

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA**

IN THE MATTER OF THE APPLICATION )  
BY PREVAILING WIND PARK, LLC FOR A )  
PERMIT OF A WIND ENERGY FACILITY )  
IN BON HOMME COUNTY, CHARLES MIX )  
COUNTY AND HUTCHINSON COUNTY, )  
SOUTH DAKOTA, FOR THE PREVAILING )  
WIND PARK PROJECT )

FINAL DECISION AND ORDER  
GRANTING PERMIT TO  
CONSTRUCT FACILITIES AND  
NOTICE OF ENTRY

EL18-026

**APPEARANCES**

Commissioners Kristie Fiegen, Gary Hanson, and Chris Nelson.

Mollie Smith and Lisa Agrimonti, Fredrikson & Byron, P.A., 200 South Sixth Street, Minneapolis, Minnesota 55402, appeared on behalf of the Applicant, Prevailing Wind Park, LLC (Prevailing Wind Park or Applicant).

Kristen Edwards and Amanda Reiss, 500 E. Capitol Ave., Pierre, South Dakota 57501, appeared on behalf of the South Dakota Public Utilities Commission Staff (Staff).

Reece Almond, Davenport, Evans, Hurwitz & Smith, LLP, 206 West 14th Street, Sioux Falls, South Dakota, 57101, appeared on behalf of Intervenors Gregg Hubner, Marsha Hubner, Lisa Schoenfelder, and Paul Schoenfelder (Intervenors).

Sherman Fuerniss appeared pro se.

Kelli Pazour appeared pro se.

Karen Jenkins appeared pro se.

**PROCEDURAL HISTORY**

On May 30, 2018, Prevailing Wind Park filed an Application for an Energy Facility Permit for an up to 219.6 megawatt (MW) nameplate capacity wind energy facility to be located in Hutchinson County, Bon Homme County, and Charles Mix County, South Dakota, known as the Prevailing Wind Park Project (Project) with the South Dakota Public Utilities Commission (Commission).<sup>1</sup> Also on May 30, 2018, Prevailing Wind Park filed the pre-filed direct testimony of James Damon, Bridget Canty, Keith Thorstad, Aaron Anderson, and Chris Howell.

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<sup>1</sup> See Ex. A1 (Application).

On June 1, 2018, the Commission issued a Notice of Application; Order for and Notice of Public Input Hearing; Notice of Opportunity to Apply for Party Status.

On June 21, 2018, Prevailing Wind Park filed a certificate of service confirming it had sent copies of the Application and Prevailing Wind Park's pre-filed direct testimony to the Bon Homme, Charles Mix, and Hutchinson county auditors.

On June 21, 2018, Prevailing Wind Park filed a Proof of Mailing to affected landowners demonstrating compliance with the requirements of South Dakota Codified Law 49-41B-5.2.

On June 29, 2018, the Commission issued an Order assessing Prevailing Wind Park a filing fee in an amount not to exceed \$348,500, with a minimum filing fee of \$8,000. In the same Order, the Commission further voted unanimously to authorize the executive director to enter into necessary consulting contracts.

On July 12, 2018, a public input hearing was held as scheduled.

On July 19, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in the *Tripp Star Ledger* on June 6, 2018 and June 13, 2018.

On July 19, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in the *Yankton Daily Press and Dakotan* on June 6, 2018 and June 13, 2018.

On July 19, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in the *Scotland Journal* on June 6, 2018 and June 13, 2018.

On July 19, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in the *Avon Clarion* on June 6, 2018 and June 13, 2018.

On July 19, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in *The Wagner Post* on June 6, 2018 and June 13, 2018.

On July 20, 2018, Staff submitted a Motion for Adoption of Procedural Schedule.

The Commission received seven (7) applications for party status by the July 30, 2018 deadline.

On August 2, 2018, Prevailing Wind Park filed a Response to Staff's Motion for Adoption of Procedural Schedule.

On August 8, 2018, Affidavits of Publication were filed confirming that the Notice of Public Hearing was published in the *Tripp Star Ledger* on June 20, 2018 and July 11, 2018.

On August 8, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in the *Yankton Daily Press and Dakotan* on June 20, 2018 and July 11, 2018.

On August 8, 2018, Affidavits of Publication were filed confirming that the Notice of Public Hearing was published in the *Avon Clarion* on June 20, 2018 and July 11, 2018.

On August 8, 2018, an Affidavit of Publication was filed confirming that the Notice of Public Hearing was published in *The Wagner Post* on June 20, 2018 and July 11, 2018.

On August 9, 2018, the Commission issued an Order Granting Party Status and Establishing Procedural Schedule. The Commission granted party status to: Marsha Hubner, Gregg Hubner, Lisa Schoenfelder, Paul Schoenfelder, Charles Mix County, Sherman Fuerniss, and Karen Jenkins.

On August 10, 2018, Prevailing Wind Park filed the pre-filed supplemental testimony of Bridget Canty, Dr. Mark Roberts, Michael MaRous, Daniel Pardo, and Peter Pawlowski.

On August 28, 2018, Kelli Pazour filed an application for party status.

On September 10, 2018, Staff filed the pre-filed testimony of David Hessler, David Lawrence, and Darren Kearney.

On September 10, 2018, Intervenors filed Intervenors' Disclosure of Lay Witnesses and the pre-filed testimony of Richard R. James,<sup>2</sup> Jerry L. Punch,<sup>3</sup> and Mariana Alves-Pereira.<sup>4</sup>

On September 11, 2018, Intervenor Karen Jenkins filed a letter stating that she intends to testify only if called as a witness, but reserves the right to submit testimony.

On September 11, 2018, the Commission issued an Order For and Notice of Evidentiary Hearing.

On September 13, 2018, Intervenors filed a Motion to Have Witnesses Appear Telephonically.

On September 14, 2018, Prevailing Wind Park filed an Answer to the Application for Party Status of Kelli Pazour. On the same day, Staff filed a Response to Late Intervention.

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<sup>2</sup> At the evidentiary hearing, Mr. James was ruled unqualified to testify regarding health-related impacts. Portions of his pre-filed testimony were stricken accordingly and refiled on October 29, 2018 as Ex. I-1.

<sup>3</sup> At the evidentiary hearing, Dr. Punch was ruled unqualified to testify regarding health-related impacts. Portions of his pre-filed testimony were stricken accordingly and refiled on October 29, 2018 as Ex. I-2.

<sup>4</sup> Intervenors did not offer Dr. Alves-Pereira for live testimony at the evidentiary hearing and withdrew her pre-filed testimony. As such, that testimony is not part of this record.

On September 14, 2018, Prevailing Wind Park filed a Motion to Exclude Lay Witness Testimony, to Quash Subpoenas and to Require Further Disclosures.

On September 14, 2018, the Commission issued an Order For and Notice of Ad Hoc Motions Hearing.

On September 19, 2018, Staff filed a Response to Applicant's Motion to Exclude Lay Testimony, to Quash Subpoenas and to Require Further Disclosures.

On September 19, 2018, Prevailing Wind Park filed Applicant's Response to Intervenor's Motion to Have Witnesses Appear Telephonically.

On September 19, 2018, Intervenor's filed Intervenor's Response to Applicant's Motion to Exclude Lay Testimony, to Quash Subpoenas and to Require Further Lay Disclosures. Included in this filing was Intervenor's First Amended Disclosure of Lay Witnesses.

On September 20, 2018, Intervenor Karen Jenkins filed a Response to Applicant's Motion to Exclude Lay Testimony, to Quash Subpoenas, and to Require Further Lay Disclosures.

On September 21, 2018, the Commission issued an Order Granting Late Party Status (Kelli Pazour).

On September 26, 2018, Intervenor's filed a Subpoena for Testimony at Evidentiary Hearing to Michael Soukup.

On September 26, 2018, Intervenor's filed a Subpoena for Testimony at Evidentiary Hearing to Keith Mushitz.

On September 26, 2018, Intervenor Mr. Fuerniss filed the Response of Sherman Fuerniss to Direct Testimonies.

On September 26, 2018, Prevailing Wind Park filed Applicant's Disclosure of Lay Witnesses and the pre-filed rebuttal testimony of Bridget Canty, Dr. Jeffrey Ellenbogen, Aaron Anderson, Dr. Mark Roberts, Peter Pawlowski, Michael MaRous, and Scott Creech.

On October 1, 2018, the Commission issued an Order Granting Motion for Telephonic Testimony and Order Denying Motion to Exclude Lay Testimonies and Quashing Subpoenas.

On October 1, 2018, Intervenor's filed a Subpoena for Testimony at Evidentiary Hearing to Jack Soulek.

On October 1, 2018, Prevailing Wind Park filed Applicant's Witness List and Exhibit List and exhibits for hearing.

On October 1, 2018, Staff filed its Witness List and Exhibit List and exhibits for hearing.

On October 1, 2018, Intervenor Mr. Fuerniss filed his exhibits for hearing.

On October 1 and 2, 2018, Intervenors filed their Witness List and Exhibit List and exhibits for hearing.

On October 2, 2018, Intervenor Ms. Jenkins filed her exhibits for hearing.

On October 4, 2018, Prevailing Wind Park filed Applicant's Corrected Exhibit A5.

On October 4, 2018, Intervenors filed the Subpoena for Testimony at Evidentiary Hearing to Eric Elsberry. On the same day, Admissions of Service of Subpoenas were filed for Eric Elsberry and Michael Soukup. Charles Mix County Sheriff Office's Return of Service for Keith Mushitz was also filed.

On October 4, 2018, Intervenor Ms. Jenkins filed Additional Exhibits.

On October 5, 2018, Intervenors filed Intervenors' Corrected Exhibit I-16 and Exhibit I-17.

On October 5, 2018, Intervenor Mr. Fuerniss filed Additional Exhibits.

On October 9, 2018, Intervenors filed Intervenors' Opposition to Having Exhibits I-16 and I-17 be Confidential.

On October 9, 2018, Intervenors filed Exhibits I-16, I-17, I-28, I-29, and I-30.

Also on October 9, 2018, Prevailing Wind Park filed Applicant's Exhibits A3-2, A10-2, A16-R, A20-1, A20-2, A22-3, A24, A27, A28, A29, A30, A31, A32, and A33. Staff filed Exhibit S5.

On October 10 and 12, 2018, Prevailing Wind Park filed Exhibits A34, A35, A36, A37, A38, A39, A40, and A41. Prevailing Wind Park also filed an updated map, designated Attachment 4-2, to Intervenors' Exhibit I-29. Intervenors also filed Exhibits I-31, I-32, I-33, I-34, I-35, I-36, and I-37.

The evidentiary hearing was held before the Commission on October 9-12, 2018 in Pierre, South Dakota.

On October 29, 2018, Prevailing Wind Park filed Exhibit A42, which was pre-admitted at the evidentiary hearing on October 12, 2018.

Also on October 29, 2018, in accordance with the Commission's decision regarding the striking of portions of Intervenors' Exhibits I-1 and I-2 and of the transcript from the evidentiary hearing on October 12, 2018, the hearing examiner filed the redacted

versions of Intervenor's Exhibits I-1 and I-2 and the redacted transcript of the evidentiary hearing on October 12, 2018.

Having considered the evidence of record, applicable law, and the briefs and arguments of the parties, the Commission makes the following Findings of Fact, Conclusions of Law, and Order:

## **FINDINGS OF FACT**

### **I. PROCEDURAL FINDINGS.**

1. The Procedural History set forth above is hereby incorporated by reference in its entirety in these Procedural Findings. The procedural findings set forth in the Procedural History are a substantially complete and accurate description of the material documents filed in this docket and the proceedings conducted and decisions rendered by the Commission in this matter.

### **II. PARTIES.**

2. Prevailing Wind Park, LLC is a South Dakota limited liability company and a wholly owned subsidiary of sPower Development Company, LLC (sPower).<sup>5</sup>

3. sPower is an independent renewable energy company based in Salt Lake City, Utah. sPower is the largest private owner of operating solar assets in the United States. sPower owns and operates a portfolio of solar and wind assets greater than 1.3 gigawatts (GW) and has a development pipeline of more than 10 GW.<sup>6</sup>

4. Intervenor Gregg and Marsha Hubner are landowners within the Project Area.

5. Intervenor Paul and Lisa Schoenfelder are landowners within the Project Area.

6. Intervenor Sherman Fuerniss is a landowner within the Project Area.

7. Intervenor Karen Jenkins is a landowner within the Project Area.

8. Intervenor Kelli Pazour resides adjacent to the Project Area.

9. Staff fully participated as a party in this matter, in accordance with SDCL 49-41B-17.

### **III. PROJECT DESCRIPTION.**

10. The proposed Project is an up to 219.6 MW wind energy conversion facility located in Hutchinson, Bon Homme, and Charles Mix counties, South Dakota. The

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<sup>5</sup> Ex. A1 at 1-1 (Application).

<sup>6</sup> Ex. A1 at 1-1 (Application).

proposed Project includes up to 61 wind turbine generators, access roads to each turbine, underground 34.5-kilovolt (kV) electrical collection system, including an occasional aboveground junction box, connecting the turbines to the Project collector substation, underground fiber-optic cable for turbine communications co-located with the collector lines, a 34.5-kV to 115-kV collector substation, up to four permanent meteorological (MET) towers, an operations and maintenance (O&M) facility, and additional temporary construction areas, including crane paths, public road improvements, a laydown yard, and a concrete batch plant(s) (as needed).<sup>7</sup>

11. The Project would interconnect with Western Area Power Administration's (WAPA's) existing Utica Junction Substation, located approximately 27 miles east of the Project. The Applicant is proposing to construct a new 115 kV gen-tie line in Bon Homme and Yankton counties from the Project collector substation to the Utica Junction Substation. The gen-tie line is not under the jurisdiction of the Commission and will be permitted in Bon Homme and Yankton counties.<sup>8</sup> A 115-/230-kV substation would be constructed near the point of interconnection to step up the voltage to match that of WAPA's 230 kV interconnection facilities.<sup>9</sup>

12. The Project is located on approximately 50,364 acres of land in Hutchinson, Charles Mix, and Bon Homme counties, South Dakota (Project Area).<sup>10</sup>

13. The current estimated capital cost of the Project is approximately \$297 million based on indicative construction and wind turbine pricing cost estimates. This estimate includes lease acquisition; permitting, engineering, procurement, and construction of turbines, access roads, underground electrical collector system, Project collector substation, interconnection facilities, O&M facility, supervisory control and data acquisition (SCADA) system, and MET towers; and project financing. Capital cost estimates could fluctuate for the Project, dependent on which turbine model is ultimately used, materials and labor costs, and interconnection costs.<sup>11</sup>

14. Prevailing Wind Park provided evidence to support the need for turbine model flexibility.<sup>12</sup> The proposed turbine model that would be utilized for the Project is the GE 3.8-137, a 3.8 MW turbine with a 111.5-meter hub height and 137-meter rotor diameter (RD).<sup>13</sup> For up to nine turbines, Prevailing Wind Park requested the option to use a GE 2.3 MW turbine, which has an 80-meter hub height and 116 meter RD.<sup>14</sup> Prevailing Wind Park demonstrated that this turbine model flexibility is necessary in case use of the smaller turbine model is required to qualify for the production tax credit.<sup>15</sup> Further, Prevailing Wind Park has committed to the process outlined in Condition 29 of Applicant's and Staff's Revised Joint Recommended Conditions for addressing the

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<sup>7</sup> Ex. A1 at 1-1 (Application); see also Ex. A1 at § 8.7 (Application).

