High Voltage Transmission Line
LiDAR	Light Range Detecting Unit
LWECS	Large Wind Energy Conversion System
Minn. R.	Minnesota Rules
Minn. Stat.	Minnesota Statutes
MISO	Midcontinent Independent System Operator
MnDOT	Minnesota Department of Transportation
MP	Minnesota Power
MPCA	Minnesota Pollution Control Agency
MVP	Multi Value Project

MW	Megawatt Alternating Current (AC)
MWh	Megawatt hour
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
POI	Point of Interconnection
PPA	Power Purchase Agreement
Project	Nobles 2 Wind Farm
PTC	Production Tax Credit
RES	Renewable Energy Standard
RFP	Request for Proposal
SCADA	Supervisory Control and Data Acquisition
SoDAR	Sonic Range Detecting Unit
SWPPP	Storm Water Pollution Prevention Plan
Tenaska	Tenaska Wind Holdings II, LLC
WIRS	Wildlife Incident Reporting System

Minnesota Rule	Required Information	Application Section(s)	Exemption Granted
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**		
A(1)	Accuracy of the applicant's forecast	4.1	Yes
A(2)	Effects of applicant's existing or expected conservation programs and state and Federal conservation programs		No
A(3)	Effects of promotional practices on demand		Yes
A(4)	Ability of current and planned facilities, not requiring certificates of need, to meet future demand	4.1	No
A(5)	Effect of proposed facility in making efficient use of resources		No
7849.0120	**Criteria – A more reasonable and prudent alternative has not been demonstrated**		
B(1)	Appropriateness of size, type, and timing	4.2.1	No
B(2)	Cost of facility and its energy compared to costs of reasonable alternatives	4.2.2	No
B(3)	Effects of the facility upon natural and socioeconomic environments compared to the effects of reasonable alternatives	4.2.3	No
B(4)	Expected reliability compared to reasonable alternatives	4.2.4	No
7849.0120	**Criteria – Facility will provide benefits to society**		No
C(1)	Relationship of proposed facility to overall state energy needs	4.3.1	No
C(2)	Effects of facility upon the natural and socioeconomic environments compared to the effects of not building the facility	4.3.2	No
C(3)	Effects of facility in inducing future development	4.3.3	No
C(4)	Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	4.3.4	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	4.4	No
7849.0210	**Filing Fees and Payment Schedule**	2.3	No
7849.0240	**Need Summary and Additional Considerations**		
Subp. 1	Need Summary – summary of major factors justifying need for facility	3.1	No
Subp. 2(A)	Additional Considerations – Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	3.2.1	No
Subp. 2(B)	Additional Considerations – Promotional activities that may have given rise to the demand for the facility	3.2.2	Yes
Subp. 2(C)	Additional Considerations – Effects of the facility in inducing future development	3.2.3	No

Minnesota Rule	Required Information	Application Section(s)	Exemption Granted
7849.0250	**Proposed LEGF and Alternatives Application**		
A(1)	Description – Nominal generating capability and effects of economies of scale on facility size and timing	5.1.1	No
A(2)	Description – Anticipated operating cycle, including annual capacity factor	5.1.2	No
A(3)	Description – Type of fuel, reason for selection, projection of availability over life of facility, and alternative fuels	5.1.3	No
A(4)	Description – Anticipated heat rate	5.1.4	No
A(5)	Description – Anticipated areas where facility will be located	5.1.5	No
B(1)	Discussion of Alternatives – Purchased power	5.2.1.1	Yes
B(2)	Discussion of Alternatives – Increased efficiency of existing facilities	5.2.1.2	Yes
B(3)	Discussion of Alternatives – New transmission lines	5.2.1.3	Yes
B(4)	Discussion of Alternatives – New generating facilities of a different size and energy resource	5.2.1.4-10	Yes
B(5)	Discussion of Alternatives – Reasonable combination of alternatives	4.2.1.11	Yes
C	Proposed Facility and Alternatives	5.3	
C(1)	Capacity cost in current dollars per kilowatt	5.3.1	Yes
C(2)	Service life	5.3.2	Yes
C(3)	Estimated average annual availability	5.3.3	Yes
C(4)	Fuel costs in current dollars per kilowatt hour	5.3.5	Yes
C(5)	Variable operating and maintenance costs in current dollars per kilowatt hour	5.3.4	Yes
C(6)	Total cost in current dollars of a kilowatt hour provided by it	5.3.6	Yes
C(7)	Estimate of its effect on rates system-wide and in Minnesota	5.3.7	Yes
C(8)	Efficiency, expressed for a generating facility as the estimated heat rate	5.3.8	Yes
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	5.3	Yes
D	System Map	5.4	Yes
E	Other relevant information about the facility and alternatives that may be relevant to a determination of need		No
7849.0270	**Peak Demand and Annual Consumption Forecast**		Yes
Subp. 1	Scope – Application shall contain pertinent data concerning peak demand and annual electrical consumption within the applicant's service area and system	6.0	Yes
Subp. 2	Content of Forecast	6.0	Yes
Subp. 3	Forecast Methodology	6.0	Yes
Subp. 4	Data Base for Forecasts	6.0	Yes
Subp. 5	Assumptions and Special Information	6.0	Yes
Subp. 6	Coordination of Forecasts with Other Systems	6.0	Yes

Minnesota Rule	Required Information	Application Section(s)	Exemption Granted
7849.0280	**System Capacity**	7.0	Yes
7849.0290	**Conservation Programs**	8.0	Yes
7849.0300	**Consequences of Delay**	9.0	Yes
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**		
7849.0320	**Generating Facilities**		
A	Estimated range of land requirements, including water storage, cooling systems, and solid waste storage	11.1	No
B	Estimated amount of vehicular, rail, and barge traffic generated by construction and operation of facility	11.2	No
C	Fossil-fuel facilities – Fuel	11.3.1	No
D	Fossil-fuel facilities – Emissions	11.3.2	No
E	Water Use for Alternate Cooling Systems	11.4	No
F	Sources and types of discharges to water	11.5	No
G	Radioactive releases	11.6	No
H	Types and quantities of solid wastes in tons/year	11.7	No
I	Sources and types of audible noise attributable to facility operation	11.8	No
J	Estimated work force required for facility construction and operation		No
K	Minimum number and size of transmission facilities required to provide a reliable outlet for the generating facility		No
7849.0330	**Transmission Facilities**	5.2.1.10	Yes
7849.0340	**No-Facility Alternative**	5.2.1.9	Yes

1.0 EXECUTIVE SUMMARY

Nobles 2 Power Partners, LLC ("Nobles 2" or "Applicant") submits this application for a Certificate of Need ("CN") to the Minnesota Public Utilities Commission ("Commission"), pursuant to and in accordance with Minnesota Statutes Section 216B.243 and Minnesota Rules Chapter 7849. Nobles 2 respectfully requests that the Commission issue a CN for an up to 260 MW Nobles 2 Wind Farm ("Project"), a "large energy facility," as defined in Minnesota Statutes Section 216B.2421, subdivision 2(1).[1]

2.0 INTRODUCTION

2.1 THE NOBLES 2 WIND FARM

Nobles 2 is an independent power producer that proposes to construct and operate the Project at a site within Nobles County in southwest Minnesota.

The Project will be located in Nobles County, and the Project's footprint spans approximately 42,550 acres in Bloom, Larkin, Leota, Lismore, Summit Lake, and Wilmont Townships in Nobles County. Nobles 2 has selected Vestas V136-3.6 megawatt ("MW") wind turbine generator as the primary wind turbine model for the Project. If the technology is economical and commercially proven, Nobles 2 may elect to utilize Vestas V136-3.45 MW, V136-4.0 MW or V136-4.2 MW turbines instead. These turbine model variants have siting requirements that are equal to or lesser than the V136-3.6 MW. The Project will also include 10 to 21 Vestas V110-2.0 MW wind turbines for the purpose of qualifying for the Federal Production Tax Credit ("PTC"). The final number of Vestas V110-2.0 MW turbines will be determined by Nobles 2 based upon PTC requirements, turbine availability and other economic considerations. As a result, the number of turbines installed could range from 65 to 82, depending on the configuration selected. In addition to wind turbines, the Project will consist of an electrical collection system, access roads, permanent meteorological towers, substation and interconnection facilities, an operation and maintenance facility, and other infrastructure typical of a wind farm. The Project will interconnect at an existing 115 kV transmission line that is located in the west-central portion of the Project footprint. Nobles 2 plans to construct the Project on a schedule that facilitates an in-service date as early as the fourth-quarter of 2019.

2.2 PROJECT OWNERSHIP

Nobles 2's parent, Tenaska Wind Holdings II, LLC ("Tenaska") is an affiliate of Tenaska, Inc. Tenaska, Inc., based in Omaha, Nebraska, is one of the largest private, independent energy companies in the United States. Tenaska, Inc., and its affiliates have developed 10,000 MW of natural gas-fueled and renewable power generation and manage operations for 7,000 MW. Tenaska, Inc. affiliates also market natural gas and electric power. An affiliate of Tenaska, Tenaska Power Services Co., has end-use customers, none of which are

[1] The Project is also a Large Wind Energy Conversion System ("LWECS"), as defined in Minnesota Statutes Section 216F.01, subdivision 2.

in the Midcontinent Independent System Operator ("MISO") service area. Nobles 2 does not have ownership or financial interests in any other operating Large Wind Energy Conversion System ("LWECS") in Minnesota. Tenaska and its affiliates partner with community members to meet common goals while constructing new renewable energy generation sources that benefit the state and the region in which they are located. Nobles 2 is receiving development assistance from PRC Wind.

PRC Wind is an experienced developer, financier, constructor, owner and operator of renewable energy projects, with a proven track record of successful wind energy development in the Midwest U.S. Based in Minneapolis, Minnesota, PRC Wind has successfully developed 19 wind energy projects for clients and energy purchasers, representing 1,800 MW of operating capacity. The PRC Wind team includes personnel with substantial experience in project management, community relations, permitting, financing, construction, and operation. PRC Wind, and its affiliates, currently own and operate several wind and solar projects in Minnesota and continue to develop renewable energy projects in the Midwest. For example, PRC Wind recently developed the 48 MW Lakeswind Wind Farm in Clay and Becker County, MN.

2.3 POWER PURCHASE AGREEMENT

Nobles 2 has entered into a Power Purchase Agreement ("PPA") with Minnesota Power ("MP") whereby MP agreed to purchase up to 250 MW of the energy generated by the Project (Appendix A). MP sought and entered into the PPA with Nobles 2 after the Commission issued an Order Approving Resource Plan with Modifications ("July 2016 IRP Order"), on July 18, 2016, whereby the Commission, in part, ordered MP to begin a competitive acquisition process, by the end of 2017, to procure 100-300 MW of installed wind capacity.[2] On July 27, 2016, MP issued a request for proposal ("RFP") for a wind resource of up to 300 MW.[3] MP submitted a petition ("MP Petition") on July 28, 2017 seeking Commission approval of the PPA and two other resource acquisition requests.[4] While MP provided the Commission with the type of information considered in a CN proceeding, MP has not requested that the Commission issue a CN for the Project as part of the Commission's consideration of the Nobles 2 PPA.[5] On September 19, 2017, the Commission issued an order on MP's Petition and noted, in part, that the "Commission has already approved the acquisition of additional wind and solar generation by [MP], and [MP] shall refile its wind and solar PPAs for Commission approval in a separate

[2] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 18, 2016) eDockets ID No. 2016-123403-01.

[3] Minnesota Power Informational Response. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (March 30, 2017) eDockets ID No. 2017-130375-01. See also, Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID Nos. 20177-134359-01 through 10.

[4] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan*. Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03

[5] *Id.* at 1-9

docket."[6] As of the date of this Application, MP has not yet refiled the Nobles 2 PPA in a separate docket for Commission approval. Therefore, the Commission has not determined the need for the Project or approved the PPA.

A certificate of need ("CN") from the Minnesota Public Utilities Commission is required for all "large energy facilities," defined to include generators greater than 50 MW in size, constructed in Minnesota, unless a statutory exemption applies.[7] Nobles 2 proposes to construct a Large Wind Energy Conversion System ("LWECS") of up to 260 MW in Nobles County Minnesota. Therefore, absent an exemption, a CN will be required. It is Noble 2's understanding that MP is not seeking a CN for the Project as part of its request for PPA approval. MP's RFP process was not a Commission-approved resource acquisition process; therefore, Nobles 2 is proceeding with this Application because, at this time, it is not clear that the Project is exempt from the CN requirement. [8]

It is also important to note that the Nobles 2 PPA includes a condition precedent that the Commission approve MP's entire Energy*Forward* Resource Package. Given that the Commission has not yet approved the Nobles 2 PPA, this Application does not limit the forecasted need for the Project to the need identified by the Commission for MP to procure 100-300 MW of wind or the need identified in MP's request for approval of the Nobles 2 PPA. This Application also demonstrates how this Project is needed to meet the Renewable Energy Standard ("RES") and other clean energy requirements in Minnesota and neighboring states.[9] In addition to the foregoing, Nobles 2 has qualified the Project to receive the full federal Production Tax Credit ("PTC") and is thereby positioned to provide much needed renewable energy at a low-cost to utilities and their rate-payers. Nobles 2 respectfully requests that the Commission issue a CN for the Project on the basis of a need for economical renewable energy writ large even if the Commission does not approve MP's request for approval of the Nobles 2 PPA. This approval will preserve the Project's ability to achieve the commercial operation date required to maintain its qualification for the full Federal PTC value and thereby preserve the Project's ability to generate low-cost energy for ratepayers.

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[6] *Order*. In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan. Docket ID. E-015/RP-15-690 (September 19, 2017) eDockets ID No. 2017-135644-02.

[7] Minn. Stat. §§ 216B.243 and 216B.2421.

