

**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 FOR A WIND ENERGY FACILITY IN BON HOMME, CHARLES MIX,
AND HUTCHINSON COUNTIES, SOUTH DAKOTA, FOR PREVAILING WIND
PARK ENERGY FACILITY**

SD PUC DOCKET EL-18-026

**PREFILED REBUTTAL TESTIMONY OF SCOTT CREECH
ON BEHALF OF PREVAILING WIND PARK, LLC**

September 26, 2018

1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 A. My name is Scott Creech. My business address is 2180 South 1300 East, Suite
5 600, Salt Lake City, Utah 84106.

6

7 **Q. Did you provide Direct Testimony in this Docket?**

8 A. No.

9

10 **Q. Please describe your background and duties.**

11 A. I have been working in renewable energy for more than a decade, and my
12 experience has primarily been related to the construction, operation, and repowering
13 of wind projects. I have a B.S. in Industrial Engineering from Texas A&M University.
14 My resume is attached as **Exhibit 1**.

15

16 **Q. What is your role with the Prevailing Wind Park Project (“Project”)?**

17 A. My current position is construction manager. I am tasked with development support
18 until the start of construction. Pulling from past experience in the wind industry, I
19 assist with the development of our Engineering, Procurement and Construction
20 (“EPC”) Scope of Work and contract, the turbine purchasing agreement and
21 developing the relationships that will be critical in the smooth flow of the Project.
22 Once construction starts, I will be on site full time acting as Prevailing Wind Park,
23 LLC’s representative for all things Project-related, throughout the entirety of
24 construction and into the beginning of the operations of the Project. My primary
25 focus will be scheduling and coordinating with our landowners, government entities
26 including county and state highway departments, and the local communities. I will
27 also be responsible for helping ensure EPC adherence to their safety program and
28 schedule.

29

30 **Q. What is the purpose of your Rebuttal Testimony?**

31 A. The purpose of my Rebuttal Testimony is to provide additional information regarding
32 Project operations in response to the testimony of Darren Kearney submitted on
33 behalf of South Dakota Public Utilities Commission (“Commission”) Staff.

34

35 **Q. Are there any exhibits attached to your Rebuttal Testimony?**

36 A. My resume is attached as Exhibit 1 to this rebuttal testimony.

37

38 **II. PROJECT OPERATIONS**

39

40 **Q. Are you familiar with the issue of icing on wind turbine blades?**

41 A. Yes, I am aware that icing on wind turbine blades is sometimes raised as an issue
42 with respect to wind projects. Specifically, concerns are raised regarding ice
43 shedding, which is when ice that has built up on blades falls from the blades.

44

45 **Q. Is icing a common occurrence on wind turbines?**

46 A. Icing can occur on blades, but it is not common and is generally controlled by ice
47 detection systems on the turbines.

48

49 **Q. What causes icing on wind turbine blades?**

50 A. Turbines experience icing during conditions of freezing rain – this occurs as
51 temperatures are dropping down to and below freezing and moisture is falling.

52

53 **Q. How will icing on the wind turbine blades be detected for the Prevailing Wind
54 Park Project?**

55 A. The Prevailing Wind Park turbines will include the standard turbine control system
56 on each turbine and an additional purchased accessory software package, including
57 Turbine Computer Monitoring (“TCM”). The turbine controller senses when the rotor
58 revolutions per minute are not consistent with the measured wind speed. This is a
59 naturally occurring phenomenon as the buildup of ice breaks the perfected
60 aerodynamic shape of the blade. The turbine controller then evaluates the

61 temperature and recognizes that icing conditions may exist. The TCM system
62 measures vibration on many components of the turbine and, when it senses
63 vibration above pre-set levels, the turbine automatically shuts down.

64

65 **Q. What happens when the turbine detects icing?**

66 A. The system safety shuts the turbine down when the rotor speed diminishes and also
67 when vibrations exceed predetermined levels. The turbine knows that the conditions
68 are present and will not attempt to restart until conditions (temperature) become
69 favorable or human intervention occurs.