<sup>8</sup> Ex. A1 at 1-1 (Application).

<sup>9</sup> Ex. A1 at 8-7 (Application).

<sup>10</sup> Ex. A1 at 1-1, 8-1 (Application).

<sup>11</sup> Ex. A1 at 7-1 (Application).

<sup>12</sup> See Ex. A1 at 8-3 (Application).

<sup>13</sup> Ex. A7 at 2 (Pawlowski Rebuttal).

<sup>14</sup> Evid. Hrg. Tr. at 209 (Pawlowski).

<sup>15</sup> Evid. Hrg. Tr. at 209, 254-55 (Pawlowski).

change in turbine model and demonstrating compliance with all of the conditions of the permit for the Project.<sup>16</sup>

15. All turbines will be constructed within the Project Area consistent with the configuration presented in the updated map labeled Attachment 4-2 to Applicant's Responses to Intervenor's Fourth Set of Data Requests,<sup>17</sup> and subject to all commitments, conditions, and requirements of this Order.

16. sPower currently owns Prevailing Wind Park and is overseeing development of the Project. Prevailing Wind Park will own, manage, and operate the Project.<sup>18</sup>

17. Prevailing Wind Park presented evidence of consumer demand and need for the Project.<sup>19</sup> Prevailing Wind Park has entered into a 30-year Power Purchase Agreement (PPA) with a South Dakota load serving entity. The output from the facility, which could annually generate up to 933,116 megawatt-hours (MWh), will be used to meet the needs for South Dakota residential, commercial, and industrial customers.<sup>20</sup> The proposed Project would provide a new source of low cost energy in South Dakota and help the country move towards the goal of energy independence, while reducing pollution and carbon emissions.<sup>21</sup>

18. With regard to micrositing, Prevailing Wind Park provided evidence to support the need for turbine and associated facility flexibility.<sup>22</sup> With respect to turbine flexibility, Prevailing Wind Park and Staff agreed to the turbine flexibility and "material change" provisions set forth in Applicant's and Staff's Revised Joint Recommended Condition 23.<sup>23</sup> With respect to the access roads, the collector system, O&M facility, Project substation, temporary facilities, MET towers, and other facilities, Prevailing Wind Park and Staff agreed to Condition 24 of Applicant's and Staff's Revised Joint Recommended Conditions.<sup>24</sup>

19. The record demonstrates that Prevailing Wind Park has made appropriate and reasonable plans for decommissioning.<sup>25</sup>

20. With respect to financial security for decommissioning, Staff and Prevailing Wind Park have agreed to implement a decommissioning escrow account.<sup>26</sup>

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<sup>16</sup> Applicant's and Staff's Revised Joint Recommended Condition 29.

<sup>17</sup> Attachment C to Applicant's Brief.

<sup>18</sup> Ex. A1 at 5-1 (Application).

<sup>19</sup> See Ex. A1 at 6-1, § 6.1 (Application).

<sup>20</sup> Ex. A1 at 6-1 (Application).

<sup>21</sup> Ex. A1 at 6-5 (Application).

<sup>22</sup> See Ex. A1 at 8-2 – 8-3 (Application).

<sup>23</sup> Applicant's and Staff's Revised Joint Recommended Condition 23.

<sup>24</sup> Applicant's and Staff's Revised Joint Recommended Condition 24.

<sup>25</sup> See Ex. A1 at Ch. 24.0 (Application); Ex. A6 at 6 (Pawlowski Supplemental Direct); Ex. A7 at 4-5 (Pawlowski Rebuttal); Ex. A11 (Pardo Supplemental Direct); Ex. A11-2 (Decommissioning Cost Analysis).

<sup>26</sup> Applicant's and Staff's Revised Joint Recommended Condition 40.



21. The record demonstrates that Prevailing Wind Park has provided adequate information on potential cumulative impacts and that the Project will not have a significant impact.<sup>27</sup>

#### **IV. FACTORS FOR AN ENERGY FACILITY PERMIT.**

22. Under the SDCL 49-41B-22, the Commission must find:

(1) The proposed facility will comply with all applicable laws and rules;

(2) The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area;

(3) The facility will not substantially impair the health, safety or welfare of the inhabitants; and

(4) The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

23. In addition, SDCL 49-41B-25 provides that the Commission must make a finding that the construction of the facility meets all the requirements of Chapter 49-41B.

24. There is sufficient evidence on the record for the Commission to assess the proposed Project using the criteria set forth above.

#### **V. SATISFACTION OF REQUIREMENTS FOR ISSUANCE OF AN ENERGY FACILITY PERMIT.**

##### **A. The proposed facility will comply with all applicable laws and rules.**

25. The evidence submitted by Prevailing Wind Park demonstrates that the Project will comply with applicable laws and rules.<sup>28</sup> Neither Staff nor Intervenors have asserted otherwise or submitted evidence to the contrary.

26. Construction of the Project meets all the requirements of Chapter 49-41B.

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<sup>27</sup> See, e.g., Ex. A1 at Ch. 22.0 (Application).

<sup>28</sup> See Ex. A7 at 2-3 (Pawlowski Rebuttal); Ex. A6 at 3 (Pawlowski Supplemental Direct); Ex. A1 at §§ 27.1, 27.4 (Application); see also, e.g., Ex. A1 at 9-3, 9-4, 12-6, 15-7 (Application).

**B. The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area.**

1. Environment.

27. The evidence demonstrates that the Project does not pose a threat of serious injury to the environment in the Project Area and that Prevailing Wind Park has adopted reasonable avoidance and minimization measures, as well as commitments, to further limit potential environmental impacts.<sup>29</sup> South Dakota Game, Fish and Parks Department (GFP) did not identify any concerns unique to the Project.<sup>30</sup>

28. Construction of the Project will not result in significant impacts on geological resources. The risk of seismic activity in the vicinity of the Project Area is low according to data from the U.S. Geological Survey (USGS).<sup>31</sup>

29. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to soil resources.<sup>32</sup> The majority of impacts will be temporary and related to construction activities.<sup>33</sup> Permanent impacts associated with operation of the Project will be up to 45 acres, which is less than 0.1 percent of the Project Area.<sup>34</sup> Prevailing Wind Park will implement various measures during construction and restoration to minimize impacts to the physical environment, including segregating topsoil and subsoil, use of erosion and sediment control during and after construction, noxious weed control, and reseeded of disturbed areas.<sup>35</sup>

30. The Project is not anticipated to have material impacts on existing air and water quality.<sup>36</sup>

31. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to hydrology.<sup>37</sup> The record demonstrates that Prevailing Wind Park has minimized impacts to wetlands and water bodies.<sup>38</sup> The Project is not anticipated to have long-term impacts on groundwater resources.<sup>39</sup> The Project is not anticipated to impact floodplains. There are no FEMA-mapped floodplains within the Project Area and the nearest mapped floodplains to the Project area are along Choteau Creek, over 1 mile southwest of the Project Area.<sup>40</sup> No turbines are located within wetlands, and Project facilities would potentially result in permanent impacts to two wetlands (0.0042 acre and

<sup>29</sup> See, e.g., Ex. A1 at Ch. 10.0, 17.0 (Application); see also Ex. A1 at §§ 11.1.2, 11.2.2, 12.1.2, 12.2.2, 13.1.2, 13.2.2, 13.3.2, 13.4.2, 14.3, 18.2 (Application).

<sup>30</sup> Ex. S1 at 8 (Kearney Direct); Evid. Hrg. Tr. at 1119 (Kearney).

<sup>31</sup> Ex. A1 at 11-3 (Application).

<sup>32</sup> See Ex. A1 at §§ 11.2.2 (Application).

<sup>33</sup> See Ex. A1 at 11-9 (Application).

<sup>34</sup> Ex. A1 at 3-2, 11-9 (Application).

<sup>35</sup> Ex. A1 at 11-9 – 11-10 (Application).

<sup>36</sup> See Ex. A1 at Ch. 17.0, § 18.2 (Application).

<sup>37</sup> See Ex. A1 at §§ 12.1.2, 12.2.2 (Application).

<sup>38</sup> See Ex. A1 at § 13.3.2 (Application).

<sup>39</sup> See Ex. A1 at § 12.1.2 (Application).

<sup>40</sup> See Ex. A1 at §§ 12.2.1.4, 12.2.2.3 (Application).

0.0002 acre of impacts, respectively) and would cross three intermittent streams (62.4 linear feet of stream segments).<sup>41</sup>

32. The record demonstrates that Prevailing Wind Park has minimized impacts to vegetation.<sup>42</sup> Permanent impacts associated with operation of the Project would be up to 45 acres (predominantly cropland and grassland/pasture), which is less than 0.1 percent of the Project Area.<sup>43</sup>

33. Prevailing Wind Park coordinated with GFP to avoid and minimize impacts to potentially untilled grasslands. Based on the 2018 desktop review of potential untilled grassland areas, 1 of the 63 turbine locations is located in untilled grassland. Only approximately 1 acre of long-term Project disturbance would occur in potential untilled grasslands.<sup>44</sup> Permanent habitat loss due to construction of wind turbines would be minimal across the Project Area and localized.<sup>45</sup>

34. Prevailing Wind Park will reseed temporarily disturbed uncultivated areas with certified weed-free seed mixes to blend in with existing vegetation.<sup>46</sup>

35. Prevailing Wind Park has conducted numerous wildlife studies and surveys for the Project to assess existing use, identify potential impacts, and incorporate appropriate avoidance and minimization measures.<sup>47</sup> Prevailing Wind Park consulted with the USFWS and GFP to seek input on wildlife resources potentially occurring within the Project Area and to seek guidance on the appropriate studies to evaluate risk and inform development of impact avoidance and minimization measures for the Project.<sup>48</sup> Prevailing Wind Park followed the processes outlined in the USFWS Land-Based Wind Energy Guidelines (WEG), Eagle Conservation Plan Guidance (ECPG), and the SD Siting Guidelines for developing, construction, and operation of wind energy projects.<sup>49</sup> In addition, Prevailing Wind Park prepared a Bird and Bat Conservation Strategy (BBCS) in accordance with the WEG, which includes strategies for mitigating risks to avian and bat species during construction and operation of the Project.<sup>50</sup>

36. Construction of the Project may have impacts on wildlife species primarily as a result of habitat disturbance. However, following construction, all areas of temporary disturbance will be reclaimed with vegetation consistent with the surrounding vegetation types.<sup>51</sup> The Project was designed to avoid and minimize displacement of wildlife by

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<sup>41</sup> Ex. A1 at 13-6 (Application).

<sup>42</sup> See Ex. A1 at § 13.1.2 (Application).

<sup>43</sup> Ex. A1 at 13-3 (Application).

<sup>44</sup> Ex. A1 at 13-4 (Application).

<sup>45</sup> Ex. A1 at 13-17 (Application).

<sup>46</sup> Ex. A1 at 3-4 (Application).

<sup>47</sup> See Ex. A1 at Table 2-1, § 13.4 (Application).

<sup>48</sup> See Ex. A1 at § 13.4 (Application).

<sup>49</sup> Ex. A1 at 13-7 (Application).

<sup>50</sup> Ex. A1 at Appendix L (Application).

<sup>51</sup> Ex. A1 at 13-19 (Application).

minimizing the Project's footprint in undisturbed areas.<sup>52</sup> Permanent habitat loss due to construction of wind turbines would be minimal across the Project Area and localized.<sup>53</sup>

37. The record demonstrates that, while the Project may directly impact birds and bats, avian fatalities due to the Project are anticipated to be low and to not have significant population-level impacts.<sup>54</sup> To prevent potential bird strikes with electric lines, collector lines will be buried underground and the Project will incorporate other avian safe practices consistent with guidelines from the Avian Power Line Interaction Committee.<sup>55</sup> Based on available data, bat fatalities and the degree to which bat species would be affected by the Project would be within the average range of bat mortalities found throughout the U.S.<sup>56</sup> The record demonstrates that the Project was designed to avoid and minimize impacts to bats. The Project Area was shifted to the north and away from the Missouri River, where more woodland habitat and higher bat populations are present. The Project has been sited in an area and designed in a manner to avoid and minimize impacts to birds and bats.<sup>57</sup>

38. Prevailing Wind Park conducted two years of pre-construction avian surveys.<sup>58</sup> Those surveys indicate that avian impacts from the Project are anticipated to be low.<sup>59</sup> Further, Prevailing Wind Park has committed to two years of post-construction avian mortality monitoring.<sup>60</sup>

39. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to federal- and state-listed species.<sup>61</sup> Only five federal- or state-listed threatened and/or endangered species have the potential to occur in the Project Area during some portion of the year: federally endangered interior least tern and whooping crane; and federally threatened piping plover, red knot, and northern long-eared bat.<sup>62</sup> The interior least tern, red knot, whooping crane, and piping plover could migrate through the Project Area during the spring and fall but are otherwise not expected to occur in the Project Area.<sup>63</sup> The northern long-eared bat is the only state and federally listed bat with the potential to occur within the area.<sup>64</sup> Impacts on federally-listed species due to Project construction and operations are anticipated to be minimal due to the low likelihood or frequency of species' presence in the Project Area and implementation of appropriate species-specific conservation measures.<sup>65</sup>

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<sup>52</sup> Ex. A1 at 13-19 (Application).

<sup>53</sup> Ex. A1 at 13-17 (Application).

<sup>54</sup> Ex. A1 at 13-19 (Application).

<sup>55</sup> Ex. A1 at 13-19 (Application).

<sup>56</sup> Ex. A1 at 13-20 (Application).

<sup>57</sup> See Ex. A1 at 13-19 – 13-21 (Application); Ex. A12 at 13 (Canty Direct).

<sup>58</sup> Ex. A1 at 13-14 (Application); see also Ex. A1 at Appendices F and G (Application).

<sup>59</sup> Ex. A1 at 13-19 (Application).

<sup>60</sup> Applicant's and Staff's Revised Joint Recommended Condition 34.

<sup>61</sup> See Ex. A1 at §§ 13.4.2.4, 14.3 (Application).

<sup>62</sup> Ex. A1 at 3-2 – 3-3, 13-10 – 13-12, 13-18 (Application).

<sup>63</sup> Ex. A1 at 3-2, § 13.4.2.1 (Application); see also Ex. A1 at Table 13-4 (Application).

<sup>64</sup> Ex. A1 at 13-16 (Application).