[8] Minn. Stat § 216B.2422, subd. 5

[9] See Also. Comments of the Minnesota Department of Commerce, Division of Energy Resources. *In the Matter of the Application of Blazing Star Wind Farm, LLC for a Certificate of Need for the 200 Megawatt Blazing Star Wind Project in Lincoln County*. Docket ID. IP-6961/CN-16-215 (February 3, 2017) eDockets ID No. 20172-128844-01 at 4. Order Granting Certificate of Need. *In the Matter of the Application of Blazing Star Wind Farm, LLC for a Certificate of Need for the 200 Megawatt Blazing Star Wind Project in Lincoln County*. Docket ID. IP-6961/CN-16-215 (February 3, 2017) eDockets ID No. 20178-134488-01

2.4 PROJECT CONTACTS

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2.5 FILING FEES AND PAYMENT SCHEDULE (MINN. R. 7849.0210)

The total fee for the CN Application and the schedule for payment are shown in Table 2.5. The fee determination for the Project is based on a capacity of an up to 260 MW, per the requirements of Minn. R. 7849.0210, subp. 1. The payment schedule is based on Minn. R. 7849.0210, subp. 2.

Table 2.5: Certificate of Need Application Schedule of Payments

Fee Calculation	Amount
Fee Calculation Equation	$10,000 + $50/MW
Due with CN Application	$5,750.00
Due 45 days after Application submittal date	$5, 750.00
Due 90 days after Application submittal date	$5, 750.00
Due 135 days after Application submittal date	$5, 750.00
Total Calculated Fee	$23,000.00

2.6 EXEMPTION REQUEST

Minn. R. Ch. 7849 sets forth the data an applicant must provide in a CN application. 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 April 5, 2016 Nobles 2 submitted a Request for Exemption from Certain Certificate of Need Application Content Requirements ("Exemption Request"). In its Exemption Request, Nobles 2 requested that the Commission grant its exemptions for an up to 300 MW project[10],

[10] In its Exemption Request, Nobles 2 contemplated the nameplate capacity of the Project could be up to 300 MW and would be located in Nobles and Murray Counties, Minnesota. After the Commission granted the Exemption Request, Nobles 2 reduced the nameplate capacity of the Project to up to 260 MW located exclusively in Nobles County in response to siting, commercial and other economic considerations.

pursuant to Minn. Stat. § 216B.243 and Minn. R. 7849.0200, from certain CN data requirements that are not necessary to determine the need for an independent power production facility, or a renewable energy facility designed to satisfy the RES requirements set forth in Minn. Stat. § 216B.1691 or other clean energy standards.

On May 25, 2016, the Commission issued an order granting Nobles 2 the exemptions it requested in its Exemption Request.[11] Where appropriate in this Application, Nobles 2 will reference the specific exemptions granted by the Commission.

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

3.1 NEED SUMMARY

On September 1, 2015, MP filed its 2015 Integrated Resource Plan ("2015 IRP") under Minn. Stat. § 216B.2422 and Minn. R. 7843 for Commission review and approval.[12] On July 18, 2016, the Commission issued an Order Approving Resource Plan with Modifications ("July 2016 IRP Order") whereby the Commission approved MP's 2015 Integrated Resource Plan and ordered MP to begin a competitive acquisition process, by the end of 2017, to procure 100-300 MW of installed wind capacity[13] (See Appendix B). On July 27, 2016, MP issued a request for proposal ("RFP") for a wind resource of up to 300 MW.[14] In response to the RFP, MP received proposals for 35 project sites from 17 bidders, totaling over 5,000 MW of nameplate capacity.[15] MP utilized the services of Sedway Consulting, Inc., an independent third party evaluator to assist in reviewing the proposals received in response to its wind RFP.[16] MP then used Sedway Consulting's economic analysis to shortlist RFP responses and initiated contract negotiations with the selected counterparties.[17] The other proposals had higher net costs than the Project and other attributes that made them less attractive than the Project for meeting MP's resource

[11] Order, *In the Matter of the Application of Nobles 2 Power Partners, LLC for a Certificate of Need for the up to 300 Megawatt Nobles 2 Wind Project in Nobles and Murray Counties, Minnesota*, Docket No. IP-6964/CN-16-289 (May 25, 2016), eDockets Doc. ID 20165-121609-01.

[12] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

[13] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 18, 2016) eDockets ID No. 2016-123403-01.

[14] Minnesota Power Informational Response. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (March 30, 2017) eDockets ID No. 2017-130375-01. See also, Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID Nos. 20177-134359-01 through 10.

[15] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 4-1.

[16] *Id.*

[17] *Id*. at 4-2.

needs.[18] Nobles 2 and MP entered into a 20-year PPA for the purchase and sale of all power generated by the Project. The Project will help MP meet a capacity deficit that will begin in 2018, increasing to approximately 300 MW by 2025 and further increase to 500 MW in 2031.[19] Accordingly, in the absence of procuring more energy through sources such as the Project, MP would need to source approximately 10 percent of its energy from the MISO market in the 2025 timeframe, increasing to approximately 20 percent by 2031, resulting in significant market exposure for MP's customers.[20] The deficit is due, in part, to MP's ongoing process of idling, removing or refueling resources, including approximately 700 MW of coal-fired capacity that have already been or are planned to be removed or idled.[21] The addition of the Project, and 10 MW of solar power also proposed to be acquired by MP, will also bring MP's renewable energy resources to 44 percent of its overall energy portfolio while reducing carbon emissions by 40 percent.[22]

MP initiated the process of seeking Commission approval of the PPA with Nobles 2, a PPA for 10 MW of solar and the approval of the construction of a combined-cycle natural gas power plant as part of its Energy*Forward* Resource Package.[23] The need for MP to acquire between 100-300 MW of wind energy has already been determined through its 2015 IRP regulatory review process and the July 2016 IRP Order.[24] On September 19, 2017, the Commission issued an order on MP's Petition and noted, in part, that the "Commission has already approved the acquisition of additional wind and solar generation by [MP], and [MP] shall refile its wind and solar PPAs for Commission approval in a separate docket."[25] As of the date of this Application, MP has not yet refiled the Nobles 2 PPA in a separate docket for Commission approval. Therefore, the Commission has not determined the need for the Project or approved the PPA.

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[18] *Id*. at 4-7.

[19] *Id*. at 1-5.

[20] *Id.* at 2-2.

[21] *Id*. at 1-8.

[22] Reply Comments. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 12, 2017) eDockets ID No. 2017-133783-01

[23] Extension Variance Request. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 8, 2017) eDockets ID No. 20176-132650-01

[24] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 18, 2016) eDockets ID No. 2016-123403-01. See also, Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (March 30, 2017) eDockets ID Nos. 20177-134359-01 through 10.

[25] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan*. Docket ID. E-015/RP-15-690 (September 19, 2017) eDockets ID No. 2017-135644-02.

Should the Commission not approve the Nobles 2 PPA with MP, the Project can be utilized by other utilities who have a need to meet the growing demand for additional renewable resources necessary to meet the RES and other clean energy requirements in Minnesota and neighboring states. Pursuant to Minn. Stat. § 216B.1691, utilities are required to provide 25 percent of their total retail electric sales from eligible renewable resources by 2025. As shown on Table 3.1, the Legislature also established interim milestones to ensure that utilities make progress towards the 25 by '25 requirement.

Table 3.1: 25 X '25 Interim Milestones

Year	Non-Nuclear Utility Requirement	Xcel Energy Requirement
2016	17%	25%
2020	20%	30% (25% from wind)
2025	25%	30% (25% from wind)

On October 30, 2015, the Minnesota Transmission Owners jointly filed the 2015 Biennial Transmission Projects Report (the "Biennial Report"), which outlines the transmission upgrades needed to support development of renewable energy resources needed to meet RES requirements. In the Biennial Report, "[t]he utilities recognize that additional transmission and generation will be necessary for 2020 and beyond in Minnesota, and that other demands for renewable energy will impact Minnesota's compliance status."[26] Minnesota utilities and utilities in the region must develop or purchase a significant amount of additional renewable generation in order to satisfy the RES and other clean energy standards.[27] On August 2, 2017 the Commission found all utilities subject to the RES requirements were in compliance with the 2014 and 2015 RES requirements.[28]

Regardless, a review of utilities' IRPs, requests for proposals, and similar documents confirms that utilities have and will continue to seek additional renewable generation resources in the next several years.[29] In some cases, utilities will be seeking additional renewable energy generation sources above and beyond that which is required by the RES due, in part, to the

[26] 2015 Biennial Transmission Projects Report, Docket No. E999/M-15-439 (Oct. 30, 2015), at 138, eDocket ID No. 201510-115227-01.

[27] *Id.* at 138-39.

[28] Order. *In the Matter of Commission Consideration and Determination on Compliance with Renewable Energy Standards (RES)*. Docket ID. E-999/M-16-83 (August 2, 2017) edockets ID No. 20178-134457-02.

[29] *E.g.*, Xcel Energy, Upper Midwest Resource Plan 2016-2030 (available at https://www.xcelenergy.com/company/rates_and_regulations/filings/upper_midwest_2016-2030_resource_plan); Minnesota Power, 2015 Integrated Resource Plan (available at http://www.mnpower.com/Content/documents/Environment/2015-ResourcePlan.pdf) (approved by the Minnesota Public Utilities Commission on June 10, 2015); Otter Tail Power Company, Application for Resource Plan Approval 2017-2031 (available at https://www.otpco.com/about-us/resource-plan/).

extension of federal renewable energy tax credits.[30] For example, in the MISO region, utilities have expressed a need for more than 1,000 MW of renewable energy (including wind) before 2020.[31] Utilities will continue to require additional renewable energy generation between 2020 and 2030. Given this demand for renewable energy, a market exists for independently produced electricity generated from wind and other renewables, including the up to 260 MW to be generated by the Project.

3.2 ADDITIONAL CONSIDERATIONS

3.2.1 Socially Beneficial Uses of Energy Output

Energy produced by the Project will provide significant, numerous, and varied societal benefits. First, the Project will provide a large amount of renewable energy with minimal environmental impact, as discussed in Section 10 in this application. Further, regional and national security and energy reliability can be enhanced through the development of diversified generation resources such as wind energy generation sources like the Project. The Project will also assist MP in replacing its older coal plants with renewable energy and reducing carbon dioxide emissions.[32]

The Project will also provide a supplementary source of income for the rural landowners and farmers on whose land the Project will be sited. The landowners in the Project footprint who host turbines will receive annual lease payments for each turbine sited on their property. Participating landowners in the footprint will also share in an energy payment, which will be based on the Project's annual energy production. Large-scale wind energy operations usually pay between $4,000 and $6,000 per turbine each year to lease wind rights. Because only a portion of the land will be used for the Project, agricultural operations can continue largely undisturbed. Specifically, although the Project will be sited over an area spanning approximately 42,550 acres, less than one percent of those acres will be removed from agricultural use over the life of the Project.

3.2.2 Promotional Activities Giving Rise to Demand

Nobles 2 was granted an exemption from Minn. R. 7849.0240, subp. 2(B), which requires that each large electric generating facility ("LEGF") CN application contain "an explanation of the relationship of the proposed facility to promotional activities that may have given rise to the

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[30] *E.g.*, Xcel Energy, Upper Midwest Resource Plan 2016-2030 (available at https://www.xcelenergy.com/company/rates_and_regulations/filings/upper_midwest_2016-2030_resource_plan)

[31] *Id.*; *see also* MISO, *Results for MISO's Mid-Term Analysis of EPA's Final Clean Power Plan*, at 14 (Mar. 16, 2016) (stating that study results showed "that a cost effective way to achieve high levels of CO_2 reduction is to build wind in resource-rich areas and transmission to deliver it to the rest of MISO") (available at https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/PAC/2016/20160316/20160316%20PAC%20Item%2002b%20CPP%20Final%20Rule%20Analysis%20Mid%20Term%20Results.pdf).

[32] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 1-8.

demand for the facility." Nobles 2 has not engaged in promotional activities which could have given rise to the need for the electricity to be generated by the Project. Thus, consistent with its determinations in past CN proceedings, the Commission granted an exemption to Nobles 2.

3.2.3 Effects of Facility in Inducing Future Development

The Project is not expected to directly affect development in Nobles County. However, additional wind energy infrastructure in the Project area may nonetheless provide significant benefits to the local economy and local landowners. Landowners in the Project area will benefit from annual lease payments. Additional wind energy infrastructure will also provide an additional source of revenue in to the county and townships in which the Project is sited. For instance, the Project is estimated to provide annual production tax revenues ranging from approximately $1.1 to $1.3 million.

Nobles 2 aims to be a good business neighbor by developing and implementing charitable giving programs in the communities in and around Nobles 2. Charitable programs implemented in association with other projects previously developed and/or operated by Tenaska Inc., or its affiliates often support scholarship programs for local area high school seniors, other educational and youth programs, and first responder and emergency service programs. A community giving policy has been established by Nobles 2 that will be used by Nobles 2 to evaluate funding opportunities.

The Project will also provide significant income opportunities for local residents not affiliated with Project ownership. The Project is anticipated to generate up to 230 construction jobs during the peak of construction activities and approximately 15 full-time operations jobs plus additional seasonal and support staff. The Project has already created consulting, management, and environmental work.

At the same time the Project is providing income to local residents, it will also help make the energy those residents may rely upon less susceptible to volatility.[33] The development of wind energy technology now makes wind power's relative price competitive with, and likely, cheaper than new natural gas and coal-fueled generation.[34] The development of wind energy in Minnesota reduces dependence on potentially volatile fossil fuel markets and helps keep energy dollars in Minnesota.[35]

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[33] U.S. Dept. of Energy, *Wind Vision: a New Era for Wind Power in the United States*, at iivi (March 2015) ("Increased wind power adds fuel diversity, making the overall electric sector 20% less sensitive to changes in fossil fuel costs.") U.S. Dept. of Energy, *2015 Wind Technologies Market Report*, at 65 (Aug. 2016) (stating that wind power can provide a "hedge against rising and/or uncertain natural gas prices").

[34] *Id.* at 21 ("[R]ecent wind PPA prices are quite competitive with natural gas fuel cost projections."); U.S. Energy Information Administration, *Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016*, at Tables 1a, 1b, (August 2016) available at http://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf.

[35] *See* U.S. Dept. of Energy, *Wind Vision: a New Era for Wind Power in the United States*, at iivi (March 2015) (noting benefits of decreased greenhouse gas emissions and air pollution arising from increase wind power).

