

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

**IN THE MATTER OF THE APPLICATION BY ENGIE NORTH AMERICA, INC. FOR
A PERMIT FOR A WIND ENERGY FACILITY IN HYDE COUNTY, SOUTH
DAKOTA, FOR MERIDIAN WIND PROJECT**

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PRE-FILED DIRECT TESTIMONY OF **CLAYTON DERBY**, Western EcoSystems
Technology, Inc., ON BEHALF OF ENGIE NORTH AMERICA, INC.

April 23, 2020

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1 **Q. Please state your name, employer and business address for the record.**

2 A. Clayton Derby. Employed by Western EcoSystems Technology, Inc. or WEST. 415
3 West 17th Street, Cheyenne, Wyoming

4 **Q. Briefly describe your educational background.**

5 A. I have a Bachelor's degree from Moorhead State University and a Master's degree from
6 the University of Wyoming.

7 **Q. Briefly describe your professional experience.**

8 A. I have been employed as a consultant with WEST for 25 years, and have been working
9 on all aspects of wind-wildlife related evaluations across the U.S. during that time.

10 **Q. Have you attached a resume or CV.**

11 A. Yes, my resume is attached.

12 **Q. Have you previously submitted or prepared testimony in this proceeding in South
13 Dakota?**

14 A. No, I have not.

15 **Q. What is the purpose of your direct testimony?**

16 A. I will be addressing portions of Section 9 of the application, which discusses anticipated
17 impacts on Terrestrial Ecosystems. This section discusses the existing terrestrial ecosystem, the
18 Project's potential impacts to it and potential avoidance, minimization and mitigation techniques
19 to minimize impacts. Terrestrial ecosystem wildlife and vegetation data was identified and
20 gathered through literature searches, federal and state agency reports and consultations, natural
21 resource databases, and field studies. Biologists from Western Ecosystems Technology, Inc.
22 (WEST) conducted field surveys on behalf of ENGIE North America, Inc. (hereafter ENGIE or
23 Meridian) within and surrounding the Meridian Wind Farm (Project Area) to provide site-

24 specific information on terrestrial resources. The results of these surveys are summarized in
25 Section 9 of the application.

26 **Q. Did you categorize project lands by vegetation types?**

27 A. Yes. The Project Area is located within the Northwestern Glaciated Plains Level III
28 Ecoregion, an area characterized by significant surface irregularity and high concentrations of
29 seasonal and semi-permanent wetlands (prairie potholes). As provided in the application,
30 Meridian estimated 52.1 percent of the Project Area is mapped as grassland pasture and
31 approximately 41.6 percent is mapped as cultivated crops. As shown in Table 9-1 of the
32 application, the remainder is wetlands, developed land, barren land, and trees.

33 **Q. How will the project impact grasslands?**

34 A. Grasslands are important and valuable communities, providing habitat to a diverse range
35 of taxa, including highly specialized, habitat-specific birds, rare and economically-important
36 pollinators and a wide range of mammals. Once covering millions of acres across North
37 America, it is estimated by some that mixed grass prairies have declined by approximately 68
38 percent. Aside from direct impacts, another concern associated with turbine development in
39 grasslands, particularly native or unbroken grasslands, is habitat fragmentation created by the
40 development of access roads and displacement of some birds from around turbines once
41 operating. Fragmented habitat not only supports edge-generalist species such white-tailed deer
42 and American robins, but simultaneously deters many species that require large areas of
43 undisturbed land to breed. Meridian is working with SDGFP to explore ideas to support ongoing
44 conservation initiatives for grasslands given that the layout cannot completely avoid grassland
45 areas found within the Project Area. Best efforts were made to utilize cropland and planted
46 grasslands for turbine placement and existing disturbed corridors (e.g., roads, transmission lines,

47 fence rows) to reduce habitat fragmentation and direct impacts to the vegetation. Turbines placed
48 within areas mapped by SDSU as potentially undisturbed land will be inspected for signs
49 indicative of past disturbance or tillage by a qualified biologist prior to construction in order to
50 determine if these areas are undisturbed grasslands. In areas where impacts to undisturbed
51 grasslands cannot be avoided, Meridian will employ BMPs such as revegetation with native
52 grasslands and erosion control measures and will restore areas of disturbed soils as soon as
53 possible after construction activities have been completed.

54 **Q. Have you considered noxious weeds relative to the project?**

55 A. Noxious and invasive weeds are regulated by state and federal rules and regulations
56 (SDCL 38-22 and 7 Code of Federal Regulations [CFR] 360, respectively) and designed to stop
57 the spread of plants that are detrimental to the environment, crops, livestock and/or public health.
58 According to the South Dakota Department of Agriculture (SDDOA), 11 listed species of
59 noxious weeds have the potential to occur and are regulated within Hyde County. Three of these
60 species are listed statewide and the remaining eight species are locally listed for Hyde County
61 (Table 9-2 of the application). Noxious weeds have the potential to spread through a variety of
62 mechanisms. They are often carried on vehicles' undercarriage and tires and thrive in highly
63 disturbed areas, rapidly out-competing native vegetation- particularly when exposed soil
64 conditions are present. It is anticipated that pockets of noxious and invasive weed populations
65 are currently present within the Project Area. With construction activities potentially taking place
66 nearby, the threat of these species spreading via work crews, vehicles or other vessels exists.
67 Meridian will develop and implement a Noxious and Invasive Weed Management Plan that will
68 identify and establish the procedures to prevent the introduction and spread of noxious and
69 invasive weeds during construction and ongoing operations. This plan will be based on the