<sup>65</sup> See Ex. A1 at §§ 13.4.2, 14.2, 14.3 (Application); Ex. A12 at 11-13 (Canty Direct).

40. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to whooping cranes.<sup>66</sup> Prevailing Wind Park conducted a Whooping Crane Habitat Assessment in 2016 that included analysis of the Project Area.<sup>67</sup> The Project is located within an area where 10 percent or less of whooping crane migration occurs.<sup>68</sup> There have been no confirmed whooping crane sightings within the Project Area as of spring 2018.<sup>69</sup> Further, to date, no whooping crane has died as the result of a wind turbine.<sup>70</sup> Prevailing Wind Park will comply with applicable avoidance, minimization, and mitigation measures specified in the Upper Great Plains Wind Energy Final Programmatic Environmental Impact Statement (PEIS), prepared jointly by WAPA and the USFWS.<sup>71</sup> As part of the PEIS, Prevailing Wind Park has committed to a curtailment program whereby if a whooping crane is sighted within two miles of the Project, the turbines will be shut down until the cranes leave the area.<sup>72</sup> There will be two ways to stop operation of the turbines. First, monitors may call the operations center and ask them to shut the turbines down. Second, each monitor will have a laptop or tablet equipped with software that will allow him or her to shut down the turbines remotely if a whooping crane is sighted.<sup>73</sup> This software has been successfully implemented and is used by sPower on another wind project.<sup>74</sup> Additionally, Prevailing Wind Park has committed to monitoring during the spring and fall migration periods.<sup>75</sup> Prevailing Wind Park is coordinating with USFWS regarding the specific timing of that monitoring and has also engaged a consultant to assist in that process.<sup>76</sup>

41. Overall, there is a low level of risk for potential bald eagle impacts at the site.<sup>77</sup> Prevailing Wind Park conducted eagle nest surveys in 2015 and 2016.<sup>78</sup> No eagle nests were identified within the Project Area, and the nearest occupied bald eagle nest to the Project Area is located approximately 0.5 miles from the current Project Area boundary. The nest is located approximately two miles from the nearest proposed turbine.<sup>79</sup> Prevailing Wind Park conducted an updated search through the Natural Heritage Program of known bald eagle nest sites which identified this same single active nest.<sup>80</sup> In addition, Prevailing Wind Park has agreed to a number of avian-related impact minimization and avoidance measures, including: conducting post-construction avian mortality monitoring for two years; and implementing the BBCS developed in accordance

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<sup>66</sup> See Ex. A1 at 3-2 – 3-3, 13-16, 13-18, 27-4 (Application); Evid. Hrg. Tr. at 432 (Canty).

<sup>67</sup> Ex. A1 at 13-16 (Application); Ex. A1 at Appendix K (Application).

<sup>68</sup> Evid. Hrg. Tr. at 467 (Canty).

<sup>69</sup> Ex. A1 at 3-2 – 3-3 (Application).

<sup>70</sup> Evid. Hrg. Tr. at 467-68 (Canty).

<sup>71</sup> Ex. A1 at 13-8 (Application).

<sup>72</sup> Evid. Hrg. Tr. at 432 (Canty).

<sup>73</sup> Evid. Hrg. Tr. at 1142 (Pawlawski).

<sup>74</sup> Evid. Hrg. Tr. at 461-62 (Canty); Evid. Hrg. Tr. at 1142 (Pawlawski).

<sup>75</sup> Evid. Hrg. Tr. at 432 (Canty).

<sup>76</sup> Evid. Hrg. Tr. at 468 (Canty).

<sup>77</sup> See Ex. A1 at 27-3 – 27-4 (Application).

<sup>78</sup> Ex. A1 at 2-2 (Application).

<sup>79</sup> Ex. A1 at 13-13, 27-3 – 27-4 (Application).

<sup>80</sup> Evid. Hrg. Tr. at 470-71 (Canty).

with the USFWS WEG to minimize impacts to avian and bat species during construction and operation of the Project.<sup>81</sup>

42. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to aquatic ecosystems.<sup>82</sup> The federally- and state-listed aquatic species with potential to occur in or near the Project are not anticipated to be affected by the Project.<sup>83</sup>

43. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to land use.<sup>84</sup> The Project will not displace existing residences or businesses.<sup>85</sup> Areas disturbed due to construction that would not host Project facilities would be re-vegetated with vegetation types matching the surrounding agricultural landscape. Agricultural uses may continue within the Project Area during construction and operation.<sup>86</sup>

44. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to recreation.<sup>87</sup> No Project facilities would be placed on USFWS Waterfowl Production Areas, GFP Game Production Areas, or GFP Walk-In Areas.<sup>88</sup>

45. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to conservation easements and publicly-managed lands.<sup>89</sup> Prevailing Wind Park coordinated with the USFWS to identify and avoid areas subject to USFWS easements within the Project Area. The Project has been designed such that no Project facilities (e.g., turbines, collector lines, access roads) would be placed on USFWS wetland or grassland easements, and thus, no direct impacts to these easement areas would occur.<sup>90</sup> As noted above, the Project will also avoid direct impacts to Game Production Areas and Waterfowl Production Areas.<sup>91</sup>

46. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to visual resources.<sup>92</sup> In accordance with Federal Aviation Administration (FAA) regulations, the turbine towers would be painted off-white to reduce potential glare and minimize visual impact.<sup>93</sup> No scenic resources with sensitive viewsheds are located within the Project Area. The nearest scenic resources to the Project Area are located approximately 12 and 13 miles away from the Project Area. At these distances, adverse visual impacts from construction or operation of the Project are not anticipated.<sup>94</sup>

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<sup>81</sup> See Ex. A12 at 13 (Canty Direct); Applicant's and Staff's Revised Joint Recommended Conditions 34 and 35.

<sup>82</sup> See Ex. A1 at § 14.3 (Application).

<sup>83</sup> See Ex. A1 at § 14.3 (Application).

<sup>84</sup> See Ex. A1 at §§ 15.1.2, 20.2.2 (Application).

<sup>85</sup> Ex. A1 at 15-3 (Application).

<sup>86</sup> Ex. A1 at 15-3 (Application).

<sup>87</sup> See Ex. A1 at § 15.2.2 (Application).

<sup>88</sup> Ex. A1 at 15-4 (Application).

<sup>89</sup> See Ex. A1 at § 15.2 (Application).

<sup>90</sup> Ex. A1 at 15-4 (Application).

<sup>91</sup> Ex. A1 at 15-4 (Application).

<sup>92</sup> See Ex. A1 at § 15.4.2 (Application).

<sup>93</sup> Ex. A1 at 15-13 (Application).

<sup>94</sup> Ex. A1 at 15-13 (Application).

Additionally, Prevailing Wind Park will install and use an Aircraft Detection Lighting System (ADLS) if approved by the FAA for use for the Project, thereby reducing visual impacts.<sup>95</sup> Furthermore, the FAA has issued a Determination of No Hazard to Air Navigation for each of the Project's proposed turbine sites.<sup>96</sup>

47. Prevailing Wind Park has demonstrated that it will minimize and/or avoid impacts to cultural resources.<sup>97</sup> Prevailing Wind Park conducted multiple cultural resource surveys to identify cultural resources within the Project Area.<sup>98</sup> Prevailing Wind Park conducted a Level I Cultural Resources Records Search for the Project Area and one-mile buffer area in April 2018. Prevailing Wind Park used this information to inform the siting of Project facilities and to identify areas that have a higher likelihood for containing intact cultural resources eligible for listing on the National Register of Historic Places (NRHP).<sup>99</sup> Prevailing Wind Park also completed a historical/architectural survey.<sup>100</sup> A draft report summarizing the results is expected by mid-November and will be submitted to the State Historic Preservation Office (SHPO) for review and concurrence.<sup>101</sup> Sites determined to be NRHP-eligible will be avoided by the Project. If avoidance is not practicable, Prevailing Wind Park will work with WAPA and SHPO to develop appropriate minimization or mitigation measures.<sup>102</sup> Further, Prevailing Wind Park has agreed to develop an unanticipated discovery plan for cultural resources.<sup>103</sup>

48. WAPA is preparing an Environmental Assessment (EA) for the Project interconnection in accordance with the applicable requirements and standards of the National Environmental Policy Act (NEPA). The proposed interconnection of the Project to WAPA's transmission system is a Federal action under NEPA.<sup>104</sup> As part of the NEPA process for approval of the WAPA interconnection, Prevailing Wind Park is coordinating with WAPA to support WAPA's compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. WAPA is consulting with SHPO and interested tribes as part of the Section 106 compliance process.<sup>105</sup> Prevailing Wind Park expects that WAPA will issue the draft EA in the fall of 2018.<sup>106</sup>

49. Staff and Prevailing Wind Park have agreed upon Conditions 12 through 14 regarding cultural resources.<sup>107</sup>

## 2. Social and Economic.

<sup>95</sup> Ex. A6 at 5 (Pawlowski Supplemental Direct).

<sup>96</sup> Ex. A6 at 5 (Pawlowski Supplemental Direct).

<sup>97</sup> See Ex. A1 at § 20.5.2 (Application); Ex. A12 at 14-16 (Canty Direct); Ex. A13 at 3-43 (Canty Supplemental Direct); Ex. A14 at 2-3 (Canty Rebuttal).

<sup>98</sup> See, e.g., Ex. A1 at § 20.5.1 (Application); Ex. A12 at 14-15 (Canty Direct).

<sup>99</sup> See Ex. A1 at § 20.5 (Application).

<sup>100</sup> Ex. A14 at 3 (Canty Rebuttal).

<sup>101</sup> Ex. A14 at 3 (Canty Rebuttal).

<sup>102</sup> Ex. A1 at 20-14 (Application); Ex. A12 at 16 (Canty Direct).

<sup>103</sup> Applicant's and Staff's Revised Joint Recommended Condition 13.

<sup>104</sup> Ex. A12 at 7 (Canty Direct).

<sup>105</sup> Ex. A13 at 3 (Canty Supplemental Direct).

<sup>106</sup> Ex. A14 at 3 (Canty Rebuttal).

<sup>107</sup> Applicant's and Staff's Revised Joint Recommended Conditions 12 through 14.

50. Prevailing Wind Park acquired the Project in 2017 from Prevailing Winds, LLC, which was formed by a group of local investors who sought to create additional sources of income for area landowners and economic growth for the local communities through wind energy.<sup>108</sup> Since its October 2017 acquisition of the assets and development rights to the Project, Prevailing Wind Park has undertaken extensive development activities, consisting of landowner outreach and easement acquisition, detailed studies of resources in the Project Area, coordination with resource agencies, and design and refinement of the Project configuration.<sup>109</sup> Since acquiring the Project, Prevailing Wind Park negotiated additional lease agreements for approximately 40 percent of the total Project acreage.<sup>110</sup> Prevailing Wind Park has obtained all of the private land rights necessary to construct the Project.<sup>111</sup> The identification of the final Project site was primarily driven by: superior wind resources because of elevation, proximity and direct access to available transmission capacity, cost efficiency, and the Project's ability to avoid or minimize potential adverse environmental impacts.<sup>112</sup> Prevailing Wind Park also considered input from agencies and the public in siting the Project, specifically: distance from the Missouri River, where higher populations of many plant and animal species are present; distance from the Whooping Crane Migration Corridor; state and Federal lands within or near the Project Area; potentially undisturbed grasslands, wetlands, and other habitats within or near Project Area; and an existing eagle nest located near the Project Area.<sup>113</sup> The proposed configuration of Project facilities also reflects an optimal configuration to best capture wind energy within the Project Area, while avoiding impacts to residences, known cultural resources, wetlands, potentially undisturbed grasslands, and sensitive species and their habitats.<sup>114</sup>

51. In prior contested siting dockets, the Commission has considered the following socioeconomic issues in evaluating whether a project would pose a threat of serious injury to the social and economic condition: temporary and permanent jobs; tax revenue; and impacts on commercial, agricultural, and industrial sectors, housing, land values, labor market, health facilities, energy, sewage and water, solid waste management facilities, fire protection, law enforcement, recreational facilities, schools, transportation facilities, and other community and government facilities.<sup>115</sup>

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<sup>108</sup> Ex. A1 at 2-1 (Application); Ex. A6-3 at 6 (Damon Direct); *see also* Ex. A1 at § 9.1 (Application).

<sup>109</sup> Ex. A1 at 2-1 (Application).

<sup>110</sup> Evid. Hrg. Tr. at 215, 226 (Pawlowski).

<sup>111</sup> Ex. A1 at 2-1 (Application).

<sup>112</sup> *See* Ex. A1 at § 9.1 (Application).

<sup>113</sup> Ex. A1 at 9-2 (Application).

<sup>114</sup> Ex. A1 at 9-3 (Application).

<sup>115</sup> *See, e.g., In the Matter of the Application of Dakota Access, LLC for an Energy Facility Permit to Construct the Dakota Access Pipeline*, Docket HP14-002, Final Decision and Order; Notice of Entry (Dec. 14, 2015) at ¶¶ 100-101; *In the Matter of the Application by TransCanada Keystone Pipeline, LP for a Permit Under the South Dakota Energy Conversion and Transmission Facilities Act to Construct the Keystone XL Project*, Docket HP09-001, Amended Final Decision and Order; Notice of Entry (June 29, 2010) at ¶¶ 107-110 (discussing socioeconomic effects, including tax revenue, jobs, and impacts on agricultural, commercial, and industrial sectors and public facilities); *In the Matter of the Application of Dakota Range I, LLC and Dakota Range II, LLC for a Permit of a Wind Energy Facility in Grant County and Codington County, South Dakota, for the Dakota Range Wind Project*, Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry (July 23, 2018) at ¶¶ 50-57; *In the Matter of the*



52. The record demonstrates that the Project will not pose a threat of serious injury to the social and economic condition.<sup>116</sup> Prevailing Wind Park has demonstrated that the Project will not adversely impact property values.<sup>117</sup> Mr. MaRous, a South Dakota State Certified General Appraiser and a certified Member Appraisal Institute appraiser with experience evaluating the impact of wind turbines on property values, conducted a Market Analysis to analyze the potential impact of the Project on the value of the surrounding properties and found no credible data indicating property values will be adversely impacted due to proximity to the Project.<sup>118</sup> Mr. MaRous further noted that the additional income from participating in the Project may actually increase the value and marketability of participating agricultural land.<sup>119</sup>

53. There is no basis in the record to require a property value guarantee. There is no record evidence that property values will be adversely affected.<sup>120</sup>

54. The record demonstrates that the Project will not adversely impact hunting or gaming operations in the area. Mr. Jerome Powers testified regarding his concerns about the Project's impact on his guided hunting business. However, Mr. Powers' testimony did not support his claims and there is no credible evidence that the Project will impact Mr. Powers' hunting operation, or hunting in general. During his testimony, Mr. Powers acknowledged that he owns approximately 12.8 acres.<sup>121</sup> In the past, he has relied upon year-to-year leases for hunting rights on various properties.<sup>122</sup> He testified that some of those landowners have decided not to renew his leases for the coming year.<sup>123</sup> One of those landowners – Clearfield Colony – is a participating landowner in the Project. As acknowledged by Mr. Powers, the Project does not prohibit or otherwise restrict hunting.<sup>124</sup> Thus, it is Mr. Powers' ownership of limited acreage and his need to hunt on others' land that affects his hunting business and not the Project.