4.0 COMPLIANCE WITH CERTIFICATE OF NEED CRITERIA (MINN. R. 7849.0120)

The Commission has established criteria to assess the need for an LEGF in Minn. R. 7849.0120. The Commission must grant a CN 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.

As discussed further below, the Project satisfies all four of the Commission's criteria for granting a CN for the Project.

4.1 THE PROBABLE RESULT OF DENIAL OF NOBLES 2'S APPLICATION WOULD BE AN ADVERSE EFFECT ON THE ADEQUACY, RELIABILITY, AND EFFICIENCY OF THE REGIONAL ENERGY SUPPLY (MINN. R. 7849.0120(A)).

The Project will provide up to 260 MW of nameplate capacity to meet the electricity needs of Minnesota and the region. Nobles 2 has negotiated a PPA with MP for 250 MW of the energy generated by the Project and, if necessary due to unforeseen circumstances, including Commission denial of MP's request for approval of MP's entire Energy*Forward* Package, will offer the Project's output for sale on the wholesale market. As discussed in Section 4.2.1, Nobles 2 is also requesting Commission approval to install up to an additional 10 MW of nameplate capacity to, in part, account for the terms of the PPA with MP and to, in part, provide a hedge against expected and unexpected disruptions in turbine availability. Denying the application would result in the loss of a significant amount of electricity needed to satisfy state and regional demand and would deny MP and its customers the opportunity to purchase clean, low-cost energy that will count toward satisfying the RES and/or other clean energy standards.

As discussed in Section 3.1, there is a significant body of state legislative policy requiring utilities to obtain a certain percentage of their total energy resources from renewable energy, which supports the need for reliable, efficient renewable resources, like the wind energy produced by the Project. While MP is currently positioned to meet its 2025 RES targets, it continually assesses a wide range of power supply resources, including renewable energy sources such as wind, to augment its portfolio.[36]

MP identified five significant factors that contribute to its projected need for capacity and energy from the Project and additional resources by the mid-2020's: MP projects increases in its customer load of about 180 MW; MP will be retiring two coal-fueled facilities in 2018, resulting in the loss of approximately 135 MW of supply from MP's system; a purchase contract for 100 MW of lignite coal resources is expiring; short-term contracts for 250 MW of capacity are expiring; and MP idled and will terminate coal-fired operations at its Taconite Harbor Energy Units 1 and 2 in 2020.[37]

Further, MP discovered that an additional 250 MW of wind energy generation in a different geographical region than MP's current wind assets in North Dakota, will provide valuable diversification of wind energy production.[38] MP also determined that 250 MW balances MP's customer needs and reduces customer cost without oversupplying MP's power supply with excess wind energy.[39]

In addition to the specific need for renewable energy to serve Minnesota utilities, many other states in the region have similar renewable energy requirements. For example, Illinois requires certain utilities to obtain 25 percent of eligible sales from renewables by 2025.[40] Similarly, North Dakota has adopted the national "25 by '25" initiative, which establishes a goal of having not less than 25 percent of total energy consumed within the United States come from renewable resources by January 1, 2025.[41] Although by the end of 2016 16,802 MW of wind power nameplate capacity have been installed throughout the MISO footprint,[42] the regional need for renewable resources, and the potential to produce renewable resources from wind, far

[36] Compliance Filing. *In the Matter of Commission Consideration and Determination on Compliance with Renewable Energy Standards.* Docket ID. E-999/M-16-83 (June 1, 2016) eDocket ID No. 20166-121842-02.

[37] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 2-2

[38] *Id*. at 3-6

[39] *Id*.

[40] 20 Ill. Comp. Stat. sec. 3855/1-75(c)(1).

[41] *See* N.D. Cent. Code. § 17-01-01.

[42] *See* American Wind Energy Association, *Annual Report 2016,* at 110.

exceeds this number.[43] Based on this data, there is a need for more wind power to adequately, reliably, and efficiently meet the region's need for renewable energy than is currently available.

4.2 NO MORE REASONABLE AND PRUDENT ALTERNATIVE TO THE NOBLES 2 WIND PROJECT HAS BEEN DEMONSTRATED (MINN. R. 7849.0120(B)).

Minn. R. 7849.0120(B) requires a CN 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.

4.2.1 Size, Type, and Timing.

When evaluating alternatives, the Commission examines whether the project is the appropriate size, whether it is the right type, and whether the timing is appropriate. With respect to other proposed wind projects, the Commission has concluded that the proper inquiry in evaluating the size of the project is the appropriateness of the size of the project to the overall state and regional need for renewable energy. As demonstrated in Section 3.1, the need for renewable energy in Minnesota in the coming years far exceeds the amount of energy to be supplied by the Project. Moreover, in the July 2016 IRP Order, the Commission determined that MP had a need to purchase 100-300 MW of wind energy.[44] On September 19, 2017, the Commission again issued and noted, in part, that the Commission has already approved the acquisition of additional wind generation by MP."[45]

After the Commission issued its order for a range of MW of wind energy, MP conducted additional analyses to determine the amount of additional wind energy generation that would be most effective for its system.[46] Through those analyses, the Project was selected most often from the various wind RFP responses modeled in MP's Strategist expansion plan analysis.[47] MP also discovered that an additional 250 MW of wind energy generation in a different geographical region than MP's current wind assets in North Dakota, will provide valuable diversification of wind energy production.[48] Furthermore, MP determined that 250 MW balances MP's customer

[43] *See Id.* at 65 (describing wind capacity in the upper Midwest); MISO, MISO Transmission Expansion Plan 2015, at 102 (explaining that certain proposed transmission projects will facilitate the interconnection of "41 million MWh of wind energy to meet renewable energy mandates and goals"), https://www.misoenergy.org/Library/Repository/Study/MTEP/MTEP15/MTEP15%20Full%20Report.pdf.

[44] July 2016 IRP Order.

[45] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 19, 2017) eDockets ID No. 2017-135644-02.

[46] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 3-6

[47] *Id.*

[48] *Id.*

needs and reduces customer cost without oversupplying MP's power supply with excess wind energy.[49]

Nobles 2 is also seeking Commission approval to install up to an additional 10 MW of nameplate capacity, beyond the 250 MW to be purchased by MP, for the following reasons:

- The defined term Installed Capacity in the Nobles 2 PPA contemplates up to 253 MWs of nameplate capacity being installed (Appendix C). To account for the terms of the PPA, Nobles 2 is requesting approval to install a nameplate capacity greater than 250 MWs.

- The installation of up to 10 MW of additional generating capacity could serve as a hedge or self-insurance against planned and unplanned wind turbine generator outages.

Regarding the type of facility, the Commission granted Nobles 2 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 that will satisfy the RES and other clean energy standards.

MP identified five major factors that contribute to its projected need for capacity and energy from the Project and additional resources by the mid-2020's: MP projects increases in its customer load of about 180 MW; MP will be retiring two coal-fueled facilities in 2018, resulting in the loss of approximately 135 MW from MP's system; a purchase contract for 100 MW of lignite coal resources is expiring; short-term contracts for 250 MW of capacity are expiring; and MP idled and will terminate coal-fired operations at its Taconite Harbor Energy Units 1 and 2 in 2020.[50] The Project is expected to be on-line and operational by the end of 2019, depending on completion of regulatory approvals and the MISO interconnection process. This will help MP secure necessary capacity and energy to meet its identified needs in a timely manner. The Nobles 2 Project is the correct size and type of facility and will be delivered on the time frame required to meet MP's needs or the needs of other utilities seeking economical renewable energy prior to the expiration of the PTC.

4.2.2 Cost Analysis.

As noted in Section 3.1, MP selected the Project through a competitive acquisition process. MP received proposals for 35 project sites from 17 bidders, totaling over 5,000 MW of nameplate capacity.[51] MP utilized the services of Sedway Consulting, Inc., an independent third

[49] *Id.*

[50] *Id.* at 2-2.

[51] *Id.* at 4-1.

party evaluator to assist in reviewing the proposals received in response to its wind RFP.[52] MP then used Sedway Consulting's economic analysis to shortlist RFP responses and initiated contract negotiations with the selected counterparties.[53] The shortlisted other proposals had higher net costs than the Project and other attributes that made them less attractive than the Project for meeting MP's resource needs.[54] Accordingly, Nobles 2 secured a PPA with MP for the sale of the energy to be produced by the Project at an attractive price and with attractive terms. As an independent power producer, the risk of the PPA not being approved by the Commission, the risk of otherwise not selling the Project's output, and the risk of construction and operational cost overruns all lies entirely with Nobles 2, and not with the State of Minnesota or ratepayers. The Project will generate electricity at a lower cost per kilowatt hour than would other possible renewable energy options, such as solar, hydroelectric and biomass.[55]

4.2.3 Potential Environmental and Socioeconomic Impacts.

The purpose of this analysis is to compare the potential impacts of various renewable generation options. The Commission and the Department have previously concluded that the environmental impacts of a wind power project are minimal and significantly less than a fossil-fuel based facility. At the same time, the socioeconomic benefits of a utility-scale wind power project are considerable, as described in Section 4.3 below. For example, the Project will allow landowners to continue to use over 99 percent of the existing cropland for agricultural and other uses.

4.2.4 Reliability.

The Project turbines are expected to be available approximately 95 percent of the time, consistent with other utility-scale wind projects.

4.3 THE NOBLES 2 WIND PROJECT WILL BENEFIT SOCIETY IN A MANNER COMPATIBLE WITH THE NATURAL AND SOCIOECONOMIC ENVIRONMENTS (MINN. R. 7849.0120(C))

Minn. R. 7849.0120(C) requires a CN applicant to address whether the proposed project will benefit society in a manner that is compatible with protecting natural and socioeconomic environments, including human health. Applying the factors set forth in Minn. R. 7849.0120(C), the energy produced by the Project will provide significant, numerous, and varied societal benefits, with minimal negative impacts.

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[52] Order. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 18, 2016) eDockets ID No. 2016-123403-01

[53] *Id*. at 4-2.

[54] *Id*. at 4-7.

[55] *See* Energy Information Agency, *Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016* (predicting that in 2022, the cost per megawatt hour of wind energy would be lower than that of other renewable energy options), https://www.eia.gov/forecasts/aeo/electricity_generation.cfm.

4.3.1 Overall State Energy Needs

As discussed in Section 3.1 above, utilities continue to require renewable energy to meet the RES and other clean energy standards, as well as to meet consumers' energy demands. In the July 2016 IRP Order, the Commission determined MP had a need to procure between 100 and 300 MW of wind energy.[56] Thus, the Project is compatible with Minnesota's energy needs.

4.4 POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS COMPARED TO NO-BUILD ALTERNATIVE

Negative impacts to socioeconomic resources will be relatively minor. Only approximately 115 acres of agricultural land (i.e., <0.5 percent of the 30,356 acres of land under leases and easements with Nobles 2) will be permanently removed from production, and the areas surrounding each turbine will still be able to be farmed. Project construction will not negatively impact leading industries within the Project area. There is no indication that any minority or low-income population is concentrated in any one area of the Project.

One of the greatest attributes of wind energy is its minimal impact on the environment. The Project will not release carbon dioxide, sulfur dioxide, nitrogen oxides, mercury, or particulate matter. It will not require water for power generation and will not discharge wastewater containing any heat or chemicals during operation. It will produce energy without the extraction, processing, transportation, or combustion of fossil fuels. The Project will permanently impact less than one percent of the total acreage within the Project's boundaries, and will be sited so as to minimize environmental impacts.

The development of wind energy has been and will continue to be important in diversifying and strengthening the economic base of Nobles County and Minnesota. Local contractors and suppliers will be used for portions of construction when possible. Wages and salaries paid to contractors and workers in Nobles County 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 county and the state. Expenditures made by the Applicant for equipment, fuel, operating supplies, and other products and services will benefit businesses in the county and the state. Participating landowners within the Project footprint will receive annual lease payments for the life of the Project, and these payments will diversify and strengthen the local economy.

Long-term benefits to the county's tax base as a result of the construction and operation of the Project will contribute to improving the local economy. For example, the Project will pay a Wind Energy Production Tax to the local units of government of $0.0012 per kWh of electricity produced, resulting in an annual Wind Energy Production Tax ranging from approximately $1.1 to $1.3 million.

Not building an electrical generation facility would result in no physical impact to the environment in Nobles County. However, not building the Project would also withhold an

[56] *Id.*

additional source of tax revenues to the county, an increase in the income stream to residences and businesses, or an increase in the amount of low-cost, clean, reliable renewable energy available to state or regional utilities and their customers. The Project will have a minimal impact on the physical environment, while simultaneously providing significant benefits.

4.4.1 Inducing Future Development

Although the Project is not expected to directly affect development in Nobles County, the Project will provide significant benefits to the local economy and local landowners. Landowners in the Project area will benefit from annual lease payments, and installation of wind energy infrastructure will increase the local tax base in the county and townships in which the Project is sited. The Project will also provide significant income opportunities for local residents through the creation of temporary construction and permanent O&M positions.

4.4.2 Socially Beneficial Uses of Output

The Project will produce affordable, clean, renewable energy that will help meet renewable energy demands of MP and the RES and other clean energy standards. It will produce enough energy to meet the energy needs for approximately 62,000 to 75,000 average Minnesota households annually. In addition, the local economy will benefit from the landowner lease payments for turbine siting, production taxes, income from jobs created, and local spending.

4.5 THE NOBLES 2 WIND PROJECT IS CONSISTENT WITH FEDERAL, STATE, AND LOCAL RULES AND POLICIES (MINN. R. 7849.0120(D))

4.5.1 The Project is Consistent with Minnesota Energy Policy

The Project will provide a significant amount of renewable energy, which is consistent with Minnesota's policy to increase renewable energy use. Wind, as renewable energy, is a favored energy resource under Minnesota law.[57] In addition, as discussed previously, the RES includes the "25 by '25" requirement, which mandates increased electric generation from renewable resources.[58] The state has also set a goal to reduce statewide greenhouse gas emissions across all sectors producing those emissions 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.[59] Adding additional sources of electric energy with no emissions, like wind energy, is essential to meeting these goals.

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[57] *See* Minn. Stat. § 216B.243, subd. 3a ("The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, 'renewable energy source' includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.").

[58] Minn. Stat. § 216B.1691, sub. 2a.