70 construction schedule and the potential for weeds to be spread during that timeframe. During
71 restoration, Meridian will utilize seed mixes free of noxious and invasive weeds. Meridian will
72 coordinate with SDGFP, USFWS, USDA NRCS and landowners on seed mixes to be used
73 during restoration efforts. Therefore, the Project will work to have beneficial impact in the
74 Project Area by reducing and controlling the spread of noxious and invasive species that are
75 already present and by restoring disturbed areas with approved reseedings and controlling weeds
76 in restored areas.

77 **Q. What impacts to tree cover are anticipated?**

78 A. Based on digitized data, the land cover Trees classification comprises less than 0.1
79 percent or 1.3 acres, of the Project Area. Meridian calculated an additional 3.8 acres of tree
80 classified land cover associated to the transmission line. Typical trees include shelterbelts with a
81 mixture of evergreen and deciduous species located along field borders and near residences. As
82 part of the Northern Long-eared Bat (NLEB) Habitat Assessment (Appendix C of the
83 application), WEST conducted a desktop assessment of potential suitable habitat, which included
84 deciduous forest, evergreen forest, mixed forest and woody wetlands. Two forested areas greater
85 than 15 acres in size were mapped outside of the Project Area but within 2.5 miles of the Project
86 Area. As demonstrated in Table 9-3 of the application, Meridian has avoided all permanent
87 impacts to trees, including the areas greater than 15 acres in size that occur adjacent to the
88 Project Area identified as potential NLEB habitat (as described in the NLEB Assessment,
89 Appendix C of the application) by more than 1,000 feet. No major tree clearing activities will
90 take place.

91 **Q. Have you quantified the acres impacted by the project?**

92 A. Yes, those are found in the application. Based on information from Meridian and the

93 Project layout, the Project will permanently impact approximately 55.4 acres and temporarily
94 impact approximately 423 acres. Table 9-1 of the application identifies Meridian’s calculated
95 acreages of WEST-digitized land cover classes that will be directly affected by construction and
96 operation of the Project. Overall, Meridian calculated 61 percent of the Project’s construction
97 and operations related impacts will occur in vegetation types that have experienced prior
98 disturbance or alteration, including Cropland and Developed land cover types.

99 Permanent impact acreages provided in Table 9-3 of the application identifies amounts of
100 vegetation that will be permanently removed and replaced by wind turbine foundations, MET
101 towers, collector substation, transmission poles, and permanent access roads.

102 **Q. What impacts have been analyzed to grassland vegetation in the project area?**

103 A. Based on the WEST-digitized land cover classification, Project construction activities
104 have the potential to impact various vegetation categorized as grassland/herbaceous and
105 grassland pasture. WEST calculated approximately 6,064 acres of potentially undisturbed
106 grassland are present within the Project Area and the transmission line corridor using modeled
107 data from SDSU. Undisturbed grasslands are a subset of the category grassland/herbaceous and
108 grassland pasture. As mapped by the modeled data from SDSU, there are areas of potentially
109 undisturbed grassland could be impacted by the Project. Because this GIS layer was created
110 based on a tiered, desktop analysis, it remains likely that some areas mapped as “potential native
111 grassland” have, in fact, been tilled.

112 **Q. Does the Project impact USFWS easements in the area?**

113 A. The Project has been designed to avoid impacts to USFWS grassland easements and the
114 delineated features associated with the USFWS wetland easement program. Meridian was
115 provided GIS data for the Project Area by USFWS in February 2020. Meridian calculated

116 approximately 584.7 acres of grassland easements, approximately 472.5 acres of top lease
117 grassland easements, and approximately 2,073.8 acres of wetland easements within the Project
118 Area. Meridian has stated they will avoided all non-top lease grassland easements and will avoid
119 the protected basins associated with the wetland easements. According to Meridian, two turbines
120 and associated access roads and collector lines are located on easements that were “top leased”
121 with USFWS grassland easements. Section 22.2.1 of the Application summarizes coordination
122 between Meridian and the USFWS regarding conservation easements and Project facilities.

123 **Q. How did you analyze the project area for effects on biological resources?**

124 A. In accordance with USFWS Wind Energy Guidelines (WEG or Guidelines) Tiers 1 and
125 2, a landscape-level site analysis was conducted utilizing desktop resources to identify potential
126 sensitive species or habitats that could be located near the Project. Resources reviewed included
127 South Dakota Natural Heritage information, SDGFP Wildlife Action Plan, USFWS Information,
128 Planning and Consultation (IPAC), NLCD mapping, aerial imagery, eBird, USGS Breeding Bird
129 Survey, NatureServe and USGS Gap data, among other sources.