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*Application of Montana-Dakota Utilities Co. and Otter Tail Power Company for a Permit to Construct the Big Stone South to Ellendale 345 kV Transmission Line, Docket EL13-028, Final Decision and Order; Notice of Entry (Aug. 22, 2014) at ¶¶ 29-31 (discussing impacts to agriculture, property values, and local roads under this criterion).*

<sup>116</sup> See, e.g., Ex. A1 at 20-3 – 20-4, 21-1 – 21-2 (Application); Ex. A1 at §§ 20.1.2, 20.3.2 (Application); Evid. Hrg. Tr. at 257 (Pawlowski).

<sup>117</sup> See Ex. A1 at § 20.1.2.3 (Application); Ex. A15 at 8, 11, 12-13, 18-19 (MaRous Supplemental Direct); Evid Hrg. Tr. at 292 (MaRous); see also Ex. A15-1 (Market Impact Analysis).

<sup>118</sup> See Ex. A15 at 12, 18-19 (MaRous Supplemental Direct); see also Ex. A15-1 at 4-5, 55 (Market Impact Analysis).

<sup>119</sup> Ex. A15 at 12 (MaRous Supplemental Direct).

<sup>120</sup> See Ex. A1 at § 20.1.2.3 (Application); Ex. A15 at 8, 12, 18-19 (MaRous Supplemental Direct); Ex. A16R at 2 (Revised MaRous Rebuttal); see also *In the Matter of the Application by Dakota Range I, LLC and Dakota Range II, LLC for a Permit of a Wind Energy Facility in Grant County and Codington County, South Dakota, for the Dakota Range Wind Project*, Docket EL18-003, Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry (July 23, 2018) at ¶ 55; *In the Matter of the Application by Crocker Wind Farm, LLC for a Permit of a Wind Energy Facility and a 345 kV Transmission Line in Clark County, South Dakota, for Crocker Wind Farm*, Docket EL17-055, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (June 12, 2018) at ¶ 61.

<sup>121</sup> Evid. Hrg. Tr. at 1017 (Powers).

<sup>122</sup> Evid. Hrg. Tr. at 1017, 1023-24 (Powers).

<sup>123</sup> Evid. Hrg. Tr. at 1024, 1028 (Powers).

<sup>124</sup> Evid. Hrg. Tr. at 1018 (Powers).

55. The record demonstrates that the Project will, on the whole, have positive impacts on the community.<sup>125</sup> Construction and operation of the Project will result in substantial benefits to South Dakota and local economies.<sup>126</sup> The Project will create temporary job opportunities during construction, and permanent operations and maintenance job opportunities. During construction, up to 245 temporary construction jobs are anticipated at the peak of construction, and 8 to 10 permanent jobs will also be created in the community.<sup>127</sup> Additionally, local businesses would also likely benefit from construction-related expenditures for the Project.<sup>128</sup> The Project will make lease payments to participating landowners and will provide long-term benefits to the state and local tax base.<sup>129</sup> The Project is anticipated to result in more than \$20.4 million in additional annual tax revenue for the state and local governments.<sup>130</sup>

56. With almost any energy infrastructure project, there is not unanimous support for the Project.<sup>131</sup> There are residents in the Project Area who do not support the Project, some of whom participated in these proceedings to advocate for their views. However, the opposition to this Project is similar to that for other energy infrastructure projects.<sup>132</sup> Moreover, while the Intervenor's voiced their concerns, the Commission also

<sup>125</sup> See, e.g., Ex. A1 at § 20.1.2, 21-1 – 21-2 (Application); Ex. A1 at 6-5 – 6-6 (Application); Evid. Hrg. Tr. at 394-98 (Brandt); Evid. Hrg. Tr. at 187, 200 (Peters).

<sup>126</sup> See, e.g., Ex. A1 at § 20.1.2 (Application).

<sup>127</sup> Ex. A1 at 6-1 (Application).

<sup>128</sup> Ex. A1 at 20-4 (Application).

<sup>129</sup> Ex. A1 at 6-5 – 6-6 (Application).

<sup>130</sup> Ex. A1 at 20-3 – 20-4 (Application). At the evidentiary hearing, Commissioner Hanson questioned a portion of Mr. Damon's testimony that included a calculation regarding the anticipated benefits of the Project. See Evid. Hrg. Tr. at 270-71. As requested by the Commissioners, in its post-hearing brief Prevailing Wind Park clarified that the excerpt in question (on page 14 of Mr. Damon's testimony) corresponds to page 20-4 of the Application, which states: "construction of the Project would create a \$14.9 million boost to the local economy. Prevailing Wind Park estimates that \$220,000 of food, supplies, and fuel would be purchased locally by the Project and Project staff annually (or \$20.4 million over the life of the Project)." The \$20.4 million total cited in Mr. Damon's testimony and the Application includes the \$14.9 million plus the \$220,000 in annual purchasing over the life of the Project. Thus, there was no calculation error in Mr. Damon's direct testimony.

<sup>131</sup> See, e.g., *In the Matter of the Application by Dakota Range I, LLC and Dakota Range II, LLC for a Permit of a Wind Energy Facility in Grant County and Codington County, South Dakota, for the Dakota Range Wind Project*, Docket EL18-003, Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry (July 23, 2018) (Two intervenors); *In the Matter of the Application by Crocker Wind Farm, LLC for a Permit of a Wind Energy Facility and a 345 kV Transmission Line in Clark County, South Dakota, for Crocker Wind Farm*, Docket EL17-055, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (June 12, 2018) (Two intervenors); *In the Matter of the Application of Dakota Access, LLC for an Energy Facility Permit to Construct the Dakota Access Pipeline*, Docket HP14-002, Final Decision and Order; Notice of Entry (Dec. 14, 2015) (50 intervenors); *In the Matter of the Application by TransCanada Keystone Pipeline, LP for a Permit Under the South Dakota Energy Conversion and Transmission Facilities Act to Construct the Keystone XL Project*, Docket HP09-001, Amended Final Decision and Order; Notice of Entry (June 29, 2010) (15 intervenors); *In the Matter of the Application by Buffalo Ridge II LLC, a Subsidiary of Iberdola Renewables, Inc. for an Energy Conversion Facility Permit for the Construction of the Buffalo Ridge II Wind Farm and Associated Collection Substation and Electric Interconnection System*, Docket EL08-031, Final Decision and Order; Notice of Entry (April 23, 2009) (Six Intervenor's); *In the Matter of the Application of Montana-Dakota Utilities Co. and Otter Tail Power Company for a Permit to Construct the Big Stone South to Ellendale 345 kV Transmission Line*, Docket EL13-028, Final Decision and Order; Notice of Entry (Aug. 22, 2014) (three intervenors).

<sup>132</sup> See Evid. Hrg. Tr. at 257 (Pawlowski).

heard the testimony of landowners who do support the Project and they explained their reasons for participating in the Project. Participating landowners Ms. Karen Peters and Mr. Dustin Brandt testified to their good working relationships with Prevailing Wind Park and how they believe the Project will benefit the community.<sup>133</sup> Ms. Peters and Mr. Brandt explained their reasons for supporting the Project, including that the Project will provide an additional stable source of income for landowners, generate much-needed revenue for the counties, townships, and local schools, and create good-paying jobs in the community that will open up new career opportunities.<sup>134</sup> The testimony demonstrates that while people may have differences of opinion concerning the Project, it is no more than expected from an energy infrastructure project and is not anticipated to have permanent adverse impacts on the community. As Mr. Brandt and Mr. Schoenfelder testified, people may disagree about the Project, but they are, and will remain, a community and neighbors.<sup>135</sup> Many of the comments expressed by opponents of the Project relate to fears regarding potential health impacts, noise, and shadow flicker; however, as discussed in the section below, allegations of potential health effects are not supported by record evidence. Further, as discussed below, Prevailing Wind Park has addressed other concerns raised such as by proposing a reasonable and appropriate sound limit and committing to utilize turbine control software to limit shadow flicker at non-participating residences.<sup>136</sup> In addition, Prevailing Wind Park is committed to continuing community outreach and dialogue in the community regarding the Project.<sup>137</sup>

57. The record demonstrates that the Project is not anticipated to adversely impact communications systems.<sup>138</sup> Prevailing Wind Park completed a study on the effects of the Project upon Federal Communications Commission (FCC)-licensed radio frequency facilities, including analyses of microwave point-to-point paths, airports, radar stations, military aircraft operations, and National Telecommunication Information Agency (NTIA) notification.<sup>139</sup> Based on the results of this study and consultation with NTIA, Prevailing Wind Park shifted a turbine 50 feet to the north to ensure avoidance of

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<sup>133</sup> See Evid. Hrg. Tr. at 185-87 (Peters); Evid. Hrg. Tr. at 394-98, 426-27 (Brandt).

<sup>134</sup> See Evid. Hrg. Tr. at 185-87 (Peters); Evid. Hrg. Tr. at 394, 396-98 (Brandt).

<sup>135</sup> Evid. Hrg. Tr. at 403-04 ("It's not like there's a huge thing there. I mean, there's people for it. There's people against it. But life goes on. In the end we're all still Avon residents."); see also *id.* at 419-20 ("There is always some controversy with a project, but, as I stated before, I believe when this is all said and done, whether it is built or not, we are all still a community. I mean, these people are my neighbors. They're still going to be my neighbors when this is all said and done. So I do not believe that there's been so much [word unclear] that we can't get along and go about life."); Evid. Hrg. Tr. at 945-46 (Schoenfelder) ("I made a commitment early in this process that I would want to be treated the way other people want to be treated. I hope that other people feel the same way. These are my neighbors. A lot of those neighbors are taking the stands for a lot of different reasons. They're not evil people. I just - I - I refuse to - I refuse to hate anyone through this process.").

<sup>136</sup> See Applicant's Proposed Sound and Charles Mix Conditions; Applicant's and Staff's Revised Joint Recommended Condition 28; Evid. Hrg. Tr. at 42-43 (Anderson); Evid. Hrg. Tr. at 207 (Pawlowski).

<sup>137</sup> Evid. Hrg. Tr. at 1139-40, 1145-46 (Pawlowski); see also Ex. A1 at 2-1 (Application).

<sup>138</sup> See Ex. A1 at § 15.6 (Application); Ex. A14 at 5 (Canty Rebuttal).

<sup>139</sup> Ex. A1 at 15-15 - 15-16 (Application); see also Ex. A1 at Appendix O (Application).

microwave beam paths.<sup>140</sup> In addition, Prevailing Wind Park and Staff have agreed upon Condition 25 regarding interference with communication systems.<sup>141</sup>

58. The record demonstrates that Prevailing Wind Park has avoided and/or minimized impacts to transportation.<sup>142</sup> Prevailing Wind Park will work with local units of government to obtain the necessary road crossing and utility permits for the Project.<sup>143</sup> Prevailing Wind Park will coordinate with applicable local road authorities to establish road use agreements, as needed, to minimize and mitigate Project impacts to haul roads.<sup>144</sup> The Project will participate in the South Dakota One-Call program.<sup>145</sup>

**C. The facility will not substantially impair the health, safety or welfare of the inhabitants.**

59. The record demonstrates Prevailing Wind Park has minimized impacts from noise.<sup>146</sup>

60. Section 1741 of the Bon Homme County Zoning Ordinance provides: "Noise level produced by the LWES shall not exceed forty-five (45) dBA, average A-weighted sound pressure at the perimeter of occupied residences existing at the time the permit application is filed, unless a signed waiver or easement is obtained from the owner of the residence."<sup>147</sup>

61. Charles Mix County does not have a zoning ordinance and does not require wind energy system permits.<sup>148</sup> Prevailing Wind Park worked with the County to address concerns and provide assurances.<sup>149</sup> Prevailing Wind Park negotiated Project siting commitments with the County, which included a commitment that noise from the Project's wind turbines would not exceed 43 dBA at any existing nonparticipating residences and 45 dBA at existing participating residences, unless a signed waiver is obtained from the owner of the residence.<sup>150</sup> Prevailing Wind Park executed an affidavit memorializing its commitments; this affidavit binds Prevailing Wind Park but imposes no obligations on Charles Mix County.<sup>151</sup>

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<sup>140</sup> Ex. A14 at 5 (Canty Rebuttal); Evid. Hrg. Tr. at 444-45 (Canty).

<sup>141</sup> See Applicant's and Staff's Revised Joint Recommended Condition 25.

<sup>142</sup> See Ex. A1 at § 20.4.2 (Application); Ex. A6 at 4 (Pawlowski Supplemental Direct); Ex. A6-2 (Examples of FAA DNH).

<sup>143</sup> Ex. A6-3 at 5 (Damon Direct).

<sup>144</sup> Ex. A1 at 20-10 (Application).

<sup>145</sup> Ex. A6-3 at 14 (Damon Direct).

<sup>146</sup> See Ex. A1 at § 15.3.4 (Application); Ex. A10-2 (Updated Sound Study).

<sup>147</sup> Ex. A10-2 at 1-1 (Updated Sound Study).

<sup>148</sup> Ex. A1 at 15-7 (Application).

<sup>149</sup> Ex. A7 at 1 (Pawlowski Rebuttal); Evid. Hrg. Tr. at 217, 251, 253-54 (Pawlowski).

<sup>150</sup> Ex. A7 at 1 (Pawlowski Rebuttal); Ex. I-22 (Letter from Charles Mix County with Affidavit of Peter Pawlowski); Evid. Hrg. Tr. at 217, 251, 254 (Pawlowski). Prevailing Wind Park also committed that shadow flicker produced by the wind turbines would not exceed 30 hours per year and/or 30 minutes per day at currently inhabited residences of nonparticipants. Ex. I-22 (Letter from Charles Mix County with Affidavit of Peter Pawlowski).

<sup>151</sup> Evid. Hrg. Tr. at 217, 253 (Pawlowski).