[59] Minn. Stat. § 216H.02.

MP's acquisition of the power generated by the Project will allow MP to reduce carbon dioxide ("CO_2") emissions, replace existing coal-fired generation, and diversify both the location and type of its energy supply. As previously mentioned, the Minnesota Green House Gas Emissions Reduction Goal identifies greenhouse gas emission reduction targets of 30 percent below 2005 levels by 2025 and 80 percent below 2005 levels by 2050.[60] The Project will help MP exceed compliance with the state goals by helping to replace nearly 700 MW of older coal generation that has been or will be retired, removed, refueled or idled by 2025.[61] Overall, the Project will help MP achieve a 41 percent reduction in greenhouse gas emissions by 2025.[62] The Project is also geographically separated from MP's existing wind resources in North Dakota, spreading weather and energy price risk.[63]

Further support for the conclusion that the Project is consistent with state energy policy can be found in the favorable tax treatment that wind energy facilities receive. The state legislature has exempted all real and personal property of wind energy conversion systems from property taxes.[64] Wind energy conversion systems, as well as the materials used to manufacture, install, construct, repair, or replace wind systems, are also exempt from state sales tax.[65]

4.5.2 The Project is Consistent with Applicable Minnesota Statutory Provisions

In addition to the criteria set forth in Minn. R. Ch. 7849, there are a number of statutory provisions that may apply to a CN application. As discussed below, the Project is consistent with these statutory requirements.

4.5.2.1 Renewable Preference

Minn. Stat. § 216B.243, subd. 3a provides a preference for renewable resources:

> The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive

[60] Minn. Stat. § 216H.02

[61] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 1-8.

[62] *Id*. at 3-16

[63] *Id*. at 1-8

[64] Minn. Stat. § 272.02, subd. 22.

[65] Minn. Stat. § 297A.68, subd. 12.

> (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, 'renewable energy source' includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

Minn. Stat. § 216B.2422, subd. 4, is also applicable:

> The commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest.

The Project consists of a renewable energy source and is therefore consistent with Minnesota's preference for renewable energy and satisfies these statutory criteria by furthering available resources to meet this renewable energy preference.

4.5.2.2 Distributed Generation

Minn. Stat. § 216B.2426 states that:

> The commission shall ensure that opportunities for the installation of distributed generation, as that term is defined in section 216B.169, subdivision 1, paragraph (c), are considered in any proceeding under section 216B.2422, 216B.2425, or 216B.243.

Pursuant to Minn. Stat. § 216B.169, subd. 1(c), "distributed generation" references projects of less than 10 MW. The Project's transmission opportunities and economies of scale make it a superior renewable resource choice as compared to distributed generation projects that have available transmission but not the economies of scale that will be realized through this Project.

4.5.2.3 Innovative Energy Preference

Minnesota also requires the Commission to consider an innovative energy project[66] before authorizing construction or expansion of a fossil-fueled generation facility. Minn. Stat. § 216B.1694, subd. 2(a)(4). Because the Project is not a fossil-fuel facility, this requirement is not applicable.

[66] An "innovative energy project" is defined as a coal-burning facility employing innovative technology and located on the Iron Range. Minn. Stat. § 216B.1694, subd. 1.

4.5.2.4 RES Compliance

Minn. Stat. § 216B.243, subd. 3(10) requires the Commission to evaluate whether a CN applicant is in compliance with Minnesota's RES. Nobles 2, however, is not subject to the RES because it has no retail sales of electricity in Minnesota. Therefore, this requirement does not apply to the Project.

4.5.2.5 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. As the Commission and the Department of Commerce have determined, this statute does not apply to renewable generation facilities such as the Project.[67]

4.5.2.6 Transmission Planning Compliance

Minn. Stat. § 216B.243, subd. 3(10) requires the Commission to consider whether a utility seeking a CN is in compliance with certain transmission planning requirements to meet the RES. As an independent power producer, this statute does not apply to Nobles 2.

4.5.3 The Project is Consistent with Federal Energy Policy

4.5.3.1 Clean Power Plan

The finalized Clean Power Plan ("CPP") was announced by President Obama and the Environmental Protection Agency on August 3, 2015. Under the CPP, carbon dioxide emissions will be cut from existing power plants by 32% from 2005 levels.[68] On October 10, 2017, the Environmental Protection Agency issued a notice for its proposal to repeal the CPP.[69] Despite a pending federal lawsuit, Minnesota has pledged to move forward with preparations to comply with the CPP. Accordingly, the Minnesota Pollution Control Agency ("MPCA") is currently reviewing the CPP and assessing potential pathways for compliance. MPCA states that the Minnesota state plan "will need to consider current and new electricity production and pollution control policies in order to achieve necessary carbon pollution reductions while supporting reliable, affordable power for all Minnesotans."[70] The Project will help MP significantly reduce its CO_2 emissions by helping to replace nearly 700 MW of older coal generation that has been or

[67] *Elm Creek*, Docket No. IP6631/CN-07-789, Commission Order Granting Certificate of Need (Jan. 15, 2008), at 12.

[68] *E.g.*, https://www.pca.state.mn.us/air/clean-power-plan-rulemaking-minnesota.

[69] *See*. https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-repealing-clean-power-plan

[70] *Id.*

will be retired, removed, refueled or idled by 2025.[71] The Project will help MP achieve a 41 percent reduction in greenhouse gas emissions by 2025.[72]

4.5.3.2 Tax Incentives

Federal energy policy provides significant U.S. federal tax incentives to attract investment in renewable energy projects, including wind energy conversion projects like the Project.

The renewable electricity PTC provided by Section 45 of the Internal Revenue Code provides for a federal income tax credit for each qualified kilowatt hour sold by a project during the tax year for the first ten years of the life of the project. In December 2015, the Consolidated Appropriations Act extended the expiration date for the PTC for wind facilities to December 31, 2019. The PTC is currently $0.023 per kWh and is phased down each calendar year for facilities commencing construction between January 1, 2017 and December 31, 2019. According to the Internal Revenue Service, commencement of construction is determined by either the 'physical work test' or the payment or incursion of five percent of the total cost of the project.[73] Nobles 2 has incurred five percent of the total cost of the Project through the purchase of Vestas V110 2.0 MW wind turbines. Accordingly, between 10 and 21 V110 turbines must be utilized as part of the Project to satisfy PTC requirements. The final number of Vestas V110-2.0 MW turbines will be determined by Nobles 2 based upon PTC requirements, turbine availability and other economic considerations.

4.5.4 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 12.4 in Section 12.4 provides a list of approvals the Project may need to obtain from governmental entities to demonstrate full compliance. Nobles 2 is committed to obtaining all necessary environmental and other approvals required under federal, state, and local requirements.

5.0 DESCRIPTION OF PROJECT AND ALTERNATIVES (MINN. R. 7849.0250)

5.1 PROPOSED PROJECT (MINN. R. 7849.0250(A))

The Project will consist of an array of wind turbines, electrical collection system, access roads, permanent meteorological towers, temporary crane paths, substation and interconnection

[71] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 1-7.

[72] *Id*. at 3-16

[73] *See* https://energy.gov/savings/renewable-electricity-production-tax-credit-ptc

facilities, an operation and maintenance facility, and other infrastructure typical of a wind farm. The Project will interconnect to an existing 115 kV line that is located in the west-central portion of the Project footprint. The turbines will be interconnected by communication and electric power collection cables within the wind farm. See Figures 2a and 2b.

Each turbine will be accessible via all-weather gravel roads that are approximately 16 feet wide, depending on the turbine size selected, and will extend from public roads to the turbines. Nobles 2 estimates that up to 25 miles of gravel access roads will be constructed, depending on the final design. Land will be graded on-site for the turbine pads. Drainage systems, access roads, crane paths, storage areas, and O&M facilities will be installed as necessary to fully accommodate all aspects of the construction, operation, and maintenance of the Project.

Nobles 2 is proposing to utilize between 65 and 82 turbines ranging from 2.0 to 4.2 MW in size. Nobles 2 made its turbine selections based on optimization of wind and land resources, as well as cost-efficiency. The turbine selected will have Supervisory Control and Data Acquisition ("SCADA") communication technology, which permits automatic, independent operation, and remote supervision that allows simultaneous control of the wind turbines. In addition, Nobles 2 will maintain a computer program and database to track each wind turbine's operational history.

Each tower will be secured by a concrete foundation that can vary in design depending on the soil conditions. A control panel inside each turbine will house communication and electronic circuitry. Each turbine will be equipped with a wind speed and direction sensor that communicates to the turbine's control system to signal when sufficient winds are present for operation. The turbines feature variable-speed control and independent blade pitch to assure aerodynamic efficiency.

In the nacelle of each turbine, a step-up transformer will be installed to raise the voltage to power collection line voltage of 34.5 kV. Generally, the electrical lines will be buried in trenches. At the public road, the power collection lines will either rise from underground to overhead lines or continue as underground lines. The collection lines will occasionally require an aboveground junction box when the collection lines from separate spools need to be spliced together.

Power generated by the Project will reach the electric grid by traveling through approximately 77 miles of 34.5 kV collector circuits to the newly-constructed project substation. The Project will then interconnect on the Nobles to Fenton 115 kV transmission line. The electrical system design and the interconnection details will be determined as a result of studies currently being conducted by, and agreements with, MISO.

5.1.1 Nominal Generating Capacity and Effect of Economies of Scale

Each turbine will have a net nominal rating of between 2.0 and 4.2 MW. Larger wind projects, such as the Project, can realize economies of scale by spreading out the relatively fixed transaction, operation, and maintenance costs over the entire project, resulting in decreased costs per kWh of electricity produced.

5.1.2 Annual Capacity Factor

A net capacity factor of between approximately 42.5 percent and 47 percent, with projected average annual output of between approximately 930,000 and 1,100,000 MWhs, is anticipated for the Project.

5.1.3 Fuel

The wind turbines will be powered by the wind.[74]

5.1.4 Anticipated Heat Rate

The conversion of wind to electricity does not generate heat as combustion or nuclear electricity generation facilities would when generating electricity. Therefore, heat rates are not applicable to a wind project.

5.1.5 Facility Location

The Project will be located within Bloom, Larkin, Leota, Lismore, Summit Lake, and Wilmont Townships in Nobles County. The closest cities to the Project area are Wilmont, Lismore, and Reading Minnesota. The Project area spans approximately 42,550 acres, and Nobles 2 currently has site control over approximately 30,356 acres. Of this total, approximately 115 acres or < 0.5 percent will be permanently impacted by the construction and installation of wind turbines, access roads, and ancillary facilities. Approximately 64 acres of the total would be associated with the construction of turbine pads, and 43 acres of the total would be associated with the construction of access roads. Approximately 4 additional acres of land will be used for construction of the proposed substation and another 4 acres of land would be associated with construction of the proposed O&M facility. Approximately 10 additional acres of land will be used for a temporary construction laydown area.

The Project area is rural with an agricultural-based economy. The Project site was selected based on its excellent wind resources, its close proximity to existing transmission infrastructure and substations, and the landowners' interest in participating in the Project.

5.2 AVAILABILITY OF ALTERNATIVES (MINN. R. 7849.0250(B))

The objective of this alternatives analysis is to determine whether there are other energy sources that can satisfy the need identified for the Project. As noted above, the Commission has determined that MP has a need to purchase between 100-300 MW of wind energy as part of its

[74] Minn. R. 7849.0250(A)(3) also requests information projecting the availability of the Project's fuel source and alternative fuels. The Commission has determined that these data requirements are inapplicable to a wind facility because Minnesota's wind resources are more than sufficient to support a wind facility, which cannot use an alternative fuel source. *See, e.g., In the Matter of the Application of High Prairie Wind Farm II, LLC for a Certificate of Need for a Large Energy Facility*, Docket No. PT-6556/CN-06-1428, Order (Dec. 11, 2006).

2015 IRP[75]. MP also determined, through its competitive bidding process, that the Project was the least-cost alternative to meet its needs of 250 MW of wind energy.[76] In the event the Commission does not approve the PPA with MP, the Project is a generation source that Nobles 2 can market to aid other utilities in satisfying the renewable energy need created by the Minnesota RES and other federal and state renewable and clean energy standards. Therefore, non-renewable energy sources have been excluded from this alternatives analysis.[77] The criteria used in this analysis include: (1) is the energy source cost-effective; (2) is the energy source commercially-proven and reliable for the electrical generation output needed; and (3) is the energy source appropriate for the site selected.

Developing and operating generating sources that are cost-effective and use proven technology is particularly important to an independent power producer, like Nobles 2. Nobles 2 does not have access to ratepayer funds that could provide a resource for retirement of capital investments. In addition, as a seller of electricity to MP, Nobles 2 must keep its prices – and, thus, its costs – low enough to remain competitive. For these reasons, Nobles 2 must exercise diligence in deciding where and when to pursue opportunities for capital investment in new power-generating facilities. As indicated in this application, the current pricing for wind energy is more cost effective than other renewable and non-renewable sources of electricity. Moreover, MP's selection of the Nobles 2 Project after MP's competitive bidding RFP process indicated the Project is cost effective when compared to other wind energy projects.

Commercial feasibility and reliability with respect to the generation output needed are important considerations in selling the power generated, and wind is a proven and reliable resource. However, with respect to the alternatives discussed below, without a guaranty of long-term reliability and cost-effectiveness, it is difficult or impossible to convince customers that an unproven technology should be selected for purchase.

5.2.1 Alternatives Considered

Nobles 2 respectfully submits and hereby incorporates by reference MP's 2015 IRP which was approved by the Commission, with modifications, via the July 2016 IRP order.[78] Chapter IV and Appendix K of MP's 2015 IRP discuss the various renewable energy alternatives available to meet MP's resource needs and generally sets forth a qualitative analysis of the cost-

[75] Order. *In the Matter of Minnesota Power's2016-2030 Integrated Resource Plan.* Docket ID E-015/RP-15-690 (July 18, 2016). eDockets ID No. 2016-123403-01.

[76] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 4-15.