70

71 **Q. Can ice throw be thrown from a turbine that has an ice detection system?**

72 A. Yes, but it is very rare, and there are methods to minimize and prevent ice throw.
73 Typically, ice is shed from (i.e., falls in close proximity to) a turbine. The farthest
74 distance I am aware of ice being thrown from a turbine is approximately 250 feet.
75 My experience is consistent with the Commission's finding with respect to the
76 Dakota Range project, where the Commission found:

77 Applicant provided evidence that the potential for ice to be
78 thrown from turbines is not a common occurrence. The
79 Project meets both the state and county non-participating
80 property line setback requirements. The concern for ice
81 shedding is typically within 300 feet of the turbine. While
82 there is the potential for ice to be thrown further, impacts are
83 not anticipated at 620 feet from a turbine (the closest
84 distance of a turbine to a nonparticipating property line). The
85 record also demonstrates that Applicant has in place
86 appropriate operational mechanisms to minimize and avoid
87 the potential for ice throw. In addition, turbines have ice
88 detection systems that will detect icing conditions from a
89 remote control center, enabling the turbines to be paused
90 remotely in the event that icing is taking place. Further,
91 Applicant has committed to the following condition: Applicant
92 will use two methods to detect icing conditions on turbine
93 blades: (1) sensors that will detect when blades become
94 imbalanced or create vibration due to ice accumulation; and
95 (2) meteorological data from on-site permanent
96 meteorological towers, on-site anemometers, and other
97 relevant meteorological sources that will be used to
98 determine if ice accumulation is occurring. These control

99 systems will either automatically shut down the turbine(s) in
100 icing conditions (per the sensors) or Applicant will manually
101 shut down turbine(s) if icing conditions are identified (using
102 meteorological data). Turbines will not return to normal
103 operation until the control systems no longer detect an
104 imbalance or when weather conditions either remove icing
105 on the blades or indicate icing is no longer a concern.¹
106

107 **Q. Mr. Kearney notes that Prevailing Wind Park is generally willing to accept the**
108 **conditions attached to the permit issued for Dakota Range. Would you like to**
109 **comment on any of these conditions?**

110 A. Yes. I have reviewed Permit Condition No. 40 related to ice throw, which states:

111 Applicant will use two methods to detect icing conditions on
112 turbine blades: (1) sensors that will detect when blades
113 become imbalanced or create vibration due to ice
114 accumulation; and (2) meteorological data from on-site
115 permanent meteorological towers, on-site anemometers, and
116 other relevant meteorological sources that will be used to
117 determine if ice accumulation is occurring. These control
118 systems will either automatically shut down the turbine(s) in
119 icing conditions (per the sensors) or Applicant will manually
120 shut down turbine(s) if icing conditions are identified (using
121 meteorological data). Turbines will not return to normal
122 operation until the control systems no longer detect an
123 imbalance or when weather conditions either remove icing
124 on the blades or indicate icing is no longer a concern. The
125 Project Owner will pay for any documented damage caused
126 by ice thrown from a turbine.
127

128 Prevailing Wind Park would accept this same condition in a permit issued for the
129 Project.
130

¹ Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry, at ¶ 69, Commission Docket EL18-003 (July 23, 2018).

131 **Q. Mr. Kearney also testifies that he believes a property line setback of 1,500 feet**
132 **would “provide added protection for an individual’s personal property or**
133 **livestock in the event of ice throw or blade malfunction”. Do you agree?**

134 A. I disagree with this conclusion. I note that Mr. Kearney also testified that there is
135 inadequate record evidence to support a 1,500 foot property line setback and I
136 agree. The setbacks incorporated into the layout for the Project provide adequate
137 protection for ice throw and blade malfunction and a 1,500 foot property line setback
138 is not necessary and would not provide additional protection.

139
140 As I detailed above, the risk of ice throw is very low and, as the Commission has
141 already found, limited to within approximately 620 feet of the turbine. The concern
142 of ice throw, as I understand, would be primarily with adjacent non-participating
143 landowners. In accordance with South Dakota law, the turbines in the Prevailing
144 Wind Park Project are set back from the property lines of non-participants a
145 minimum of 1.1 times the tip height of the tower (i.e., the hub height (365.8 feet) +
146 the radius of the rotor (224.75 feet)), or 649.61 feet. This distance is sufficient to
147 contain an ice throw event to the participating landowner’s property. Therefore, the
148 additional distance would not create additional protection for non-participating
149 landowners.

150
151 A blade malfunction that results in a separation from the tower is an even rarer event
152 and provides less support for a 1,500 foot setback. I have seen this occur only
153 once. The distance from the hub was approximately 54 meters, or approximately
154 178 feet.² Again, a setback of 1,500 feet would not provide additional protection to
155 non-participating landowners.

156

² See Prevailing Wind Park Response to Staff DR 1-8; Prevailing Wind Park Responses to Intervenors’ DRs 1-23, 1-24, 1-25, 1-26, and 1-27 in Exhibit DK-2.

157 **Q. To the extent the Commission has questions regarding Project operations at**
158 **the evidentiary hearing in this matter, will you be available to answer such**
159 **questions?**

160 A. Yes.

161

162 **III. CONCLUSION**

163

164 **Q. Does this conclude your Rebuttal Testimony?**

165 A. Yes.

166

167 Dated this 26th day of September, 2018.



168

169

170 Scott Creech

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