62. Hutchinson County does not have a specific sound level requirement for wind turbines in its zoning ordinance. Therefore, Prevailing Wind Park used the Bon Homme County ordinance sound level limit as a design goal for Hutchinson County.<sup>152</sup>

63. Prevailing Wind Park retained an independent expert to model the predicted sound levels for the Project.<sup>153</sup> The highest predicted sound level at an occupied residence is 41.9 dBA. Accordingly, all residences are expected to meet the requirements of Bon Homme County, as well as Prevailing Wind Park's commitment in Charles Mix County not to exceed 43 dBA at non-participant residences.<sup>154</sup>

64. The Project's sound modeling utilized conservative assumptions and was conducted in accordance with the international standard (ISO 9613-2). The modeling assumes all turbines were operating and producing maximum acoustic output, these emissions propagate out fully in all directions, and that atmospheric conditions will be relatively ideal for the propagation of sound.<sup>155</sup> Additionally, the modeling uses a conservative ground absorption value of 0.5 and did not include attenuation for sound propagation through wooded areas, existing barriers, and shielding.<sup>156</sup> The model takes into account source sound power levels, air absorption, ground absorption and reflection, and terrain.<sup>157</sup> Prevailing Wind Park's acoustical expert Mr. Howell has verified these conservative assumptions through field measurements at other operating wind projects; thus, the methodology for modeling sound levels has been tested and confirmed in the field.<sup>158</sup> Mr. Howell's post-construction studies have demonstrated that his conservative pre-construction prediction methods typically exceed actual operational sound levels of proposed projects.<sup>159</sup> Based on the conservative nature of the sound modeling for the Project, actual sound levels for the Project are expected to be lower than the modeled levels.<sup>160</sup>

65. The record demonstrates that 40 dBA at non-participating residences is an appropriate and reasonable sound limit to protect the welfare of non-participants. Sound limitations vary jurisdiction to jurisdiction.<sup>161</sup> There are no federal or state noise regulations that apply to this project and Applicant's sound limit goal for the project was based on the Bon Homme County ordinance.<sup>162</sup> During the evidentiary hearing, Commissioner Soukup, who was serving on the Bon Homme County Commission and

<sup>152</sup> Ex. A1 at 15-7 (Application).

<sup>153</sup> Evid. Hrg. Tr. at 509 (Howell).

<sup>154</sup> Ex. A10 at 2 (Howell Rebuttal) and Ex. A10-1 at 2 (Memorandum Regarding Updated Modeling Results).

<sup>155</sup> See Ex. A10-2 at 17-19 (Updated Sound Study); Ex. A9 at 7 (Howell Direct); Ex. A10 at 8 (Howell Rebuttal).

<sup>156</sup> See Ex. A10 at 8 (Howell Rebuttal); Ex. A10-2 at 19 (Updated Sound Study).

<sup>157</sup> See Ex. A10-2 at 17 (Updated Sound Study); Ex. A9 at 8 (Howell Direct).

<sup>158</sup> Evid. Hrg. Tr. at 489 (Howell); see also Ex. A9 at 8 (Howell Direct) ("Our own post-construction studies have demonstrated that our pre-construction conservative prediction methods typically exceed actual operational sound levels of proposed projects."); see also Ex. A9 at 9 (Howell Direct) ("In-house and third-party monitoring has routinely demonstrated that our prediction methods are conservative, and monitoring results are typically between 1 and 3 dBA lower than our predictions.")

<sup>159</sup> See Ex. A9 at 8 (Howell Direct).

<sup>160</sup> Evid. Hrg. Tr. at 500 (Howell).

<sup>161</sup> See Ex. I-1 at 4-5 (James Direct); Evid. Hrg. Tr. at 746-48, (Hessler).

<sup>162</sup> See Ex. A9 at 5 (Howell Direct).

Zoning Board when the wind-specific ordinances were adopted, made it clear that the ordinance adoption process was difficult to understand and hard to recall.<sup>163</sup> At the evidentiary hearing, Mr. Hessler testified that he would like to see the project utilize a 40 dBA sound limit.<sup>164</sup> Mr. Hessler stated that there is no limit that could be set to avoid sound complaints.<sup>165</sup> Mr. Hessler acknowledged, that there is no need for a 35 dBA sound limit.<sup>166</sup> Mr. Hessler testified that a sound level of 40 dBA would better protect the residences than a sound level of 45 dBA.<sup>167</sup> Mr. James, the Intervenor's witness, testified that L<sub>10</sub> is superior over Leq when measuring dBA, because the long-term average of Leq can result in large fluctuations around a particular sound level.<sup>168</sup> Only three non-participating receptors are currently at or above 40 dBA.<sup>169</sup> Thus, a 40 dBA limit at non-participants' residences unless a written waiver is obtained from the owner of the residence, and 45 dBA at participating residences unless a written waiver is obtained from the owner of the residence is fully supported on the record and is an appropriate sound level for the Project.

66. The record demonstrates that Prevailing Wind Park has minimized and/or avoided impacts from shadow flicker.<sup>170</sup> Where shadow flicker exceeds the commitments made by Prevailing Wind Park, Prevailing Wind Park has committed to use Turbine Control Software programmed to automatically shut down a specific turbine or turbines for an appropriate amount of time as necessary to comply with that commitment.<sup>171</sup> Specifically, the software will shut a turbine down before it exceeds the committed shadow flicker limits and will not turn the turbine back on until the shadow flicker at that location has ended.<sup>172</sup>

67. The record demonstrates that 30 hour/year limit is merely an industry standard.<sup>173</sup> Intervenor's advocated that no shadow flicker should be allowed at non-participating residences.<sup>174</sup> There is no federal standard for shadow flicker exposure from wind turbines, and state and local standards are uncommon.<sup>175</sup> This standard is commonly applied in regulatory proceedings in other jurisdictions.<sup>176</sup> No jurisdictions

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<sup>163</sup> Evid. Hrg. Tr. at 686-687 (Soukup).

<sup>164</sup> Evid. Hrg. Tr. at 721-22, 784 (Hessler).

<sup>165</sup> Evid. Hrg. Tr. at 726-27, 780 (Hessler); *see also* Ex. S3 at 4 (Hessler Direct).

<sup>166</sup> Evid. Hrg. Tr. at 723 (Hessler).

<sup>167</sup> Evid. Hrg. Tr. at 721 (Hessler).

<sup>168</sup> Evid. Hrg. Tr. at 816-17 (James).

<sup>169</sup> Exhibit A10-2, pages 30-3.

<sup>170</sup> *See, e.g.*, Ex. A1 at § 15.5.2 (Application).

<sup>171</sup> Evid. Hrg. Tr. at 207-08 (Pawlowski).

<sup>172</sup> Evid. Hrg. Tr. at 207-08 (Pawlowski); *see also* Evid. Hrg. Tr. at 54 (Anderson) ("It's part of the machine itself, and it's simply a modification of the control software for the turbine. And we can modify that so that if the flicker above a certain threshold occurs, whether that's hours per year, minutes per day, et cetera, we can adjust the turbine control settings and, simply put, tell it not to operate or to operate in a different way.").

<sup>173</sup> *See* Evid. Hrg. Tr. at 51, 73, 81, 83-84 (Anderson); Evid. Hrg. Tr. at 259-60, 1114 (Pawlowski).

<sup>174</sup> *See* Evid. Hrg. Tr. at 971, 981 (Huebner).

<sup>175</sup> Evid. Hrg. Tr. at 51 (Anderson).

<sup>176</sup> *See, e.g.*, *In the Matter of the Application of Freeborn Wind Energy LLC for a Large Wind Energy Conversion System Site Permit for the up to 84 MW Freeborn Wind Farm in Freeborn County, Minnesota* Public Utilities Commission Docket WS-17-410, Minnesota Department of Commerce Energy Environmental Review and Analysis (EERA) Comments and Recommendations on Draft Site Permit at 18

prohibit shadow flicker at non-participating residences.<sup>177</sup> For this Project, a 15 hour/year limit is an appropriate standard to protect the welfare of non-participants.

68. There is no credible record evidence that the proposed Project will have adverse impacts on human health.<sup>178</sup> Construction and placement of facilities meet or exceed industry standards established for the protection of the health of residences and businesses in and around the Project.<sup>179</sup> Further, the South Dakota Department of Health provided Staff with a letter stating that the Department of Health has not taken a formal position on the issue of wind turbines and human health.<sup>180</sup> The South Dakota Department of Health referenced the Massachusetts Department of Public Health and Minnesota Department of Health studies and noted that those studies generally conclude that there is insufficient evidence to establish significant risk to human health.<sup>181</sup>

69. Prevailing Wind Park offered the testimony of two highly qualified medical doctors with unchallenged credentials: Dr. Mark Roberts and Dr. Jeff Ellenbogen.<sup>182</sup> Dr. Roberts is a medical doctor and a PhD epidemiologist who spent 18 years working in public health with the Oklahoma State Department of Health.<sup>183</sup> Dr. Ellenbogen, also a medical doctor, is a Board-certified neurologist and spent five years as a professor of

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(December 5, 2017) (eDocket No. 201712-137950-01) ("Some of the comments indicated that non-participants should not experience more than 30 hours of shadow flicker per year. 30 hours of flicker per year was a suggested standard in a couple sources of information reviewed by EERA, but those sources do not provide supporting scientific data that would suggest there is a link between shadow flicker in excess of 30 hours per year of exposure and negative human health impacts."); *In the Matter of the Application of Lindahl Wind Project, LLC's Application for a Certificate of Site Compatibility for the Lindahl Wind Farm Project in Williams County, North Dakota*, Docket PU-15-482, North Dakota Public Service Commission Findings of Fact, Conclusions of Law and Order, (Dec. 2, 2016) at Order ¶ 8. *see also* Evid. Hrg. Tr. at 1127 (Kearney) ("Ultimately what I looked at was what the county was comfortable with as being a nuisance issue and if they were comfortable with 30 hours without some study saying that's right or wrong, I was comfortable with that.").

<sup>177</sup> Evid. Hrg. Tr. at 80 (Anderson).

<sup>178</sup> *See, e.g.*, Ex. A4 at 16 (Roberts Supplemental Direct) ("the levels of sound and infrasound from wind turbines are significantly lower than those that have been shown to cause harm."); Ex. A18 at 4-5 (Ellenbogen Rebuttal) ("None of the limited epidemiological evidence reviewed suggested an association between noise from wind turbines and a wide range of topics we considered: pain, stiffness, diabetes, high blood pressure, tinnitus, hearing impairment, cardiovascular disease, and/or headache/migraine. In addition, claims that infrasound from wind turbines directly impacts the vestibular system have not been demonstrated scientifically. . . . We did not find evidence in the human or animal literature to support that vibrations of the kind produced by a wind turbine could influence the vestibular system."); *see also* Ex. A4 at 4, 18, 21 (Roberts Supplemental Direct); Ex. A18 at 12 (Ellenbogen Rebuttal); Evid. Hrg. Tr. at 118, 171-72 (Roberts); Evid. Hrg. Tr. at 327, 375-76 (Ellenbogen).

<sup>179</sup> Ex. A1 at 25-1 – 25-2 (Application).

<sup>180</sup> Ex. S1 at 9 and DK-4 (Kearney Direct); *see In the Matter of the Application by Crocker Wind Farm, LLC for a Permit of a Wind Energy Facility and a 345 kV Transmission Line in Clark County, South Dakota, for Crocker Wind Farm*, Docket EL17-055, Exhibit S1 at DK-4, Letter, Kim Malsam-Rysdon, Secretary of Health, South Dakota Department of Health (Oct. 13, 2017) ("These studies generally conclude that there is insufficient evidence to establish a significant risk to human health.").

<sup>181</sup> Ex. S1 at 9 and DK-4 (Kearney Direct).

<sup>182</sup> The expert qualifications of Prevailing Wind Park's experts are undisputed. For example, Dr. Roberts' expert opinion was supported by citation to corroborating studies representing reliable scientific knowledge, provided as schedules to his testimony. *See, e.g.*, Ex. A4-2 through A4-8 and A5-1 through A5-11.

<sup>183</sup> *See* Ex. A4 at 2-3 (Roberts Supplemental Direct); Ex. A4-1 (Roberts Statement of Qualifications); Evid. Hrg. Tr. at 87-88 (Roberts).

neurology at The Johns Hopkins University School of Medicine.<sup>184</sup> Both Dr. Roberts and Dr. Ellenbogen testified that there is no scientific evidence that wind turbines cause adverse health effects.<sup>185</sup>

70. The testimony of Prevailing Wind Park's medical doctors was un rebutted. Intervenors did not present any expert medical testimony. While Intervenors submitted pre-filed testimony from three individuals – Mr. James, Dr. Punch, and Dr. Alves-Pereira<sup>186</sup> – Intervenors withdrew Dr. Alves-Pereira as a witness the day she was to testify. Mr. James and Dr. Punch were precluded from testifying regarding health effects because neither has the education, training, nor experience to provide expert testimony on health effects.<sup>187</sup> Neither Mr. James nor Dr. Punch is a medical doctor, nor did either perform medical evaluations on any of the people that provided complaints to them.<sup>188</sup> Further, neither Mr. James nor Dr. Punch provided credible literature supporting their assertions regarding health-related effects.<sup>189</sup> Accordingly, the Commission ordered redactions of Mr. James' and Dr. Punch's pre-filed testimony and of the transcript of their oral testimony at the evidentiary hearing to reflect the hearing examiner's ruling that neither Mr. James nor Dr. Punch is qualified to testify about health issues.<sup>190</sup>

71. Prevailing Wind Park's two independent medical experts, Dr. Roberts and Dr. Ellenbogen, provided extensive testimony confirming that there is no scientifically proven link between wind turbines and any adverse health effect.<sup>191</sup> Dr. Roberts, a medical doctor and epidemiologist, analyzed and reviewed peer reviewed, published literature as well as literature generated through government process (such as a legislative committee or State Health Department) whereby the government empanels a group to review the literature and provide insight on a particular topic (known as "grey literature") and did not identify any credible scientific works that provide objective support

<sup>184</sup> See Ex. A18-1 (Ellenbogen Rebuttal); Ex. A18-1 (Ellenbogen Statement of Qualification); Evid. Hrg. Tr. at 318-19 (Ellenbogen).

<sup>185</sup> See, e.g., Evid. Hrg. Tr. at 89, 92, 129, 154, 159-60 (Roberts); Ex. A4 at 4, 18, 21 (Roberts Supplemental Direct); Ex. A5 at 7-8 (Roberts Rebuttal); Evid. Hrg. Tr. at 325, 327, 360-61, 364-65, 366-67, 377-78, 382 (Ellenbogen); Ex. A18 at 4-5, 12 (Ellenbogen Rebuttal).

<sup>186</sup> On the day she was scheduled to appear, Intervenors withdrew Dr. Alves-Pereira as a witness. As such, her pre-filed testimony is not part of this record.

<sup>187</sup> See Evid Hrg. Tr. at 821-23 (James) and 833-35; Evid. Hrg. Tr. at 897-99, 902-03 (Punch) and 910-11, 914-15; see also Ex. A36 at 11 (*Williams v. Invenergy, LLC*, 2016 WL 1275990 (D. Oregon, April 28, 2016)) (holding that Mr. James "is not a doctor or epidemiologist. As a result, he does not have the training to opine that the infrasound and audible noise created by wind turbines activates physiological mechanisms in the body which produce adverse health effects"); *id.* at 14 ("Punch is neither a medical doctor nor an epidemiologist who could opine on the cause of Williams's symptoms solely on the basis of these qualifications. Therefore, for Punch's causation testimony to be admissible under *Daubert*, he must support his causation opinion with reference to foundational literature which establishes the causal relationship through the application of 'scientific knowledge.'").