[77] Minn. R. 7849.0250(B)(4) requires an applicant to discuss the availability of new generating facilities of a different size or using a different energy source as an alternative to the proposed facility. The Commission granted Nobles 2 a partial exemption from this data requirement, and Nobles 2 will discuss only renewable alternatives. However, it is important to note the MP is seeking Commission approval for a combined cycle natural gas facility and 10 MW of solar in addition to a PPA for the Project as part of its Energy*Forward* Release Package.

[78] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

effectiveness of the renewable energy alternatives.[79] Further, the Commission considered MP's 2015 IRP and determined MP needed to acquire between 100-300 MW of installed wind capacity and additional solar capacity[80]. Additional alternatives are considered below.

5.2.1.1 Purchased Power

Nobles 2 is an independent power producer and does not purchase power. Instead, Nobles 2 will sell power to MP, or, if necessary, other utilities or other potential customers. As such, this data requirement is not applicable, and the Commission granted Nobles 2 an exemption.

5.2.1.2 Upgrades to Existing Resources

Nobles 2 has no existing facility in Minnesota for which it might seek improved operating efficiency. As such, this data requirement is not applicable, and the Commission granted Nobles 2 an exemption.

5.2.1.3 New Transmission

Nobles 2 has no plans to become involved in owning or operating transmission lines beyond the collection and feeder lines that will be needed for interconnection of the Project. The development, construction, and operation of transmission and distribution lines designed to deliver power to end use customers will be left to utilities with defined service area obligations to retail customers. As such, this data requirement is not applicable, and the Commission granted Nobles 2 an exemption.

5.2.1.4 Solar Power

Minnesota has a significant and important solar resource that can and is being used for capacity services within the State's generating portfolio. However, advances to make solar installations more dense would be needed to make solar a reasonable alternative to the Project. Specifically, Nobles 2 estimates that, for a solar project to meet the same amount of direct energy output as the Project, the solar project would need to have more than 570 MW of nameplate capacity covering more than 2,850 acres of land. In Nobles 2's experience, assembling that large of a tract of land is prohibitively expensive. In addition, the current estimated levelized cost of solar is more expensive than wind.[81]

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[79] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 and 05.

[80] July 2016 IRP Order.

[81] *See* Energy Information Agency, *Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016* (predicting that in 2022, the cost per megawatt hour of wind energy would be lower than that of other renewable energy options, including solar), https://www.eia.gov/forecasts/aeo/electricity_generation.cfm

5.2.1.5 Hydropower

Hydropower is also not an alternative to the Project. In 2010, hydropower in Minnesota produced 534,259 MWh of power, down from 574,680 MWh in 2005 and 635,541 MWh in 2000 – a 20% decrease over ten years.[82] According to the 2012 Quad Report, this decline is primarily caused by "[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."[83]

5.2.1.6 Biomass

Minnesota communities do have accessible and low-value biomass feedstocks. However, the cost of these feedstocks vary widely, and the supply of biomass feedstock is limited.[84] 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.

5.2.1.7 Emerging Technologies

New renewable emerging power generation technologies are being developed, and Nobles 2 believes that the current approaches are not sufficiently mature to provide the output needed to match the nameplate capacity of the Project or to be cost-effective and reliable.

5.2.1.7.1 Pumped Storage

The proposed site in Nobles County is not suited to a pumped storage application because the topography of the site is relatively flat and pumped storage requires the storage of large amounts of water in an elevated reservoir. Therefore, pumped storage is only commercially and technically viable in locations with certain existing geology for water storage and large (i.e., steep) elevation changes. In addition, there is currently no net generation from pumped storage in Minnesota.[85] Accordingly, this technology is not an alternative to the Project.

5.2.1.7.2 Compressed Air

Highly specialized geological sites are needed to make use of compressed air technology. Such sites are scarce in Minnesota, and those that do exist are not located in the vicinity of the

[82] Minnesota Department of Commerce, *Energy Policy and Conservation Quadrennial Report 2012* (hereinafter, "2012 Quad Report"), at 21.

[83] *Id.*

[84] 2012 Quad Report, at 20.

[85] EIA, Net Generation from Hydroelectric (Pumped Storage) Power by State by Sector, *available at* http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_1_12_a (accessed July 26, 2017).

site. This technology has been implemented on a limited basis; accordingly, it is not an alternative to the Project.[86]

5.2.1.7.3 Thermal Storage

This technology, which makes use of accumulated heat transferred to insulated repositories, is not yet commercially-proven. Moreover, the Project is intended to generate electricity, not store electricity. The storage of electricity is not being considered as a part of the Project. Accordingly, it is not an alternative to the Project.

5.2.1.7.4 Hydrogen and Fuel Cells

Hydrogen, and its use in fuel cells, has received a lot of attention for its potential to impact energy production and use. Fuel cells can be used to produce energy in the form of electricity and heat. This energy can be applied to power vehicles and buildings. Fuel cells use a chemical reaction rather than a combustion reaction. Fuel cells have a similar level of efficiency as natural gas combustion sources, and, when using hydrogen as fuel, have nearly no pollution. Hydrogen, however, is expensive, as it requires substantial amounts of energy to produce. While much research is being done regarding hydrogen and fuel cells, the technology is not yet available on a commercial scale.

5.2.1.7.5 Non-CN Facilities (Minn. R. 7849.0120(A)(4))

Under Minn. Stat. §§ 216B.2421 and 216B.243, subd. 2, and Minn. R. Ch. 7849, a CN is required for the Project because it is a "large energy facility," *i.e.*, larger than 50 MW. As an independent power producer, Nobles 2 must compete with other available technologies to sell power on the wholesale market, if necessary. Due to the size of the Project, Nobles 2 has the advantage of additional economies-of-scale not available to smaller, non-CN facilities.

5.2.1.8 No Facility Alternative (Minn. R. 7849.0340)

The Commission granted Nobles 2 an exemption from Minn. R. 7849.0340, which 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. The 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).

Nobles 2 does not have a "system," nor does it have other generation and transmission facilities in Minnesota. As such, the requirements of Minn. R. 7849.0340 are not applicable to the Project and are not necessary to determine need for the facility. Instead, Nobles 2 will provide data regarding the impact of the "no facility" alternative on its potential customers and the region.

[86] See e.g., http://www.powersouth.com/mcintosh_power_plant/compressed_air_energy

Given that the Project is designed to increase the amount of energy available for purchase on the wholesale market that will satisfy clean energy standards, not building the facility is not an alternative. Not building the facility would result in no increase in renewable energy and, in turn, no opportunity for utilities to purchase the Project's output to satisfy the RES and other clean energy standards. Such an outcome is contrary to Nobles 2's objective for the Project and will not satisfy the state and regional need for renewable energy.

Notwithstanding the foregoing, Nobles 2 respectfully submits MP's 2015 IRP to meet the requirements of Minn. R. 7849.0340.[87] The extensively developed information found in MP's 2015 IRP contains all relevant information related to MP's system and future resource needs[88].

Approval of Nobles 2's application for a CN would allow MP to meet its energy requirements in a cost-effective and reliable manner, in compliance with the July 2015 IRP Order. The alternative of not building the Project would require MP to purchase other wind energy to meet the requirements of the July 2016 IRP Order. The cost of replacement energy is likely to be higher than that produced by the Project.

5.2.1.9 Facility Information for Alternatives Involving Construction of a LHVTL (Minn. R. 7849.0330)

The Commission granted Nobles 2 an exemption from Minn. R. 7849.0330, which requires the applicant to provide certain data for each alternative that would involve construction of a large high voltage transmission line ("LHVTL"). Transmission facilities are not true alternatives to the Project, since the purpose of the Project is to increase the supply of available renewable energy. The Project will interconnect via a new switch yard located along the Nobles to Fenton 115 kV Line. Any transmission line for the Project will be short and limited in use to connecting the Project to the broader transmission system. Nobles 2 does not currently plan on installing any facilities that would be defined as an LHVTL. Thus, it is anticipated that the electricity generated will be transmitted via facilities owned or operated by others. For these reasons, Minn. R. 7849.0330 is not applicable, and the Commission granted Nobles 2 an exemption from this data request.

5.2.1.10 Combinations

No combination of the aforementioned alternatives would be appropriate because, as compared to the Project, they would not enable Nobles 2 to more efficiently or cost-effectively produce electric output to be purchased by MP or other utilities to provide needed energy and satisfy the RES and other clean energy standards.

5.2.2 Economic Comparison

[87] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

[88] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

Table 5.2.2 below, taken from the EIA, demonstrates that wind energy has both a lower capital cost and a lower operating cost than other types of renewable resources. Wind continues to be the most practical of all renewable generation.

Table 5.2.2: Renewable Technology Costs[89]

Technology	Size (MW)	Total Overnight Cost in 2015 (2015 $/kW)	Variable O&M (2015 $/mWh)	Fixed O&M (2015 $/kW/yr.
Fuel Cells	10	7,181	44.21	0.00
Biomass	50	3,765	5.41	108.63
Conventional Hydropower	500	2,411	2.62	14.70
Wind	100	1,644	0.00	45.98
Photovoltaic	150	2,480	0.00	21.33
Solar Thermal	100	4,168	0.00	69.17

5.2.3 Alternatives Summary

The Project is the best alternative for meeting the renewable energy needs in Minnesota and the region in the near term. All other potential alternatives reviewed by Nobles 2, including the use of alternative renewable resources or emerging technologies, non-CN facilities, or the no-build alternative, fall short in one or more categories. Moreover, Nobles 2 competed with other sources of energy to obtain a power purchase agreement and was able to secure a PPA with MP. Nobles 2's analysis demonstrates that the Project is a cost-effective energy resource; the Project uses commercially proven and reliable generating technology for the electrical generation output needed; and the Project is the energy source appropriate for the site selected for the Project.

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

The Commission granted Nobles 2 a partial exemption from Minn. R. 7849.0250(C)(1) – (9), which requires a discussion of various details regarding both the proposed facility and each of the alternatives discussed in response to Minn. R. 7849.0250(B). Consistent with the Commission granting Nobles 2 a partial exemption from the data requirements in Minn. R. 7849.0250(B), thereby limiting 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 discussed above, no such alternatives exist. Therefore, only information regarding the Project is applicable.

Nonetheless, Nobles 2 also submits MP's 2015 IRP to fulfill the requirements of Minn. R. 7849.0250(c).[90] Chapter IV and Appendix K of MP's 2015 IRP discuss those options available to meet MP's resource needs, and sets forth a qualitative analysis of the cost-

[89] The figures in this table are taken from a report of the U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2016 (January 2017*), at 107, *available at* http://www.eia.gov/forecasts/aeo/assumptions/pdf/electricity.pdf.

[90] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

effectiveness of renewable energy alternatives.[91] This information and the July 2016 IRP Order further demonstrates the need for this Project and supports MP's decision to purchase the energy generated by the Project.

5.3.1 Capacity Cost

Wind energy projects are accredited by MISO at a fairly low capacity rate (currently about 15% of nameplate) and are most often used as energy resources. Thus, costs for wind energy facilities are typically not expressed in terms of capacity costs. The Project will deliver energy and accredited capacity to utilities on an as-generated basis and will receive payment for both in the form of a single $/MWh payment. Nobles 2's estimated total cost for the Project per kW is provided in Appendix C, Section 5.3.1, which has been designated trade secret. The largest component in the total cost of the Project will be the wind turbines; however, infrastructure costs for access roads and electrical collection systems also are factors.

5.3.2 Service Life

A service life of 30 years has been assumed to estimate annualized capital costs. With proper maintenance, service, and replacement of parts, the expected life of the Project is 30 years. Nobles 2 is confident that its maintenance program will result in excellent longevity for the Project.

5.3.3 Estimated Average Annual Availability

Nobles 2 estimates that the Project turbines will be available approximately 95 percent of the year, which is consistent with industry standards.

5.3.4 Fuel Costs

The Project will be fueled by wind, which is free. The easements for the wind rights on the land where the turbines will be located will require annual lease payments. Nominal purchases of electricity will be necessary to provide 'house power' to run the portions of the Project that require electrical inputs, with Nobles 2 ultimately selling the Project's net output.

5.3.5 Variable Operating and Maintenance Costs

Nobles 2's estimated variable operating and maintenance costs of turbines over a 30 year period is provided in Appendix C Section 5.3.5, which has been designated trade secret. An advantage of wind energy facilities is that they typically do not require going completely offline for maintenance. Individual turbines can be serviced while the rest of the facility continues to deliver energy.

[91] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 and 05.

5.3.6 Total Cost

Nobles 2's estimated total capital cost per kWh for the Project is provided in Appendix C, Section 5.3.6, which has been designated trade secret. This estimate assumes typical wind farm design, construction, and operational data for a 30-year estimated service life. The price for which Nobles 2 will sell the energy was determined as a result of negotiations with MP.

5.3.7 Estimate of Facility's Effect on Rates

Minn. R. 7849.0250(C)(7) requires an applicant to estimate its proposed project's "effect on rates system wide and in Minnesota, assuming a test year beginning with the proposed in-service date." The Commission granted Nobles 2 an exemption from this requirement because it does not have a "system" as defined by the Rules, and it is not a utility with retail rates for the power it plans to generate. As such, the data are neither available to Nobles 2 nor necessary to determine the need for the Project.

Notwithstanding the foregoing, MP has indicated that the Project was selected through its robust wind RFP process as the least-cost bid to meet MP's customers' needs.[92] Nobles 2's acquisition of turbines as a safe-harbor under the PTC means that MP's customers will benefit from availability of the full PTC amount through a low PPA price.[93] MP's RFP evaluation process selected the Project at the low cost regardless of inclusion of a CO_2 regulation penalty.[94] The purchase of the energy generated by Project via a long-term fixed-price PPA, allowed MP to address the energy and capacity needs of its customers while limiting exposure to volatile market forces and the potential for additional environmental regulation in the future.[95] The Project PPA is a key component of MP's Energy*Forward* Resource Package, which is expected to provide a reduction in rates.[96] The Commission will evaluate the effect of the Project PPA on MP's rates during the Commission's consideration of the Project PPA. Instead, Nobles 2 proposes to submit data on the Project's impact on state or regional wholesale prices.

The Project's energy production will be modest in comparison to the annual energy consumption of Minnesota and the region and will likely not have a measurable effect on rates. However, the Project could ultimately play a role in stabilizing or even lowering rates by

[92] Compliance Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (July 28, 2017) eDockets ID No. 20177-134359-03 at 4-15.