130 In 2016, baseline wildlife studies at the Project were completed to address the questions
131 posed under Tier 3 of the USFWS Land-Based WEG and Stage 2 of the USFWS Eagle
132 Conservation Plan Guidance (ECPG). Studies conducted at the Project from 2016 to 2019
133 include avian use surveys, raptor and eagle nest surveys, prairie grouse lek surveys, acoustic
134 monitoring for bats, NLEB summer habitat analysis, whooping crane stop-over habitat analysis,
135 and a land cover characterization study. Wildlife species associated with grasslands and tilled
136 agricultural landscapes are expected to be the most common species within the Project Area.

137 **Q. How did Meridian start to determine bird use of the area?**

138 A. In an effort to characterize potential use of the Project Area by breeding birds, the two

139 nearest USGS Breeding Bird Survey (BBS) routes were analyzed. Each route is approximately
140 24.5 miles (39.4 kilometer [km]) long, with survey points located every half-mile. Standard
141 survey protocol dictates that all birds seen or heard are tallied for a 3-minute period at each point
142 along the route. From 2011 to 2018, a total of 92 bird species were recorded along the two BBS
143 routes closest to the Project. The most abundant species observed along these two routes (from
144 highest to lowest abundances) were western meadowlark, brown-headed cowbird, red-winged
145 blackbird, mourning dove, dickcissel, and ring-necked pheasant.

146 **Q. Were raptors analyzed differently?**

147 A. Following a desktop assessment of potential raptor habitat, prey base and species
148 distributions, a total of 16 diurnal raptors, one vulture and six owls were determined to have the
149 potential to occur within or near the Project Area. Preliminary survey results from efforts
150 between 2016 and 2020, identified ten diurnal raptors, one owl, and one vulture species have
151 been identified with and near the Project Area.

152 **Q. Are there potential effects on native gamebirds found in the area?**

153 A. The Project Area occurs within the occupied range of the greater prairie-chicken and
154 sharp-tailed grouse, referred to collectively as prairie grouse. These two species of gamebirds are
155 native to the area and prefer large expanses of grasslands with tall residual grass or shrubs that
156 can provide cover while nesting and short or sparse grass on slightly elevated ground for leks
157 (area where prairie grouse congregate during spring for mating), which provides maximum
158 visibility for female grouse while simultaneously enabling a clear view of avian and mammalian
159 predators.

160 Neither species of Prairie Grouse have regulatory protection in South Dakota and are
161 legal game species that are routinely hunted. Hunting limitations and regulations are defined by

162 statute and enforced by the South Dakota Game Fish and Parks (SDGFP). According to the
163 SDGFP 2018 harvest season report, an estimated 23,860 prairie grouse were harvested within the
164 state in 2018 and approximately 217 of these from Hyde County. Ongoing pre-construction
165 studies were initiated in 2016 with the objective to assess the presence and location of prairie
166 grouse within and adjacent to the proposed Meridian Project area. Grasslands within and
167 adjacent to the Meridian Project area have the potential to support prairie grouse.

168 **Q. What about bats and bat mortality?**

169 A. Based on range maps from Bat Conservation International, seven bat species are possible
170 residents and/or migrants in the Project Area (Table 9-5 of the Application). The Townsend's
171 big-eared bat is included due to the greater overall range map, but is unlikely to occur based on
172 habitat restrictions. Six species that have potential to occur in the Project Area based on range
173 maps (Table 9-5 of the application) have been documented as fatalities at wind energy facilities.
174 These species include big brown bat, eastern red bat, hoary bat, little brown bat, northern long-
175 eared bat, and silver-haired bat.

176 **Q. Are there endangered species implicated in the Project area?**

177 A. Six wildlife species listed as federally threatened or endangered under the Endangered
178 Species Act have been verified to occur or have the potential to occur in Hyde County. This
179 includes four federally listed avian species (rufa red knot, interior least tern, piping plover,
180 whooping crane), one federally listed bat species (northern long-eared bat) and one federally
181 listed fish species (pallid sturgeon; see Table 9-6 of the Application).

182 **Q. Will the Project have a mitigation strategy?**

183 A. The Project has been sited to avoid or minimize impacts to federally and state-protected
184 species. Pending completion of pre-construction avian and bat studies and reporting, Meridian

185 will prepare a Bird and Bat Conservation Strategy (BBCS) that will be implemented during
186 construction and operation of the Project. The BBCS will consist of Meridian's corporate
187 standards for minimizing impacts to avian and bat species during construction and operation of
188 wind energy projects and will be developed in a manner that is consistent with the USFWS
189 Land- Based WEG. It will include Meridian's commitments to wind project siting, construction
190 practices and design standards, operational practices, permit compliance and construction and
191 operation worker training. These are all further discussed in greater detail in Section 9.2.3 of the
192 application.

193 Dated this 23rd day of April, 2020.

194 */s/ Clayton Derby*

195 Clayton Derby, Western EcoSystems Technology, Inc.