<sup>188</sup> Evid. Hrg. Tr. at 823 (James); Evid. Hrg. Tr. at 897, 901-02 (Punch).

<sup>189</sup> See Evid. Hrg. Tr. at 825-27 (James); Evid. Hrg. Tr. at 901, 904 (Punch). For example, the paper authored by Mr. James and Dr. Punch and which both referred to in their testimony was not peer-reviewed, as that phrase is typically used. See Ex. A5 at 17-18 (Roberts Rebuttal).

<sup>190</sup> Order Redacting Exhibits and Testimonies (Nov. 1, 2018).

<sup>191</sup> See, e.g., Evid. Hrg. Tr. at 89, 92, 129, 154, 159-60 (Roberts); Ex. A4 at 4, 18, 21 (Roberts Supplemental Direct); Ex. A5 at 7-8 (Roberts Rebuttal); Evid. Hrg. Tr. at 325, 327, 360-61, 364-65, 366-67, 377-78, 382 (Ellenbogen); Ex. A18 at 4-5, 12 (Ellenbogen Rebuttal).



for claims that wind turbines cause adverse health effects.<sup>192</sup> He concluded that there is no peer-reviewed, scientific data to support a claim that wind turbines are causing disease or specific health conditions.<sup>193</sup>

72. Dr. Ellenbogen, a Harvard-educated neurologist and a sleep specialist, led a Massachusetts health impact study that concluded that wind turbines do not pose a risk to human health. Dr. Ellenbogen “specifically evaluated the merits of ‘wind turbine syndrome’” and “found no basis for a set of health effects from wind turbines.”<sup>194</sup> He also evaluated four individuals claiming to suffer from “wind turbine syndrome” and found that the claims could not be substantiated and in fact prevented the individuals from seeking appropriate treatment.<sup>195</sup> Dr. Ellenbogen testified: “[I]n my opinion, the misapplied blame to wind turbines prevented these individuals from seeking and obtaining much-needed medical treatment for their underlying conditions.”<sup>196</sup>

73. There is no credible evidence in the record to support a finding that wind turbines cause adverse health effects.<sup>197</sup> This conclusion has been reached by well-respected, governmental agencies charged with protecting public health that have evaluated the available evidence and concluded that wind turbines are not a cause of adverse health effects.<sup>198</sup> For example, the Australian National Health and Medical Research Council concluded that there is no consistent evidence that wind turbines cause adverse health effects in humans.<sup>199</sup> Similarly, the Wisconsin Siting Council concluded that no association between wind turbines and health effects has been scientifically shown.<sup>200</sup> Researchers at the Lawrence Berkeley National Laboratory also found no link between wind turbines and adverse health effects.<sup>201</sup> In addition, an independent expert panel for Massachusetts (which included Dr. Ellenbogen) found that there was insufficient evidence that noise from wind farms directly causes health problems or disease.<sup>202</sup>

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<sup>192</sup> See Ex. A4 at 14-15 (Roberts Supplemental Direct) and Evid. Hrg. Tr. at 173-74 (Roberts). Intervenors questions Dr. Roberts about an article he authored in 2013 regarding his review of the literature available as of late 2012 on wind turbines and health effects. Evid. Hrg. Tr. at 99-100. As Dr. Roberts explained, he did not include his 2013 article as an exhibit to his prefiled testimony because he chose instead to include as exhibits the up-to-date, current reviews of the literature that have been conducted since his 2013 article. Evid. Hrg. Tr. at 174-75 (Roberts).

<sup>193</sup> Ex. A4 at 12 (Roberts Supplemental Direct); see also Ex. A4 at 15 (Roberts Supplemental Direct) (“Despite the attribution of various health events to wind turbines, there has not been a specific health condition documented in the peer-reviewed published literature to be recognized by the medical community or professional societies as a disease caused by exposure to sound levels and frequencies generated by the operation of wind turbines.”).

<sup>194</sup> Ex. A18 at 5 (Ellenbogen Rebuttal).

<sup>195</sup> Ex. A18 at 7-8 (Ellenbogen Rebuttal).

<sup>196</sup> Ex. A18 at 8 (Ellenbogen Rebuttal).

<sup>197</sup> See, e.g., Evid. Hrg. Tr. at 89, 92, 129, 154, 159-60 (Roberts); Ex. A4 at 4, 18, 21 (Roberts Supplemental Direct); Ex. A5 at 7-8 (Roberts Rebuttal); Evid. Hrg. Tr. at 325, 327, 360-61, 364-65, 366-67, 377-78, 382 (Ellenbogen); Ex. A18 at 4-5, 12 (Ellenbogen Rebuttal).

<sup>198</sup> See Ex. A4 at 4 (Roberts Supplemental Direct).

<sup>199</sup> Ex. A4 at 12-13 (Roberts Supplemental Direct).

<sup>200</sup> Ex. A4 at 13 (Roberts Supplemental Direct).

<sup>201</sup> Ex. A4 at 13 (Roberts Supplemental Direct).

<sup>202</sup> Ex. A4 at 13-14 (Roberts Supplemental Direct); Ex. A18 at 4-5 (Ellenbogen Rebuttal).

74. Infrasound is generally defined as sound in the approximately 0 to 20 Hz frequency range.<sup>203</sup> A level of 20 Hz is commonly considered the low end of the range of human hearing.<sup>204</sup> Infrasound is generated by both natural and man-made sources, including: the human heart, waves, thunder, waterfalls, washing machines, fans, and heating and refrigeration systems.<sup>205</sup> The levels of infrasound produced by wind turbines are not only below the threshold of human hearing but are multiple orders of magnitude below the threshold.<sup>206</sup> There is no scientifically proven evidence of adverse effects in this level range.<sup>207</sup> Infrasound is not unique to wind turbines, nor is the infrasound from wind turbines unique or distinct from infrasound produced by other sources at similar levels.<sup>208</sup> Further, the levels of infrasound produced by wind turbines are significantly lower than those that have been shown to cause harm, such as from jet engines or blast injuries.<sup>209</sup> There have been numerous studies analyzing wind turbine effects; none of these studies have found a causal relationship between wind turbine infrasound and human health effects.<sup>210</sup> As Dr. Roberts testified, these studies looked at sound overall from wind turbines when drawing their conclusions about health effects – these studies

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<sup>203</sup> Ex. A4 at 17 (Roberts Supplemental Direct).

<sup>204</sup> Ex. A4 at 17 (Roberts Supplemental Direct). In addition, Exhibit A40 is a graphic showing the relationship between sound pressure levels (dB) and frequency (Hz) as it relates to human hearing. As indicated on the graphic, sound pressure levels must be above 100 dB for humans to hear at very low frequencies.

<sup>205</sup> Ex. A5 at 6-7 (Roberts Rebuttal); Ex. A4 at 17 (Roberts Supplemental Direct).

<sup>206</sup> Ex. A5 at 7 (Roberts Rebuttal).

<sup>207</sup> Ex. A5 at 7 (Roberts Rebuttal). Ex. A4 at 17 (Roberts Supplemental Direct); see also Evid. Hrg. Tr. at 169 (Roberts) ("If we begin to have regulations about infrasound, we're going to have to consider the other sources. Our lungs, our heart, our diaphragm, my GI tract all make low frequency sounds. My joints make low frequency sounds as well."); Evid. Hrg. Tr. at 171 (Roberts) ("Infrasound is caused by a large number of different natural and technical sources. It is every day part of our environment that can be found everywhere. Wind turbines make no considerable contribution to it. The infrasound levels generated by them lie clearly below the limits of human perception. There is no scientifically proven evidence of adverse effects in this level range.") (quoting Ex. A5-1 at 12) Intervenors referenced a study conducted on guinea pigs to argue that wind turbine infrasound could be detected and/or somehow impact the inner ear. This study is neither relevant nor helpful, as Dr. Ellenbogen explained. First, there are significant differences between the inner ears of guinea pigs and humans. Second, it has nothing to do with adverse health effects. See Evid. Hrg. Tr. at 386, 389-90 (Ellenbogen) ("I actually don't have confidence that the study is relevant for this panel for two reasons. One, because of the animal comparison and also because it was not about health effects. It was about perception.").

<sup>208</sup> See Evid. Hrg. Tr. at 177 (Roberts); Ex. A4 at 17 (Roberts Supplemental Direct); Ex. A5 at 6-7 (Roberts Rebuttal).

<sup>209</sup> Ex. A4 at 16 (Roberts Supplemental Direct); see, e.g., Evid. Hrg. Tr. at 150 (describing effects of sound levels of 110-120 dB from jet engines); Evid. Hrg. Tr. at 375-76 (describing blast injuries experienced by veterans from sound pressure levels exceeding 110 dB).

<sup>210</sup> See Evid. Hrg. Tr. at 118, 135, 139-40, 160-62, 171-74 (Roberts); see also Ex. A5 at 7 (Roberts Rebuttal); Ex. A18 at 5 (Ellenbogen Rebuttal); Evid. Hrg. Tr. at 516-17 (Howell) ("In general the absolute values that we're talking about for this wind farm don't require any further analysis of low frequency noise, in my opinion. . . . In this scenario we looked at dBA and I did an off the cuff look at the dBC values as well and none of the values exceeded that recommended differential to determine if there's a low frequency component. So I would not expect a significant low frequency component here.").

necessarily would have included infrasound.<sup>211</sup> Thus, there is no evidence in the record to support a finding that wind turbines cause adverse health effects.<sup>212</sup>

75. While there are no limits specifically addressing infrasound levels, it is well understood that limiting wind turbine noise emissions using a dBA standard automatically limits infrasound.<sup>213</sup> There is a fixed relationship between the dBA scale and infrasound. Thus, once one part of the spectrum is limited, the rest of the spectrum is limited as well. For this Project, the 40 dBA limit controls infrasound levels from the Project to levels that would not cause health effects and which are orders of magnitude below the human hearing threshold.<sup>214</sup> As Staff's witness Mr. Hessler testified, there are currently over 90,000 MW of wind power installed in the United States involving more than 50,000 wind turbines, with self-reported adverse health effect complaints at only a very small number of those turbines.<sup>215</sup>

76. The record demonstrates that shadow flicker from turbines is not harmful to the health of photosensitive individuals, including those with epilepsy.<sup>216</sup> Seizures that occur as a result of flashes of light (a condition known as photic-stimulated epilepsy) happen as a result of frequencies greater than 5 Hz, usually substantially higher.<sup>217</sup> The frequency of any shadow flicker from wind turbines will be approximately 0.5 to 1 Hz, which is considerably below the range that would elicit a seizure even in someone who is vulnerable to seizures as a result of flashes of light.<sup>218</sup> No supporting scientific data has been provided to suggest that there is a link between shadow flicker in excess of 15 hours per year of exposure and negative human health impacts.

77. Overall, the record shows that Prevailing Wind Park has met its burden to demonstrate that the Project will not substantially impair human health; indeed, there is no credible evidence in the record that the Project would impair human health (substantially or insubstantially). Although Intervenors provided some testimony

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<sup>211</sup> See Evid. Hrg. Tr. at 118, 135, 139-40, 143, 160-62, 171-74 (Roberts).

<sup>212</sup> See Ex. A5 at 7 (Roberts Rebuttal); Ex. A18 at 4-5 (Ellenbogen Rebuttal) ("None of the limited epidemiological evidence reviewed suggested an association between noise from wind turbines and a wide range of topics we considered: pain, stiffness, diabetes, high blood pressure, tinnitus, hearing impairment, cardiovascular disease, and/or headache/migraine. In addition, claims that infrasound from wind turbines directly impacts the vestibular system have not been demonstrated scientifically. . . . We did not find evidence in the human or animal literature to support that vibrations of the kind produced by a wind turbine could influence the vestibular system."); Ex. A4 at 16 (Roberts Supplemental Direct) ("the levels of sound and infrasound from wind turbines are significantly lower than those that have been shown to cause harm."); Evid. Hrg. Tr. at 118, 171-72 (Roberts); Evid. Hrg. Tr. at 327, 375-76 (Ellenbogen).

<sup>213</sup> See Evid. Hrg. Tr. at 382, 387 (Ellenbogen).

<sup>214</sup> Evid. Hrg. Tr. at 382, 387 (Ellenbogen).

<sup>215</sup> See Ex. S3 at 7 (Hessler) ("According to the latest quarterly report of the American Wind Energy Association there are now over 90,000 MW of installed wind power in this country involving more than 50,000 wind turbines. To my knowledge, instances of apparent adverse health effects from wind turbines have occurred at only a small handful of sites with only a few turbines each, such as Falmouth in Massachusetts (three 1.5 MW GE units) and Shirley Wind in Wisconsin (eight 2.5 MW Nordex units)."); Evid. Hrg. Tr. at 733 ("If this problem were common at all, it would be in the forefront of every project's Application and would be a totally disruptive issue.").

<sup>216</sup> See Ex. A18 at 5 (Ellenbogen Rebuttal); Evid. Hrg. Tr. at 94, 154, 159 (Roberts).

<sup>217</sup> Ex. A18 at 5 (Ellenbogen Rebuttal); Evid. Hrg. Tr. at 154 (Roberts).

<sup>218</sup> Ex. A18 at 5 (Ellenbogen Rebuttal).

concerning speculative health concerns, the large body of reliable and vetted medical evidence refutes these claims.<sup>219</sup>

78. The Project will utilize an Aircraft Detection Lighting System (ADLS) provided that the FAA approves it for the Project.<sup>220</sup> The FAA has issued a Determination of No Hazard to Air Navigation for each of the Project's proposed turbine sites.<sup>221</sup>

79. The record demonstrates that Prevailing Wind Park has taken appropriate measures to avoid and/or minimize the risk of ice throw occurring.<sup>222</sup> Although icing can occur on turbine blades during freezing rain conditions, the record demonstrates that it is not common and is generally controlled by ice detection systems on the turbines.<sup>223</sup> Project turbines will include the standard turbine control system on each turbine, as well as an additional purchased accessory software package, including Turbine Computer Monitoring (TCM).<sup>224</sup> The turbine controller senses when the rotor revolutions per minute are not consistent with the measured wind speed (which may occur as the buildup of ice breaks the perfected aerodynamic shape of the blade).<sup>225</sup> The turbine controller then evaluates the temperature and recognizes that icing conditions may exist. The TCM system measures vibration on many components of the turbine and, when it senses vibration above pre-set levels, the turbine automatically shuts down.<sup>226</sup> This shut-down will occur in less than two minutes from the time icing is detected.<sup>227</sup> The turbine will not attempt to restart until conditions (temperature) become favorable or human intervention occurs.<sup>228</sup>

80. The evidence presented in the record demonstrates that Project setbacks and the proposed permit condition regarding turbine icing will protect human health and safety.<sup>229</sup> Prevailing Wind Park provided testimony from Mr. Scott Creech, the construction manager for the Project, who has over a decade of experience working with wind turbines.<sup>230</sup> Specifically, Mr. Creech testified that the farthest distance he is aware of ice being thrown from a turbine is approximately 250 feet.<sup>231</sup> The Project is set back

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<sup>219</sup> For example, Intervenors solicited testimony from individuals regarding other wind projects (Scott Rueter, Vickie May). These witnesses clearly have strong feelings about wind projects. However, they did not provide any medical evidence of any adverse health effects and well-regarded medical research and literature – relied upon by many other regulatory bodies – refutes any claims they may be making regarding health issues and wind turbines.