[93] *Id.* at 4-13

[94] *Id.*

[95] *Id.*

[96] Compliance filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan*, Docket I.D. E-015/RP-15-690 (July 28, 2017) eDockets I.D. No. 20177-134359-03 at 3-52.

offering an alternative to conventional generation sources.[97] For instance, MP can purchase output from the Project to partially replace energy from generation sources with higher or more volatile pricing, such as natural gas plants or coal facilities that MP will be retiring. In addition, the Project will not face the same cost-increasing hurdles to construction (*e.g.*, potential carbon regulation and higher permitting costs due to increased regulatory scrutiny) faced by conventional fossil-fuel generation sources. For example, the Project is consistent with the CPP's goal of reducing carbon emissions. Minnesota and other states are moving forward with implementing the CPP, and it is anticipated that existing coal plants will be retired in an effort to comply with the CPP's requirements.[98]

5.3.8 Efficiency

Because no fuel is burned in the production of energy at the Project, this information is not applicable.

5.4 MAP OF SYSTEM (MINN. R. 7849.0250(D))

The Commission granted Nobles 2 an exemption from Minn. R. 7849.0250(D), which requires an applicant to include a map showing the applicant's system. As an independent power producer, Nobles 2 does not have a "system." The information requested is not available to Nobles 2 or relevant to the determination of need for the Project. Instead, maps showing the proposed site of the Project and its location relative to the power grid are included as Figure 2.

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

The Commission granted Nobles 2 an 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." Nobles 2 does not have a "service area" or "system" and, as such, the requested data are inapplicable. Moreover, Nobles 2 will sell power generated by the Project to MP, or if necessary due to Commission disapproval of the Project's PPA with MP, at wholesale to one or more buyers affiliated with different systems and serving different areas. Nobles 2 cannot reasonably forecast peak demand for those buyers' service areas and systems due to such information being unavailable to Nobles 2. As an alternative to the requested data, Nobles 2 submits MP's 2015 IRP.[99] The relevant system and service area in this case is MP's system, which is described in detail in MP's 2015 IRP. Nobles

[97] *E.g.*, "Clean Power Green Jobs," Union of Concerned Scientists (2009) (analyzing impacts of meeting "25 by '25" nationally on consumer electric rates); "Wind and solar reducing consumer bills," Good Energy (Oct. 2015) (analyzing impact of renewable energy usage on electric rates in the United Kingdom).

[98] *E.g.*, Jim Spencer and David Shaffer, "Minnesota vows to move ahead with clean power," StarTribune (Feb. 16, 2016); Jeffrey Tomich, "MISO projects additional coal retirements under Clean Power Plan," Midwest Energy News (Mar. 18, 2016); "Coal made up more than 80% of retired electricity generating capacity in 2015," U.S. Energy Information Administration (Mar. 8, 2016).

[99] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

2 also provides the following data regarding the regional demand, consumption, and capacity data from credible sources to demonstrate the need for the independently produced renewable energy that will be generated by the Project.

A review of utilities' IRPs, requests for proposals, and similar documents confirms that utilities will seek additional renewable generation resources in the next several years.[100] For example, in the MISO region, utilities have expressed a need for more than 1,000 MW of renewable energy (including wind) before 2020.[101] Utilities will continue to require additional renewable energy generation between 2020 and 2030. Given this demand for renewable energy, a market exists for independently produced electricity generated from wind and other renewables, including the up to 260 MW to be generated by the Project.

7.0 SYSTEM CAPACITY (MINN. R. 7849.0280)

Minn. R. 7849.0280 requires a CN applicant to provide information on the ability of its existing system to meet the forecasted demand. As an independent power producer, Nobles 2 does not have a "system" as defined by the Rules. Accordingly, the Commission granted Nobles 2 an exemption from this requirement and permitted Nobles 2 to instead provide regional demand, consumption, and capacity data from credible sources to demonstrate the need for the independently produced renewable energy that will be provided by the Project. This information is provided in Section 3.0.

Regardless, Nobles 2 also submits MP's 2015 IRP to meet the requirements of Minn. R. 7849.0280.[102] The relevant system and service area in this case is MP's system. Nobles 2 requests that the Commission determine that the submission of MP's 2015 IRP fulfills this requirement, to the extent the previously granted exemption from this requirement may no longer be applicable.

8.0 CONSERVATION PROGRAMS (MINN. R. 7849.0290)

The Commission granted Nobles 2 an exemption from Minn. R. 7849.0290, which requires an applicant to describe its energy and conservation plans, including load management, and the effect of conservation in reducing the applicant's need for new generation and transmission facilities.

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[100] *E.g.*, Xcel Energy, Upper Midwest Resource Plan 2016-2030 (available at https://www.xcelenergy.com/staticfiles/xe/Regulatory/Regulatory%20PDFs/03-Preferred-Plan.pdf); Minnesota Power, 2015 Integrated Resource Plan (available at http://www.mnpower.com/Content/documents/Environment/2015-ResourcePlan.pdf) (approved by the Minnesota Public Utilities Commission on June 10, 2015); Otter Tail Power Company, Application for Resource Plan Approval 2017-2031 (available at https://www.otpco.com/media/838904/resource-plan.pdf).

[101] *Id.*

[102] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

Notwithstanding, Nobles 2 submits MP's 2015 IRP, which contains all relevant information related to MP's system, conservation and resource needs.[103] The purpose of this rule is to determine need in light of a utilities' conservation efforts. The need for the Project is based on the Commission's July 2015 IRP Order. MP is in the process of retiring several fossil-fuel based resources, and, as a result requires additional energy resources to meet existing and future energy demands.

9.0 CONSEQUENCES OF DELAY (MINN. R. 7849.0300)

The Commission granted Nobles 2 an exemption from Minn. R. 7849.0300, which requires the applicant to "submit data on the consequences of delay on the potential customers and the region." Nobles 2 is not a utility and has no "system" as defined by the Rules. Thus, this data requirement is inapplicable to Nobles 2 and is unnecessary to determine the need for the Project. Instead, Nobles 2 provides the following data on the consequences of delay to MP and the region.

The primary consequences of delaying construction of the Project would be that Nobles 2 would not be able to fulfill its obligations to MP to develop the facility and MP would then have difficulty meeting its obligations under the July 2016 IRP Order. Delaying an up to 260 MW wind project has the potential to jeopardize MP's efforts to obtain wind energy in a cost-effective and reliable manner. In addition, the PTC is currently being phased down, meaning an extended delay could result in fewer tax benefits and potentially higher costs to MP's ratepayers.

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

Nobles 2 is submitting a Site Permit Application, in addition to this Application for a CN. Included below is a summary of some of the impacts to key resources found within the Project area, including visual resources, land use, and wildlife. Additional environmental information is provided in Section 11, below, and in the Site Permit Application.

10.1 IMPACTS TO VISUAL RESOURCES

10.1.1 Visual Impacts and Mitigation

The existing visual character of the Project area and surrounding region is that of an agricultural landscape dominated by cropland, farmsteads, and large open vistas. The majority of the landscape within the Project area may be classified as agricultural and rural open space and contains a number of operating wind farms to the north, west and south. The construction and operation of these adjacent wind farms has created a new visual character to the landscape in which turbines are a component. Based on significantly positive local support from land owners and government officials, this landscape has been accepted into the local character

[103] Initial Filing. *In the Matter of Minnesota Power's 2016-2030 Integrated Resource Plan.* Docket ID. E-015/RP-15-690 (September 1, 2015) eDockets ID No. 20159-113710-01 through 05.

Within the Project area, local vegetation is predominantly agricultural crops consisting of primarily corn and soybeans, which visually create a low uniform profile. Aside from the local vegetation and adjacent wind farms, the main focal points present in the agricultural landscape are the farm residences and outbuildings, with many dating back to the late nineteenth and early twentieth century.

The wind turbine arrays associated with the proposed Project will be prominent features in the landscape and will have an effect on the visual quality of the site and surrounding areas. The degree to which visual impacts are considered adverse is subjective, and can be expected to vary depending on each individual viewers aesthetic responses. For some viewers, wind turbines could be perceived as a visual intrusion on the natural aesthetic character of the landscape. For other viewers, wind turbines have their own positive aesthetic qualities, distinguishing them from other non-agricultural land uses. Although the turbines are high-tech in appearance, they are not expected to appreciably change the rural character and remote setting of the site and surrounding area.

Nobles 2 will avoid or minimize visual impacts during the final design and siting of the Project to the extent practicable and will work directly with landowners to identify and address concerns related to Project aesthetics. The following mitigation measures are proposed to reduce the level of visual impacts from the proposed Project:

- Turbines will be uniform in color;
- Project siting will minimize impacts to native habitats to the maximum extent practicable;
    - Turbines will be sited in agricultural fields to minimize impacts to grassland, forest, wetland and other native vegetation communities.
    - For the proposed turbine layout, all native prairie will be avoided to the maximum extent practicable.
- Turbines will be illuminated to meet the minimum requirements of FAA regulations;
- Collector lines will be buried to minimize aboveground structures within the turbine array;
- Existing roads will be used for construction and maintenance where possible to minimize the number of new roads constructed; and
- Access roads created for the Project will be located on gentle grades to minimize the amount of erosion, visible cuts, and fills.

10.1.2 Shadow Flicker Impacts and Mitigation

Shadow flicker caused by wind turbines is defined as alternating changes in light intensity at a given stationary location, or receptor, such as the window of a home. In order for shadow flicker to occur, three conditions must be met: (1) the sun must be shining with no clouds to obscure it; (2) the rotor blades must be spinning and must be located between the receptor and the sun; and (3) the receptor must be sufficiently close to the turbine to be able to distinguish a shadow created by it. Shadow flicker intensity and frequency at a given receptor are determined by a number of interacting factors:

- Sun angle and sun path – As the sun moves across the sky on a given day, shadows are longest during periods nearest sunrise and sunset, and shortest near midday. They are longer in winter than in summer. On the longest day of the year (the summer solstice), the sun's path tracks much farther to the north and much higher in the sky than on the shortest day of the day (the winter solstice). As a result, the occurrence and duration of shadow flicker at a given receptor will change significantly from one season to the next.

- Turbine and receptor locations – The frequency of shadow flicker at a given receptor tends to decrease with greater distance between the turbine and receptor. The frequency of occurrence is also affected by the sightline direction between turbine and receptor. A turbine placed due east of a given receptor will cause shadow flicker at the receptor at some point during the year, while a turbine placed due north of the same receptor at the same distance will not, due to the path of the sun.

- Cloud cover and degree of visibility – As noted above, shadow flicker will not occur when the sun is obscured by clouds. A clear day has more opportunity for shadow flicker than a cloudy day. Likewise, smoke, fog, haze, or other phenomena limiting visibility would reduce the intensity of the shadow flicker.

- Wind direction – The size of the area affected by shadow flicker caused by a single wind turbine is based on the direction that the turbine is facing in relation to the sun and location of the receptor. The turbine is designed to rotate to face into the wind, and as a result, turbine direction is determined by wind direction. Shadow flicker will affect a larger area if the wind is blowing from a direction such that the turbine rotor is near perpendicular to the sun-receptor view line. Similarly, shadow flicker will affect a smaller area if the wind is blowing from a direction such that the turbine rotor is near parallel to the sun-receptor view line.

- Wind speed – Shadow flicker can only occur if the turbine is in operation. Turbines are designed to operate within a specific range of wind speeds. If the wind speed is too low or too high, the turbine will not operate – i.e., it will be stationary -- thereby eliminating shadow flicker. The turbines for this Project will not rotate during these conditions and will be stationary.

- Obstacles – Obstacles, such as trees or buildings, which lie between the wind turbine and the receptor have a screening effect and can reduce or eliminate the occurrence of shadow flicker.

- Contrast – Because shadow flicker is defined as a change in light intensity, the effects of shadow flicker can be reduced by increasing the amount of light within a home or room experiencing shadowing flicker.

- Local topography – Changes in elevation between the turbine location and the receptor can either reduce or increase frequency of occurrence of shadow flicker, compared to flat terrain.

Shadow flicker frequency calculations for the Project were modeled by 590 residences (receptors) with a windPRO model utilizing digital elevation data. Results are presented as realistic shadow flicker, which accounts for weather impacts on turbine operation. The maximum predicted shadow flicker impacts that occurred at a residence for each turbine layout are show in Tables 10.1 and 10.2.

Table 10.1: Maximum Predicted Shadow Flicker Impacts – Participating Residences

House_ID	Participation Status	Realistic Shadow hrs /yr
H153	Participating	29:07
H85	Participating	29:04
H170	Participating	26:18
H102	Participating	25:16
H28	Participating	24:44
H133	Participating	24:36
H99	Participating	24:28
H29	Participating	24:18
H91	Participating	21:56
H98	Participating	21:39
H127	Participating	20:45
H573	Participating	20:22

Table 10.2: Maximum Predicted Shadow Flicker Impacts – Non-Participating Residences

House_ID	Participation Status	Realistic Shadow hrs /yr
H155	Non-Participating	26:00
H137	Non-Participating	21:47
H3	Non-Participating	21:08

10.2 IMPACTS TO LAND USE

Nobles 2 currently has leases and easements on approximately 30,356 acres of land within the Project area. Of this total, approximately 115 acres or < 0.5 percent will be permanently impacted by the construction and installation of wind turbines, access roads, and ancillary facilities. Approximately 64 acres of the total would be associated with the construction of turbine pads, and 43 acres of the total would be associated with the construction of access roads. Approximately 4 additional acres of land will be used for construction of the proposed substation and another 4 acres of land would be associated with construction of the proposed O&M facility. A more accurate determination of impacts to agricultural lands will be made once the exact locations of turbines, access roads, and other associated Project facilities have been finalized.

The loss of agricultural land from the construction and operation of the proposed Project will reduce the amount of land for agricultural production. However, only a very small portion of agricultural land within the Project area will be impacted, and this will not appreciably contribute to decreased crop production in the Project area or the surrounding region. Existing land uses will continue on the remainder of land unaffected by the Project. Nobles 2 does not anticipate any impact on woodlots or mining.