<sup>220</sup> Ex. A6 at 5 (Pawlowski Supplemental Direct); Applicant's and Staff's Revised Joint Recommended Condition 39.

<sup>221</sup> Ex. A6 at 5 (Pawlowski Supplemental Direct).

<sup>222</sup> See, e.g., Ex. A17 at 2-3 (Creech Rebuttal); Applicant's and Staff's Revised Joint Recommended Condition 38.

<sup>223</sup> Ex. A17 at 2 (Creech Rebuttal).

<sup>224</sup> Ex. A17 at 2 (Creech Rebuttal).

<sup>225</sup> Ex. A17 at 2 (Creech Rebuttal).

<sup>226</sup> Ex. A17 at 2-3 (Creech Rebuttal).

<sup>227</sup> Evid. Hrg. Tr. at 558 (Creech).

<sup>228</sup> Ex. A17 at 3 (Creech Rebuttal).

<sup>229</sup> See, e.g., Ex. A17 at 2-5 (Creech Rebuttal); Applicant's and Staff's Revised Joint Recommended Condition 38; see also Evid. Hrg. Tr. at 525-256, 551 (Creech).

<sup>230</sup> See Ex. A17 (Creech Rebuttal); Evid. Hrg. Tr. at 534 (Creech).

<sup>231</sup> Ex. A17 at 3 (Creech Rebuttal).

at least 649.61 feet (1.1 times the tip height of the tower) from non-participating property lines.<sup>232</sup> In Hutchinson and Bon Homme Counties, the Project is set back at least 1,000 feet from non-participating residences. Per Prevailing Wind Park's commitments to Charles Mix County, Project turbines are set back at least 3.5 times the system height or 2,000 feet, whichever is greater, from non-participating residences in Charles Mix County.<sup>233</sup> The closest participating residence to a turbine is more than 1,550 feet away.<sup>234</sup> In addition, Prevailing Wind Park has agreed to the same turbine icing condition as the Commission imposed in the Dakota Range proceeding, which requires Prevailing Wind Park to use two methods to detect icing conditions on turbine blades.<sup>235</sup> Intervenors relied on an outdated article to assert that ice throw may occur as far as 6,500 feet away from a 20 MW wind turbine.<sup>236</sup> Such a machine is not proposed for the Project, nor does it exist. As such, the document is irrelevant. Rather, the real-world data and experience, coupled with the manufacturer recommendations and turbine control software, show that the Project as designed is appropriately sited and will minimize the potential for ice throw.<sup>237</sup>

**D. The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.**

81. The record demonstrates that the Project will not unduly interfere with the orderly development of the region. The Project complies with all applicable local land use requirements, and the evidence demonstrates that Prevailing Wind Park has worked cooperatively with local governments, even where no local land use controls existed. Specifically: Bon Homme County granted a Large Wind Energy System approval for the Project on August 21, 2018; Hutchinson County granted conditional use approvals for the Project on September 4, 2018; and, the Project received building permits from Charles Mix County in July 2018 and has worked with Charles Mix County to address concerns regarding the Project.<sup>238</sup> Prevailing Wind Park executed an affidavit memorializing its commitments to Charles Mix County; this affidavit binds Prevailing Wind Park but imposes no obligations on Charles Mix County.<sup>239</sup>

82. Intervenors take issue with the development of zoning ordinances relating to the Project. As an initial matter, the local development of zoning regulations is outside

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<sup>232</sup> Ex. A17 at 5 (Creech Rebuttal).

<sup>233</sup> Ex. I-22 (Letter from Charles Mix County with Affidavit of Peter Pawlowski).

<sup>234</sup> Ex. A42 (Distance from Each Residence to the Nearest Wind Turbine, Modeled Shadow Flicker and Sound Pressure Levels).

<sup>235</sup> Ex. A17 at 4 (Creech Rebuttal).

<sup>236</sup> See Ex. A28 at 1 and Attachment B (Intervenors' Responses to Staff's Second Set of Data Requests); Evid. Hrg. Tr. at 533-34 (Creech).

<sup>237</sup> Ex. A17 at 2-3 (Creech Rebuttal); Evid. Hrg. Tr. at 534, 551, 554-55, 556, 558 (Creech); Ex. A31 at "Setback Considerations for Wind Turbine Siting" (Applicant's Updated Responses to Intervenors' Data Requests).

<sup>238</sup> Ex. A7 at 1 (Pawlowski Rebuttal).

<sup>239</sup> Ex. I-22 (Letter from Charles Mix County with Affidavit of Peter Pawlowski); Evid. Hrg. Tr. at 253 (Pawlowski).

the scope of the Commission's jurisdiction and is not relevant to this proceeding.<sup>240</sup> That said, the testimony from local officials demonstrates that those local officials listened to input from people on both sides and consulted many different resources before making their decisions.<sup>241</sup> Michael Soukup from the Bon Homme County Commission testified to the thorough and fair process the county undertook in adopting its wind energy system zoning ordinance; specifically, that the county looked to other zoning ordinances for guidance, and considered input from both supporters and opponents of wind energy systems in adopting its wind energy system zoning ordinance.<sup>242</sup> Keith Mushitz, Chairman of the Charles Mix County Commission, testified to the multiple public meetings and opportunities for public comment that were fully utilized by the public, and how the county considered all of these comments in making its decision.<sup>243</sup> Even Intervenor Mr. Hubner testified that he was unhappy with the outcome of such proceedings – not the process itself.<sup>244</sup>

83. Intervenor requested a two-mile setback from non-participating residences. There is no credible evidence in the record supporting a two-mile setback from nonparticipating residences.<sup>245</sup> The record demonstrates that the Project meets the Commission's siting requirements applying the current setbacks, as well as Prevailing Wind Park's voluntary commitments.<sup>246</sup> Additionally, there is no reasonable basis in the record to support a 1,500-foot setback from property lines.<sup>247</sup>

### **CONCLUSIONS OF LAW**

From the foregoing Findings of Fact and the record in this proceeding, the Commission now makes the following Conclusions of Law:

1. The Commission has jurisdiction to consider the Application under South Dakota Codified Law Chapter 49-41B.
2. The wind energy conversion facility proposed by Applicant is a wind energy facility as defined under South Dakota Codified Law 49-41B-2(13).
3. The Application submitted by Applicant meets the criteria required by South Dakota Codified Law 49-41B-25, and construction of the Project meets the requirements of South Dakota Codified Law 49-41B.

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<sup>240</sup> Evid. Hrg. Tr. 627-28.

<sup>241</sup> See Evid. Hrg. Tr. at 685-93 (Soukup); Evid. Hrg. Tr. at 696-703 (Mushitz).

<sup>242</sup> See Evid. Hrg. Tr. at 668-69, 688-89 (Soukup).

<sup>243</sup> See Evid. Hrg. Tr. at 697-99, 703 (Mushitz).

<sup>244</sup> See Evid. Hrg. Tr. at 979 (Hubner) ("Well, I never contended their procedure. I mean, I – whether they made a mistake or didn't make a mistake as they were doing this. How they did it was really not an issue for me. It's what they did and who they listened to.").

<sup>245</sup> See Ex. A7 at 3 (Pawlowski Rebuttal); Ex. S1 at 11 (Kearney Direct).

<sup>246</sup> See Ex. A7 at 3 (Pawlowski Rebuttal); Ex. S1 at 11 (Kearney Direct).

<sup>247</sup> See Ex. A7 at 4 (Pawlowski Rebuttal); Ex. S1 at 11 (Kearney Direct).

4. The Commission satisfied the hearing and notice requirement in South Dakota Codified Law Chapter 49-41B.

5. Applicant satisfied the applicable notice requirements in South Dakota Codified Law Chapter 49-41B.

6. Applicant has demonstrated that the proposed facility will comply with all applicable laws and rules.

7. Applicant has demonstrated that the facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area.

8. Applicant has demonstrated that the facility will not substantially impair the health, safety or welfare of the inhabitants.

9. Applicant has demonstrated that the facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

10. All other applicable procedural requirements in South Dakota Codified Law Chapter 49-41B have been satisfied.

11. No party has provided evidence sufficient for the Commission to impose a property value guarantee.

12. No party has provided evidence sufficient for the Commission to impose a two-mile setback from non-participating landowners.

13. No party has provided evidence sufficient for the Commission to impose a 1,500-foot setback from property lines.

14. To the extent that any Finding of Fact set forth above is more appropriately a conclusion of law, that Finding of Fact is incorporated by reference as a Conclusion of Law.

### **ORDER**

From the foregoing Findings of Fact and Conclusions of Law, it is therefore:

ORDERED, that an energy facility permit is issued to Prevailing Wind Park, LLC for the Prevailing Wind Park Project.

ORDERED, that Applicant shall comply with the attached Permit Conditions, which are hereby incorporated into and made a part of this Order.

### **NOTICE OF ENTRY AND OF RIGHT TO APPEAL**

PLEASE TAKE NOTICE that this Final Decision and Order was duly issued and entered on the 28<sup>th</sup> day of November 2018.

Dated at Pierre, South Dakota, this 28<sup>th</sup> day of November 2018.

<b>CERTIFICATE OF SERVICE</b>
The undersigned hereby certifies that this document has been served today upon all parties of record in this docket, as listed on the docket service list, electronically or by mail.
By: <u>Adam de Hueck</u>
Date: <u>11/28/18</u>
(OFFICIAL SEAL)

BY ORDER OF THE COMMISSION:

Kristie Fiegen

KRISTIE FIEGEN, Chairperson

Gary Hanson

GARY HANSON, Commissioner

Chris Nelson

CHRIS NELSON, Commissioner

**ATTACHED**

**PERMIT CONDITIONS**

1. Applicant will obtain all governmental permits which reasonably may be required by any township, county, state or federal agency, or any other governmental unit for construction and operation activity of the Project prior to engaging in the particular activity covered by that permit. Copies of any permits obtained by Applicant shall be sent to the Commission.
2. Applicant shall construct, operate, and maintain the Project in a manner consistent with (1) descriptions in the Application, (2) Application supplements, (3) responses to any data requests, (4) the Final Decision and Order Granting Permit to Construct Facilities, Attached Permit Conditions, (5) any applicable industry standards, (6) any permits issued by a federal, state, or local agency, and (7) evidence presented by Applicant at the evidentiary hearing.
3. Applicant shall complete the Western Area Power Administration (WAPA) environmental review process as required by the National Environmental Policy Act. Further, Applicant shall comply with and implement any requirements or commitments set forth in the WAPA NEPA review. Applicant expects the environmental review to be composed of an Environmental Assessment and that Applicant would be required to comply with applicable mitigation measures set forth in the Upper Great Plains Wind Energy Programmatic Environmental Impact Statement.



4. Applicant agrees that the Commission's complaint process as set forth in ARSD Chapter 20:10:01 shall be available to landowners and other persons sustaining or threatened with damage as the result of Applicant's failure to abide by the conditions of the Permit or otherwise having standing to seek enforcement of the conditions of the Permit. Participating landowners are free to use the complaint process free from retribution or consequence regardless of any private easement term to the contrary.
5. At least 14 days prior to commencement of construction, Applicant shall provide each participating and non-participating landowner in the Project Area with the following information:
  - a) A copy of the Final Decision and Order Granting Permit to Construct Facilities;
  - b) Detailed safety information describing:
    - 1) Reasonable safety precautions for existing activities on or near the Project;
    - 2) Known activities or uses that are presently prohibited near the Project, and
    - 3) Other known potential dangers or limitations near the Project;
  - c) Construction/maintenance damage compensation plans and procedures;
  - d) The Commission's address, website, and phone number;
  - e) Contact person for Applicant, including name, e-mail address, and phone number.
6. In order to ensure compliance with the terms and conditions of this Permit pursuant to SDCL 49-41B-33, it is necessary for the enforcement of this Order that all employees, contractors, and agents of Applicant involved in this Project be made aware of the terms and conditions of this Permit.
7. Except as otherwise provided in the Permit Conditions, Applicant shall comply with all mitigation measures set forth in the Application and Applicant's responses to Commission staff data requests. Material modifications to the mitigation measures shall be subject to prior approval of the Commission.
8. Applicant will negotiate road use agreements with Bon Homme County, Hutchinson County, Charles Mix County, and all affected townships, if required. Applicant will follow the terms of all road use agreements. Applicant shall take appropriate action to mitigate wind-blown particles created throughout the construction process, including but not limited to implementation of dust control measures such as road watering, covering of open haul trucks when transporting

material subject to being windblown, and the removal of any soils or mud deposits by construction equipment when necessary.

9. Applicant shall comply with the following conditions regarding road protection:
  - a) Applicant shall acquire all necessary permits authorizing the crossing of federal, state, county, and township roads.
  - b) Applicant shall coordinate road closures with federal, state, and local governments and emergency responders.
  - c) Applicant shall implement a regular program of road maintenance and repair through the active construction period to keep paved and gravel roads in an acceptable condition for residents and the public.
  - d) After construction, Applicant shall repair and restore deteriorated roads resulting from construction traffic or compensate governmental entities for their repair and restoration of deteriorated roads, such that the roads are returned to their preconstruction condition.
  - e) Within 180 days of completing construction and reclamation of the Project, Applicant shall submit documentation to the Commission identifying that the roads were repaired in accordance with this Condition 8 and to the satisfaction of affected townships and counties. If the townships or counties will not provide such documentation, then Applicant shall provide a report to the Commission on the outstanding road repair issues and how those issues will be resolved.
  - f) Privately owned areas used as temporary roads or crane paths during construction will be restored to their preconstruction condition, except as otherwise requested or agreed to by the landowner.
  - g) Should Applicant need to widen any existing roadways during construction of the Project, Applicant shall return the roadways back to original width after completion of the Project, unless agreed upon otherwise with the federal, state, county, or township entities, or the landowner.
  - h) Applicant shall use appropriate preventative measures to prevent damage to paved roads and to remove excess soil or mud from such roadways.
10. Applicant shall provide signage that identifies road closures and disturbances resulting from the Project in accordance with the most recent editions of the Manual on Uniform Traffic Control Devices as published by the Federal Highway Administration.
11. Applicant shall promptly report to the Commission the presence of any critical habitat of threatened or endangered species in the Project Area that Applicant becomes aware of and that was not previously reported to the Commission.

12. Applicant agrees to avoid direct impacts to cultural resources that are unevaluated, eligible for or listed in the National Register of Historic Places (NRHP). When a NRHP unevaluated, eligible or listed site cannot be avoided, Applicant shall notify the South Dakota State Historic Preservation Office (SHPO) and the Commission of the reasons that complete avoidance cannot be achieved in order to coordinate minimization and/or treatment measures.
13. Applicant agrees to develop an unanticipated discovery plan for cultural resources and follow SDCL 34-27-25, 34-27-26, and 34-27-28.
14. Applicant shall file the final cultural resources report with the Commission prior to construction. If any potential adverse impacts to NRHP unevaluated, listed, or eligible cultural resources are identified in the final cultural resources report, Applicant shall file with the Commission a report describing the SHPO-approved planned measures to ameliorate those impacts.
15. Applicant shall provide the Stormwater Pollution Prevention Plan (SWPPP) to the Commission when Applicant has a final design for the Project. The SWPPP will outline the water and soil conservation practices that will be used during construction to prevent or minimize erosion and sedimentation. The SWPPP will be completed before submittal of an application for a National Pollutant Discharge Elimination System (NPDES) general permit for construction activities. All contractors to be engaged in ground disturbing activities will be given a copy of the SWPPP and requirements will be reviewed with them prior to the start of construction.
16. Applicant shall repair and restore areas disturbed by construction or maintenance of the Project. Except as otherwise agreed to by the landowner, restoration shall include replacement of original pre-construction topsoil or equivalent quality topsoil to its original elevation, contour, and compaction and re-establishment of original vegetation as close thereto as reasonably practical. In order to facilitate compliance with this Permit Condition, Applicant shall:
  - a) Strip topsoil to the actual depth of the topsoil, or as otherwise agreed to by the landowner in writing (e-mail is sufficient), in all areas disturbed by the Project; however, with respect to access roads, Applicant may remove less than the actual depth of topsoil to ensure roads remain low-profile and the contours align with the surrounding area;
  - b) Store topsoil separate from subsoil in order to prevent mixing of the soil types;
  - c) All excess soils generated during the excavation of the turbine foundations shall remain on the same landowner's land, unless the landowner requests, and/or agrees, otherwise; and
  - d) When revegetating non-cultivated grasslands, Applicant shall use a seed mix that is recommended by the Natural Resource Conservation Service

(NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing.

17. Applicant shall work closely with landowners or land management agencies, such as the NRCS, to determine a plan to control noxious weeds.
18. Applicant shall stage construction materials in a manner that minimizes the adverse impact to landowners and land users as agreed upon between Applicant and landowner or Applicant and the appropriate federal, state, and/or local government agency. All excess construction materials and debris shall be removed upon completion of the Project, unless the landowner agrees otherwise.
19. In order to mitigate interference with agricultural operations during and after construction, Applicant shall locate all structures, to the extent feasible and prudent, to minimize adverse impacts and interferences with agricultural operations, shelterbelts, and other land uses or activities. Applicant shall take appropriate precautions to protect livestock and crops during construction. Applicant shall repair all fences and gates removed or damaged during construction or maintenance unless otherwise agreed with the landowner or designee. Applicant shall be responsible for the repair of private roads damaged when moving equipment or when obtaining access to the right-of-way.
20. Applicant shall bury the underground collector system at a minimum depth of four feet, or deeper if necessary, to ensure the current land use is not impacted.
21. Applicant shall repair or replace all property removed or damaged during all phases of construction, including but not limited to, all fences, gates, and utility, water supply, irrigation or drainage systems. Applicant shall compensate the owners for damages or losses that cannot be fully remedied by repair or replacement, such as lost productivity and crop and livestock losses. All repair, replacement and/or compensation described above shall be in accordance with the terms and conditions of written agreements between Applicant and affected landowners where such agreements exist.
22. Applicant shall, in the manner described in its written agreement with a landowner, indemnify and hold the landowner harmless for loss, damage, claim, or actions resulting from Applicant's use of the easement, including any damage resulting from any release, except to the extent such loss, damage claim, or action results from the negligence or willful misconduct of the landowner or his employees, agents, contractors, invitees, or other representatives.
23. Applicant may make turbine adjustments of 250 feet or less from the turbine locations identified in the Application without prior Commission approval, so long as specified noise and shadow flicker thresholds are not exceeded, cultural resource impacts and documented habitats for listed species are avoided, and wetland impacts are avoided or are in compliance with applicable U.S. Army Corps of Engineers (USACE) regulations. Prior to implementing the turbine

adjustment, Applicant will file in the docket an affidavit demonstrating compliance with the limitations set forth above. Any turbine adjustment that does not comply with the aforesaid limitations would be considered a "material change," and Applicant shall file a request for approval of the "material change" prior to making the adjustment pursuant to the following approval process:

- Applicant will file with the Commission and serve on the official Service List a request for approval of the adjustment that includes:
    - o An affidavit describing the proposed turbine adjustment, the reason for the adjustment, the reason the adjustment does not comply with one or more turbine flexibility limitations set forth above, and information regarding compliance with all other applicable requirements; and
    - o A map showing both the approved location and the proposed adjustment (in different colors);
  - Once received, the information would be reviewed by Commission staff, and Commission staff will have 10 calendar days within which to request further Commission review.
  - If no further review is requested, Applicant may proceed with the adjustment.
  - If further review is requested, the Commission will issue a decision regarding Applicant's request at its next available regularly scheduled Commission meeting, subject to notice requirements, after the request for further review is made by Commission staff.
24. Applicant may adjust access roads, the collector system, meteorological towers, the operations and maintenance facility, the Project substation, and temporary facilities, so long as they are located on land leased for the Project, cultural resources and documented habitats for listed species are avoided, and wetland impacts are avoided or are in compliance with applicable USACE regulations.
25. If the Project causes interference with radio, television, or any other licensed communication transmitting or receiving equipment, Applicant shall take all appropriate action to minimize any such interference and shall make a good faith effort to restore or provide reception levels equivalent to reception levels in the immediate areas just prior to construction of the Project. This mitigation requirement shall not apply to any dwellings or other structures built after completion of the Project.
26. Applicant will provide Global Positioning System (GPS) coordinates of structure locations to affected landowners at any time during the life of the Project. Coordinates will be provided in writing to landowners within 30 days of a request.

27. The Project, exclusive of all unrelated background noise, shall not generate a long-term sound pressure level ( $L_{10}$ ), as measured over a period of at least two weeks, defined by Commission staff, that includes all integer wind speeds from cut in to full power, of more than 40 dBA within 25 feet of any non-participating residence unless the owner of the residence has signed a waiver, and 45 dBA of any participating residence unless the owner of the residence has signed a waiver. Applicant shall, upon Commission formal request, conduct field surveys or provide post-construction monitoring data verifying compliance with specified noise level limits using applicable American National Standards Institute (ANSI) methods. If the long-term average level exceeds 40 dBA at any non-participating residence, or 45 dBA at any participating residence where the owner of the residence has not signed a waiver, then the Applicant shall take whatever steps are necessary in accordance with prudent operating standards to rectify the situation. Sound monitoring will not be repeated in a representative area during any five-year period unless operational or maintenance changes result in a reasonable assumption of higher turbine sound levels.
28. Applicant shall install turbine control equipment on the Project's turbines that allows for individual turbines to be shut down as necessary to ensure that shadow flicker does not exceed 15 hours per year with no more than 30 minutes per day at non-participating residences and participating residences that have not signed a waiver. Applicant shall also take steps to mitigate shadow flicker concerns at any residence that could experience shadow flicker levels above 15 hours with no more than 30 minutes per day.
29. Not less than 30 days prior to commencement of construction work in the field for the Project, Applicant will provide to Commission staff the following information:
  - a) the most current preconstruction design, layout, turbine model, and plans;
  - b) a sound level analysis showing compliance with the applicable sound level requirements;
  - c) a shadow flicker analysis showing the anticipated shadow flicker levels will not exceed 15 hours per year with no more than 30 minutes per day at any non-participating residence and participating residences that have not signed a waiver and an affidavit from the Applicant identifying the turbine numbers that will be operationally controlled in order to meet the shadow flicker requirements;
  - d) such additional Project preconstruction information as Commission staff requests; and
  - e) should Applicant decide at a later point to use a different turbine model, it shall provide the information required in parts a-d above. Applicant shall also demonstrate that in selecting locations for the other turbines, it considered how to reduce impacts on non-participating landowners.

30. Within 90 days after the Project's commercial operation date, Applicant shall submit a report to the Commission that provides the following information:
  - a) as-built location of structures and facilities, including drawings clearly showing compliance with the setbacks required by state and local governments and the voluntary commitments set forth in Table 9-2 of the Application;
  - b) the status of remedial activities for road damage, landowner property damage, crop damage, environmental damage, or any other damage resulting from Project construction activities; and
  - c) a summary of known landowner complaints and Applicant's plan for resolving those complaints.
31. For purposes of this Project and the commitments herein, "residences," "businesses," and "public buildings" shall include only those that are in existence and in use as of the date of the Commission's order issuing a permit. "Business" shall not include agricultural uses.
32. Applicant shall seek input from local emergency response personnel to properly and effectively coordinate an emergency response plan consistent with local resources and response abilities. Upon completion of construction, a Project operation emergency response plan shall be provided to Commission staff to make available to the general public on the Commission's website.
33. Prior to the construction of the Project, Applicant will notify public safety agencies by providing a schedule and the location of work to be performed within their jurisdiction. The agencies contacted will include the South Dakota Department of Public Safety, the sheriff in Hutchinson, Charles Mix, and Bon Homme counties, and the Office of Emergency Management in Hutchinson, Charles Mix, and Bon Homme counties.
34. Applicant agrees to undertake a minimum of two years of independently-conducted post-construction avian mortality monitoring for the Project, and to provide a copy of the report and all further reports to the USFWS, GFP, and the Commission.
35. The Bird and Bat Conservation Strategy (BBCS) developed for the Project shall be implemented during construction and operation of the Project.
36. At least thirty days prior to commencement of construction, Applicant shall submit the identity and qualifications of a public liaison officer to the Commission for approval to facilitate the exchange of information between Applicant, including its contractors, and landowners, local communities, and residents, and to facilitate prompt resolution of complaints and problems that may develop for landowners, local communities, and residents as a result of the Project. Applicant shall file with the Commission its proposed public liaison officer's credentials for

approval by the Commission prior to the commencement of construction. After the public liaison officer has been approved by the Commission, the public liaison officer may not be removed by Applicant without the approval of the Commission. The public liaison officer shall be afforded immediate access to Applicant's on-site project manager, its executive project manager, and to the contractors' on-site managers and shall be available at all times to Commission staff via mobile phone to respond to complaints and concerns communicated to the Commission staff by concerned landowners and others. As soon as Applicant's public liaison officer has been appointed and approved, Applicant shall provide contact information for him/her to all landowners in the Project area and to law enforcement agencies and local governments in the vicinity of the Project. The public liaison officer's contact information shall be provided to landowners in each subsequent written communication with them. If the Commission determines that the public liaison officer has not been adequately performing the duties set forth for the position in this Order, the Commission may, upon notice to Applicant and the public liaison officer, take action to remove the public liaison officer. The public liaison's services shall terminate ninety days after the Project commences commercial operations, unless the appointment is extended by order of the Commission.

37. If the Project is decommissioned, Applicant will follow Section 24 of the Application, and the decommissioning plan attached to the Supplemental Direct Testimony of Daniel Pardo. The Commission shall be notified prior to any decommissioning action.
38. Applicant will use two methods to detect icing conditions on turbine blades: (1) sensors that will detect when blades become imbalanced or create vibration due to ice accumulation; and (2) meteorological data from on-site permanent meteorological towers, on-site anemometers, and other relevant meteorological sources that will be used to determine if ice accumulation is occurring. These control systems will either automatically shut down the turbine(s) in icing conditions (per the sensors) or Applicant will manually shut down turbine(s) if icing conditions are identified (using meteorological data). Turbines will not return to normal operation until the control systems no longer detect an imbalance or when weather conditions either remove icing on the blades or indicate icing is no longer a concern. Applicant will pay for any documented damage caused by ice thrown from a turbine.
39. Applicant shall utilize an Aircraft Detection Lighting System if approved by the Federal Aviation Administration.
40. At least 30 days prior to construction Applicant shall file a plan with the Commission for Commission approval that provides a decommissioning escrow account. The plan shall provide as follows:



- a) The escrow account is funded by the turbine owner annually at a rate of \$5,000 per turbine per year for the first 30 years, commencing no later than the commercial operation date.
- b) Beginning in year ten following commercial operation of the project and each fifth year thereafter, the turbine owner shall submit to the Commission an estimated decommissioning date, if established, and estimated decommissioning costs and salvage values. Based on the verification of the information in the filing the Commission may require additional funding equal to the estimated amount needed for decommissioning.
- c) All revenues earned by the account shall remain in the account.
- d) An account statement shall be provided annually to the Commission and become a public record in this docket.
- e) The escrow account obligations will be those of Prevailing Wind Park and the escrow agreement shall include terms providing that the agreement binds Prevailing Wind Park's successors, transferees, and assigns. A sale of project assets shall include the associated Permit that requires Commission approval per SDCL § 49-41B-29.
- f) The escrow account agent shall have an office located in South Dakota.
- g) The escrow agreement shall be subject to the laws of South Dakota and any disputes regarding the agreement shall be venued in South Dakota.
- h) To minimize the risk that the escrow account would be subject to foreclosure, lien, judgment, or bankruptcy, the escrow agreement will be structured to reflect the follow factors:
  - 1) That Prevailing Wind Park agreed to the creation of the escrow account;
  - 2) Prevailing Wind Park exercises no (or the least amount possible of) control over the escrow;
  - 3) The initial source of the escrow;
  - 4) The nature of the funds put into the escrow;
  - 5) The recipient of its remainder (if any);
  - 6) The target of all its benefit; and
  - 7) The purpose and its creation.

- i) Account funds are to be paid to the project owner at the time of decommissioning to be paid out as decommissioning costs are incurred and paid.
  - j) If the project owner fails to execute the decommissioning requirement found in section 40 of the Conditions, the account is payable to the landowner who owns the land on which associated project facilities are located as the landowner incurs and pays decommissioning costs.
41. The terms and conditions of the Permit shall be made a uniform condition of construction and operation, subject only to an affirmative written request for an exemption addressed to the Commission. A request for an exemption shall clearly state which particular condition should not be applied to the property in question and the reason for the requested exemption. The Commission shall evaluate such requests on a case-by-case basis, which evaluation shall be completed within 60 days unless exigent circumstances require action sooner.
42. Verification of compliance with the sound level requirement at the residences of the Intervenor shall be submitted to the Commission within 60 days of commencement of full operation.