If damage to drain tile occurs as a result of construction activities, Nobles 2 will work with effected property owners to repair the damaged drain tile in accordance with the conditions contained in the existing lease agreement between Nobles 2 and the landowner. The preliminary layout avoids impacts to all 536 acres of CRP land within the Project Area with the exception of one proposed collector line that is routed through land that may still be under CRP. CRP areas will be verified by evaluating current land lease agreements for participating landowners prior to construction. Nobles 2 plans to avoid CRP lands as it continues to develop the Project. However, if these lands are unavoidable, Nobles 2 will work collaboratively with the USDA and the landowner to remove the impacted portion of the parcel from the applicable program.

10.3 IMPACTS TO WILDLIFE

The overall impact of the proposed Project on wildlife is expected to be minimal because turbines, access roads, and other Project facilities will be placed on agricultural lands. Native vegetation communities such as grasslands, forested areas, shrublands, and wetlands will be avoided to the greatest extent practicable. Most of the wildlife species inhabiting the Project area include those typically found in heavily disturbed habitats. These species are typically opportunistic and are able to utilize rural, urban, or agricultural habitats. Most of these wildlife species are common and widely distributed throughout the Project area and the loss of some individuals as a result of construction of the proposed Project would have a negligible impact on populations of these species throughout the region.

Collision risk may be introduced to avian and bat species that migrate, breed, or winter within the proposed Project area, and at least some degree of avian and bat mortality from collisions with turbines would be an unavoidable consequence of the operation of the proposed Project. Collisions may occur with resident birds and bats foraging and flying within the Project area or with migrant birds and bats seasonally moving through the area.

The Project has been sited and designed to be a low-risk site for birds and bats. Numerous studies have been performed to characterize the local species and habitat and can be found in the Project's LWECS Site Permit application. The Project area does not contain distinct topography, unique habitats or resources, or other features that could concentrate bird or bats. No indicators of high avian and bat risk in the Project area (e.g., presence of federally-listed species, impacts to high quality avian and bat habitat, high volume use as migration stopover habitat, etc.) were discovered during either the preliminary site evaluation or the pre-construction avian and bat surveys conducted for the Project. Based on available data from operational wind projects in other wind sites in southwestern Minnesota, bird and bat collisions at the Project are expected to occur at a low frequency and be comparable with that of other Midwest wind energy facilities. Impacts are not expected to occur to a degree which would adversely affect populations.

In order to minimize impacts to wildlife, Nobles 2 has incorporated the following mitigation measures into the siting, construction, and operational phases of the proposed Project:

- Rock and brush piles that could create habitat for raptor prey will be removed from turbine areas.

- To avoid attracting wildlife to the construction site, contractors will provide appropriate trash collection receptacles throughout the Project area to collect construction related waste materials, including garbage and refuse.

- All operations personnel will be trained to identify potential wildlife conflicts and the proper response. This training will include sensitivity to birds and other terrestrial wildlife. For operations, Nobles 2 will develop an incidental reporting process by which operations personnel document bird or bat casualties during routine maintenance work and at other times that they are within the Project area.

- All carrion discovered on-site during regular maintenance and monitoring activities will be removed, pursuant to the terms of all applicable permits, to avoid attracting bald eagles and other raptors.

- A Wildlife Incident Reporting System ("WIRS") will be implemented at the start of operations and it will remain active for the life of the Project.

- Seasonal feathering of turbine blades will be implemented when operating below equipment cut-in-speed as specified by the manufacturer for the lifespan of the Project to reduce mortality of birds or bats. If bat fatalities are high, despite seasonal feathering of the blades, and taking into account economic feasibility, other operational mitigation such as raising the cut-in speed will be considered as a potential practice to reduce fatalities.

Nobles 2 has prepared a Bird and Bat Conservation Strategy ("BBCS") for the Project which includes detailed provisions for avoiding, reducing, and, if warranted, mitigating for

potential impacts to birds and bats from construction and operation of the Project. That BBCS was submitted as an appendix to the LWECS application.

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

11.1 LAND REQUIREMENTS (MINN. R. 7849.0320(A))

The Project is located on land that is zoned for agricultural use. Nobles 2 has leases and easements on approximately 30,356 acres of land within the Project area. The leases and easements are sufficient to support up to 82 Vestas turbines, associated wind rights, access roads, collection system, substation, and O&M facility. The primary turbine to be utilized at the site is the Vestas V136 3.6 MW turbine. If the technology is economical and commercially proven, Nobles 2 may elect to utilize Vestas V136-3.45 MW, V136-4.0 MW or V136-4.2 MW turbines instead. These turbine model variants have siting requirements that are equal to or lesser than the V136-3.6 MW. Between 10 and 21 Vestas V110 2.0 MW turbines will be incorporated into the overall design. The final number of Vestas V110-2.0 MW turbines will be determined by Nobles 2 based upon PTC requirements, turbine availability and other economic considerations. Ultimately, the Project will impact approximately 115 acres during construction, which is < 0.5 percent of the 30,356 acres under leases and easements.. Typical wind farms require approximately one-half to one acre per turbine for the turbine pad, transformer, access road, and associated infrastructure.

The preliminary site layout includes a three to five rotor-diameter distance between turbines. Setbacks between roads and residences have been designed to minimize noise and shadow-flicker issues and maintain impacts within legal limits. Construction, maintenance, and operation of the turbines will require installation of approximately 25 miles of all-weather gravel access roads.

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.

11.1.1 Land Requirements for Water Storage

The Project will not require any land for water storage.

11.1.2 Land Requirements for Cooling System

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

11.1.3 Land Requirements for Solid Waste Storage

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

11.2 TRAFFIC (MINN. R. 7849.0320(B))

Existing roadway infrastructure in and around the Project area consists of county and township roads that generally follow section lines, with private unpaved farmstead driveways and farming access roads. Interstate Highway 90 is located approximately 7.5 miles south of the Project area. County State Aide Highway ("CSAH") 25 runs east/west through the southern portion of the Project area and provides the main access to nearby communities. Various county and township roads (two-lane paved and gravel roads) provide access to the Project area.

Constructing the Project will require approximately 25 miles of newly constructed gravel access roads. During initial construction, the turbine access roads will be wide enough to accommodate construction traffic (up to 25-40 feet), but will be reduced to a permanent width of approximately 16 feet after the completion of construction.

The maximum construction workforce is expected to generate up to 500 additional vehicle trips per day. The functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day. Because the area roadways have AADTs currently well below capacity, the addition of up to 500 vehicle trips on a temporary basis would be noticeable, but similar to seasonal traffic increases such as observed during autumn crop harvest. Existing AADT of roadways currently serving the Project Area is provided in Table 11.2.

Truck access to the Project area would be primarily served by Interstate 90, CSAH 25, and county roads throughout the Project area. Specific additional truck routes will be determined by the location required for delivery. Additional operating permits will be obtained for over-sized truck movements. Transportation of equipment and materials associated with the construction of wind projects involves oversized and/or overweight loads and road use that is not consistent with normal traffic in the Project area. All local road use will be subject to a road use agreement to be established with Nobles County. This agreement will address wear from the project and specify repair requirements.

Once project construction is completed, maintenance crews will periodically use access roads within the Project area to monitor and maintain the wind turbines. There would be a slight increase in traffic for occasional turbine and substation repair, but no impacts to traffic function would result from this small increase. The Project is not expected to have any impact on rail or barge traffic during construction or operation.

Table 11.2: Existing AADT Along Road Segments Serving the Project[104]

Table 11.2: Existing Daily Traffic Levels			
Road	**Number of Road Segments in Project**	**AADT (Range over Segments)**	**Total Miles within Project Area**
MNTH 91	2	1,200-1,350	4.5 Miles
CSAH 9 (McCall Ave)	2	360-465	<1 Mile
CSAH 13 (Hesselroth Ave)	2	225-350	5 Miles
CSAH 15 (Edwards Ave)	3	200-320	7 Miles
CSAH 16 (160th St)	6	170-1,300	10.5 Miles
CSAH 18 (140th St)	2	120-185	8.5 Miles
CSAH 25	1	1,250	2 Miles
CSAH 31 (Grain St)	1	135	<1 Mile
CR 63 (Knauf Ave)	3	205-630	1 Mile
CR 66 (140th St)	1	30	1 Mile
CR 69 (150th St)	1	50	1.5 Miles
CR 70 (110th St)	2	120-200	1 Mile
CR 71 (1st St)	1	45	4.5 Miles

[104] *2014 Traffic Volume General Highway Map, Lincoln County, MN*, available at http://www.dot.state.mn.us/traffic/data/maps/trunkhighway/2014/counties/lincoln.pdf.

Table 11.2: Existing Daily Traffic Levels			
Road	**Number of Road Segments in Project**	**AADT (Range over Segments)**	**Total Miles within Project Area**
CR 72 (1st St)	2	45-70	1.5 Miles
CR 88 (1St St)	1	75	<1 Mile
MNTH 91	1	65	<1 Mile
CSAH 9 (McCall Ave)	1	35	<1 Mile

11.3 INFORMATION PERTAINING TO FOSSIL-FUELED ACTIVITIES (MINN. R. 7849.0320(C)-(D))

11.3.1 Fuel

The Project is not a fossil-fueled facility. The Project will be fueled by wind.

11.3.2 Emissions

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

11.4 WATER USAGE FOR ALTERNATE COOLING SYSTEMS (MINN. R. 7849.0320(E))

Wind power plants do not utilize cooling systems. Water requirements are, therefore, minimal, and 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.

11.5 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 dewatering may be required during construction for specific turbine foundations and/or electrical trenches. Water may be used during construction to provide dust control and water for concrete mixes and

other construction purposes. If temporary dewatering is required during construction activities, discharge of dewatering fluid will be conducted under the National Pollutant Discharge Elimination System ("NPDES") permit program and addressed by the Project's Storm Water Pollution Prevention Plan ("SWPPP"), as required. 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.

11.6 RADIOACTIVE RELEASES (MINN. R. 7849.0320(G))

The Project will not produce any radioactive releases.

11.7 SOLID WASTE (MINN. R. 7849.0320(H))

The Project is not expected to generate significant quantities of solid waste during operation. The Project will require use of certain petroleum products such as gear box oil, hydraulic fluid, and gear grease. These materials will be recycled or otherwise stored and disposed of in accordance with applicable State and Federal regulations. In addition, some waste streams will be generated at the O&M facility. These materials will also be stored, recycled, and/or disposed of in accordance with applicable local, State, and Federal regulations.

11.8 NOISE (MINN. R. 7849.0320(I))

Background noise levels in the Project area are typical of those in rural settings, where existing nighttime noise levels are commonly in the 25 to 35 dB(A) range. The dB(A) scale is A-weighted decibels based on the range of human hearing. Low to mid-30 dB(A) are relatively low background levels and are generally representative of the site. Higher levels exist near roads and other areas of human activity.

When in motion, wind turbines emit a perceptible sound. The level of this sound varies with the speed of the turbine and the distance of the listener from the turbine. Sound is generated from the wind turbine at points near the hub or nacelle, and from the blade tips as they rotate. The wind turbines to be used within the Project site are warranted to generate a maximum apparent sound power level no greater than 108.2 decibels immediately adjacent to the turbine.

The decibels decrease as the receptor moves further away from the turbine. The turbines are expected to generate less than 50 decibels at approximately 1,000 feet. The sound a turbine makes can be described as a "whoosh" sound when the rotors are moving. There is more noise on relatively windy days; however, the turbine noise levels are often masked by the same wind that creates the increased noise.

The MPCA establishes acceptable sound levels based on time of day and the use of an area. For example, higher sound levels are acceptable in industrial areas during the day than residential areas during the night. According to Minnesota Rules Chapter 7030.0040, night time sound levels in an area must be below 50 dB(A) 50 percent of the time within an hour (referred to as L50), and below 55 dB(A) 90 percent of the time within an hour (referred to as L90).

Noise modeling was completed for the worst case of the two wind turbine models, the Vestas V136, using WindPro sound-modeling software. Results from the modeling indicated that the maximum sound pressure level at any residential receiver was at 48.8 dB(A). The analysis indicates that operation of the proposed Project would not have noise levels of 60 dB(A) or greater during the daytime conditions or 50 dB(A) or greater during the nighttime conditions on any modeled receptor, nor will the cumulative impact on any residence exceed 50 dB(A) or 60 dB(A) when assuming a 35 to 40 dB(A) background sound level. Use of the Vestas V110 2.0 model at select turbine locations will create a lesser impact because this turbine produces lower noise levels under most operating conditions.

In summary, all modeled sound levels at the provided occupied residences are anticipated to be below 50 dB(A) for all scenarios (i.e., all layouts, all turbine models, all ambient noise scenarios), therefore the proposed Project would be in compliance with Minnesota's allowable sound levels as described in Minnesota Rules Chapter 7030.

11.9 WORK FORCE FOR CONSTRUCTION AND OPERATION (MINN. R. 7849.0320(J))

Onsite, physical construction of the Project is anticipated to be completed by 2019. During peak construction, approximately 230 construction-related personnel will be working on the Project. Up to 20 permanent positions will likely be created to operate the Project.

Nobles 2 anticipates engaging a single contractor ("Contractor") for Balance of Plant ("BOP") Engineering, Procurement and Construction ("EPC") of the Project. The BOP EPC Contractor will be the lead entity for the construction management of the Project. Nobles 2 anticipates that the BOP EPC Contractor will self-perform certain construction scope and may subcontract some scope to others. For subcontracted scope, the BOP EPC Contractor will consider the services of local contractors.

11.10 NOBLES 2 WILL MANAGE THE OVERALL OPERATIONS AND MAINTENANCE OF THE PROJECT.

Nobles 2 anticipates contracting with the turbine supplier to perform certain turbine maintenance for a term of at least 3 years. Nobles 2 will also have an operations agreement with another entity for performance of BOP O&M. The BOP O&M provider will be either an affiliate of Tenaska or an experienced third party. O&M staff may initially be comprised of employees hired by the turbine vendor under the turbine supply agreement for the Project. Nobles 2 and its O&M contractors will hire employees or other appropriate contractors to complete operations and maintenance tasks.

11.11 NUMBER AND SIZE OF TRANSMISSION FACILITIES (MINN. R. 7849.0320(K))

Within each turbine a step-up transformer will be installed to raise the voltage to the power collection line voltage of 34.5 kV. Power will be transported through an underground and/or overhead collection system. Generally, the electrical lines will be buried in trenches. At public roads, the power collection lines will either rise from underground to overhead lines or continue as underground lines. At this time, it is believed that all collection lines will be underground unless site specific conditions warrant the need for aboveground collection lines.

Regardless, the collection lines will occasionally require an aboveground junction box where the collection lines from separate spools need to be spliced together.

Power generated by the Project will reach the electric grid by traveling through up to 75 miles of 34.5 kV underground feeder circuits to a new Project substation. The power will be stepped up from 34.5 kV to 115 kV at the Project substation for delivery to the transmission grid. The substation will be located on private land, and Nobles 2 has acquired all easements necessary to construct and operate the Project's substation. From that location, the Project will interconnect at the Nobles to Fenton 115 kV transmission line.

The interconnection details will be determined as a result of studies, discussions, and agreements with MISO. Access to transmission facilities beyond interconnection will be arranged by the utility or utilities purchasing the Project's energy output, and will depend on the buyer and the ultimate destination for the energy output.

12.0 OTHER FILINGS AND PERMITS

12.1 EXEMPTION REQUEST

On April 5, 2016, Nobles 2 requested an exemption from several of the informational requirements in Minn. R. Ch. 7849. On May 25, 2016, the Commission granted Nobles 2's Exemption Request.[105]

12.2 ENVIRONMENTAL REPORT

Pursuant to Minn. R. 7849.1000 - .2100, the Department of Commerce is required to prepare an Environmental Report for any large energy facility for which a CN must be obtained.

12.3 SITE PERMIT

Nobles 2 will also submit to the Commission a Site Permit Application for a Large Wind Energy Conversion System, as required by Minn. Stat. § 216F.04.

12.4 OTHER PROJECT PERMITS

Project permits and approvals that may be necessary to complete the Project are listed in Table 12.4. Nobles 2 will obtain these approvals, as necessary, prior to Project construction.

[105] Order, *In the Matter of the Application of Nobles 2 Power Partners, LLC for a Certificate of Need for the up to 300 Megawatt Nobles 2 Wind Project in Nobles and Murray Counties, Minnesota*, Docket No. IP-6964/CN-16-289 (May 25, 2016), eDockets Doc. ID 20165-121609-01.

Table 12.4: Project Permits and Approvals

Regulatory Authority	Permit/Approval
Federal Approvals	
U.S. Army Corps of Engineers	Wetland Delineation Approvals
	Jurisdictional Determination
	Federal Clean Water Act Section 404 and Section 10 Permit(s)
U.S. Fish and Wildlife Service	Review for compliance with Federal Endangered Species Act; Bald and Golden Eagle Protection Act
Environmental Protection Agency (region 5) (EPA) in coordination with the Minnesota Pollution Control Agency (MPCA)	Spill Prevention Control and Countermeasure (SPCC) Plan
Lead Federal Agency (National Historic Preservation Act)	Federal Section 106 Review (Class I Literature Review / Class III Cultural Field Study)
Federal Aviation Administration	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)
	Notice of Actual Construction or Alteration (Form 7460-2)
Federal Land Manager (BLM, USBR, Forest Services)	Right-of-Way Grant over Federal Lands
U.S. Department of Agriculture	Conservation / Grassland / Wetland Easement and Reserve Program releases and consents
	Farm Services Agency Mortgage Subordination & Associated Environmental Review
Federal Communications Commission	Federally Licensed Microwave Study
	NTIA Communication Study
Federal Energy Regulatory Commission	Exempt Wholesale Generator Self Cert. (EWG)
	Market-Based Rate Authorization
Federal Emergency Management Agency	Flood Plain Designation/Letter of Map Revision/Letter of Map Amendment
State of Minnesota Approvals	
Minnesota Department of Labor and Industry	Electrical Plan Review and Inspections

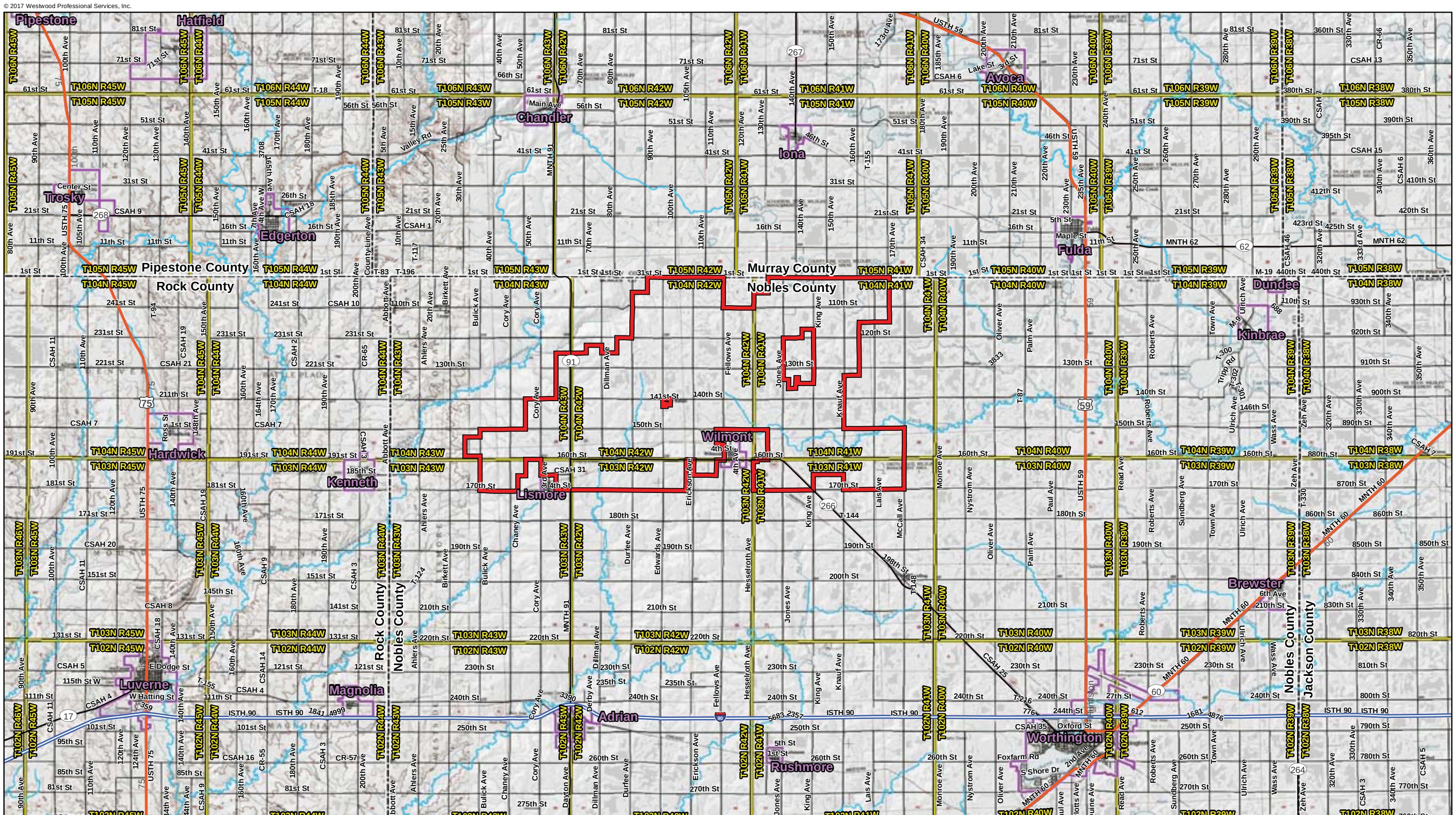
Minnesota Public Utilities Commission	Site Permit for Large Wind Energy Conversion System (LWECS)
	Certificate of Need
Minnesota State Historic Preservation Office (SHPO)	Cultural and Historic Resources Review and Review of State and National Register of Historic Sites and Archeological Survey
Minnesota Pollution Control Agency	Section 401 Water Quality Certification
	National Pollutant Discharge Elimination System Permit (NPDES) – MPCA General Storm water Permit for Construction Activity
	Very Small Quantity Generator (VSQG) License – Hazardous Waste Collection Program
	Aboveground Storage Tank (AST) Notification Form
Minnesota Department of Health	Environmental Bore Hole (EBH)
	Water Supply Well Notification
	Plumbing Plan Review
Minnesota Department of Natural Resources	License to Cross Public Land and Water
	Native Prairie Protection Plan (Review as part of PUC Site Permit process)
	Biological Surveys (Review as part of PUC Site Permit process)
	General Permit for Water Appropriations (Dewatering)
	Public Waters Work Permit
Minnesota Department of Transportation	Utility Permits on Trunk Highway Right-of-way
	Oversize/Overweight Permit for State Highways
	Access Driveway Permits for MnDOT Roads
	Tall Structure Permit
Local Approvals	
Nobles County	Right-of-way permits, crossing permits, driveway permits for access roads, oversize/overweight permits for County Roads
Townships	Right-of-way permits, crossing permits, driveway permits for access roads, oversize/overweight permits for township roads

Nobles County Soil and Water Conservation Districts	Wetland Conservation Act Approvals
MISO	Generator Interconnection Agreement

61886519_5.docx

Figure 1:

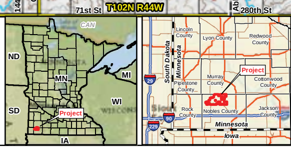
Project Location



Data Source(s): Data and map are approximate. Westwood (2017); Geospatial Data Gateway (various dates); ESRI Basemap, Imagery (accessed 2017); ESRI (2012); MnDOT (various dates).

NOBLES 2 POWER PARTNERS, LLC

Westwood



Legend

- Project Boundary
- Major Stream/River
- US Highway
- State Highway
- Road
- County Boundary
- Municipal Boundary
- PLS Township Boundary

N

0 3 Miles

Nobles 2 Wind Project

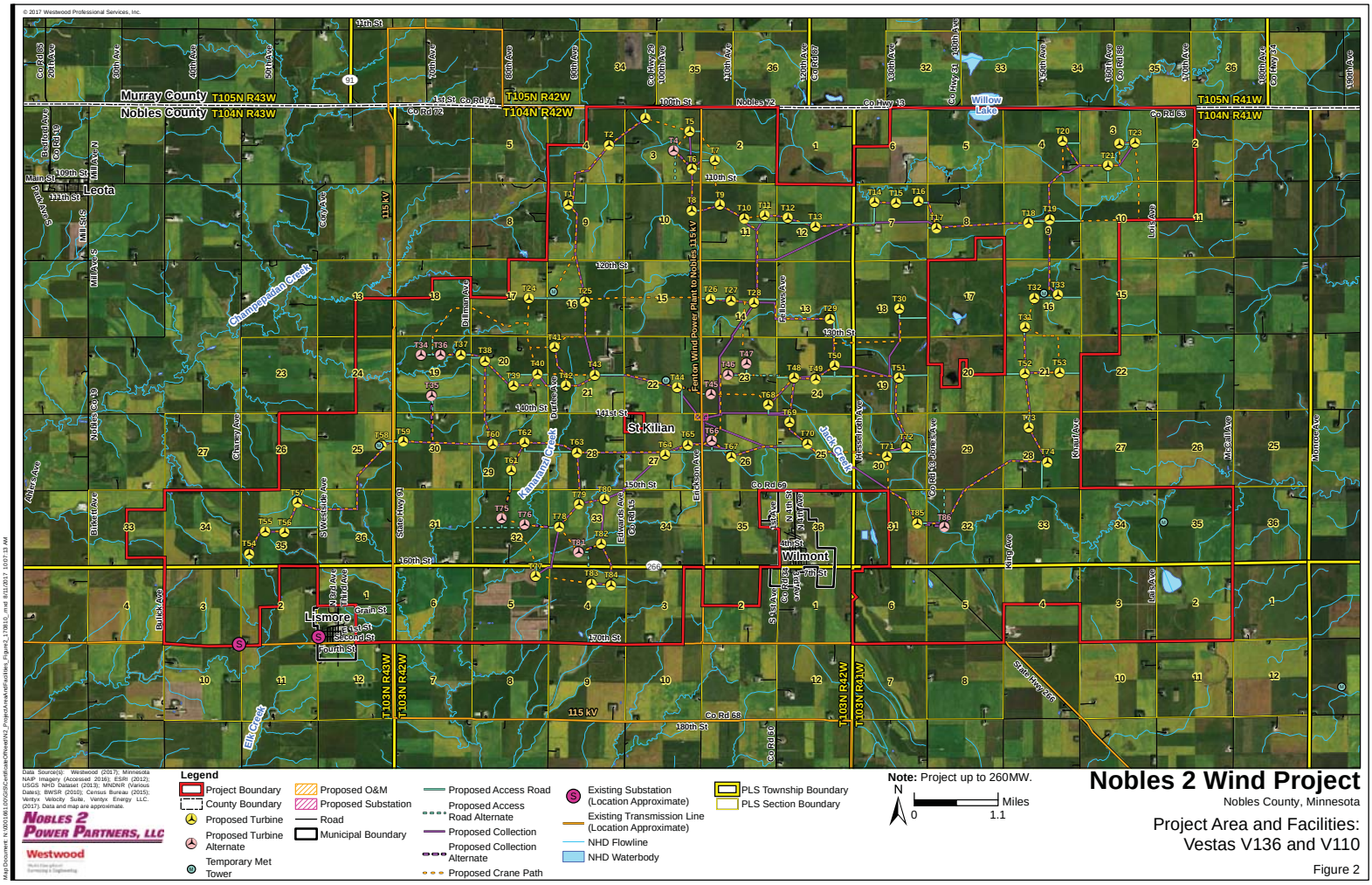
Nobles County, Minnesota

Project Location

Figure 1

Figure 2:

Project Area and Facilities: Vestas V136 3.6 MW and V110 2.0 MW



Nobles 2 Wind Project

Nobles County, Minnesota

Project Area and Facilities:
Vestas V136 and V110

Figure 2