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 TRIPLE H WIND FARM

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

February 6, 2019

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

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

Q. Briefly describe your educational background.

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

Q. Briefly describe your professional experience.

A. I have been employed as a consultant for 24 years and have been working on all aspects of wind-wildlife related evaluations across the U.S. during that time.

Q. Have you attached a resume or CV.

A. Yes, my resume is attached.

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

A. No, I have not.

Q. What is the purpose of your direct testimony?

A. I am planning to address portions of Section 9 of the application, which discusses anticipated impacts on Terrestrial Ecosystems. This section discusses the existing terrestrial ecosystem, the Project's potential impacts to it and potential avoidance, minimization and mitigation techniques to minimize impacts. Terrestrial ecosystem wildlife and vegetation data was identified and gathered through literature searches, federal and state agency reports and consultations, natural resource databases, and field studies. Biologists from Western Ecosystems Technology, Inc. (WEST) conducted field surveys on behalf of Triple H within and surrounding the Project Area to provide site-specific information on terrestrial resources. The results of these

surveys are summarized in Section 9 of the application.

Q. Did you categorize project lands by vegetation types?

A. Yes. The Project Area is located within the Northwestern Glaciated Plains Level III Ecoregion, an area characterized by significant surface irregularity and high concentrations of seasonal and semi-permanent wetlands (prairie potholes). Approximately 63 percent of the Project Area is mapped as cultivated cropland and approximately 26 percent is mapped as grassland pasture. As shown in Table 9-1 of the application, the remainder is wetlands, hay ground, trees, and developed acres.

Q. How will the project impact grasslands?

A. Grasslands are important and valuable communities, providing habitat to a diverse range of taxa, including highly specialized, habitat-specific birds, rare and economically-important pollinators and a wide range of mammals. Once covering millions of acres across North America, it is estimated by some that mixed grass prairies have declined by approximately 68 percent. Aside from direct impacts, another concern associated with turbine development in grasslands, particularly native or unbroken grasslands, is habitat fragmentation created by the development of access roads and displacement of some birds from around turbines once operating. Fragmented habitat not only supports edge-generalist species such white-tailed deer and American robins, but simultaneously deters many species that require large areas of undisturbed land to breed. Triple H worked with the SDGFP to redesign the site layout to minimize impacts to native grassland areas, as identified by shapefile data layer from South Dakota State University. Best efforts were made to utilize cropland and planted grasslands for turbine placement and existing disturbed corridors (e.g., roads, transmission lines, fence rows) to reduce habitat fragmentation and direct impacts to the vegetation. Turbines placed within areas

mapped by SDSU as potentially undisturbed land will be inspected for signs indicative of past disturbance or tillage by a qualified biologist prior to construction in order to determine if these areas are undisturbed grasslands. In areas where impacts to undisturbed grasslands cannot be avoided, Triple H will employ BMPs such as revegetation with native grasslands and erosion control measures and will restore areas of disturbed soils as soon as possible after construction activities have been completed.

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

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

restoration, Triple H will utilize seed mixes free of noxious and invasive weeds. Triple H will coordinate with SDGFP, USFWS, USDA NRCS and landowners on seed mixes to be used during restoration. Therefore, the Project will work to have beneficial impact in the Project Area by reducing and controlling the spread of noxious and invasive species that are already present and by restoring disturbed areas with approved reseedings and controlling weeds in restored areas.

Q. What impacts to tree cover are anticipated?

A. Based on digitized data, the land cover Trees classification comprises approximately 0.9 percent or 251.1 acres, of the Project Area. Typical trees include shelterbelts with a mixture of evergreen and deciduous species located along field borders and near residences. As part of the Northern Long-eared Bat (NLEB) Habitat Assessment (Appendix C of the application), WEST conducted a desktop assessment of potential suitable habitat, which included deciduous forest, evergreen forest, mixed forest and woody wetlands. Two forested areas greater than 15 acres in size were mapped within the Project Area. As demonstrated in Table 9-3 of the application, Triple H has avoided all permanent impacts to trees, including to two areas greater than 15 acres in size that occur within the Project Area near Chapelle Lake identified as potential NLEB habitat (as described in the NLEB Assessment, Appendix C of the application) by more than 1,000 feet. No major tree clearing activities will take place.

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

A. Yes, those are found in the application. The Project will permanently impact approximately 77 acres and temporarily impact approximately 553 acres. Table 9-3 of the application identifies the acreages of WEST-digitized land cover classes that will be directly affected by construction and operation of the Project. Overall, 66 percent of the Project's

construction and operations related impacts will occur in vegetation types that have experienced prior disturbance or alteration, including Cropland, Grass Hay and Developed land cover types.

Permanent impact acreages provided in Table 9-3 of the application identifies amounts of vegetation that will be permanently removed and replaced by wind turbine foundations, MET towers, O&M facility, collector substation, transmission poles, permanent access roads and the interconnection switching station.

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

A. Based on the WEST-digitized land cover classification, Project construction activities have the potential to impact various vegetation categorized as grassland pasture. A subset of this category, areas of potentially undisturbed grassland, as mapped using data from SDSU indicate that approximately 25 acres could be permanently impacted.

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

A. The Project has been designed to avoid impacts to USFWS grassland easements and the delineated features associated with the USFWS wetland easement program. Four turbines and associated access roads and collector lines are located on easements that were "top leased" with USFWS grassland easements (Figure 12 in Appendix A). The phrase "top leased" references the circumstance in which a subsequent lease is executed covering land upon which a current lease already exists. In this instance, Triple H easements were recorded prior to the USFWS grassland easements. The South Dakota state law principle of "first in time - first in rights" applies here. As a result, the Project easements are prior and thus superior to the USFWS grassland easements in the identified "top leased" areas. Based on discussions with USFWS (Appendix N in the application), the agency understands and agrees that the Triple H easements are superior rights because they were in-place before the USFWS grassland easements. As a result, National

Environmental Policy Act (NEPA) will not be triggered due to Triple H placing the four turbines and associated roads and collector lines on the "top-leased" lands. The USFWS grassland easement program is further discussed in Section 11.2.1.4 of the application.

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

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

Wildlife species associated with grasslands and tilled agricultural landscapes are expected to be the most common species within the Project Area. Note that since the time of the Tier 2 Site Characterization Study (Appendix D in the application), the Project Area has shifted. Shifts in project area are a typical occurrence, as one purpose of the WEG studies is to adjust boundaries as better information becomes available. Figure 10 (Appendix A in the application) shows the original 2016 Project Area was expanded in 2017. Following the 2017 expansion, the Project Area was then contracted into the current Project Area. The current Project Area is limited to Hyde County but extends outside of the bounds of portions of the 2016 Project Area.

Q. How did Triple H start to determine bird use of the area?

A. In an effort to characterize potential use of the Project Area by breeding birds, the two nearest USGS Breeding Bird Survey (BBS) routes were analyzed. Each route is approximately 24.5 miles (39.4 kilometer [km]) long, with survey points located every half-mile. Standard survey protocol dictates that all birds seen or heard are tallied for a 3-minute period at each point

along the route. From 2011 to 2014, a total of 86 bird species were recorded along the two BBS routes closest to the Project. The most abundant species observed were the brown-headed cowbird, western meadowlark, common grackle, dickcissel, red-winged blackbird, mourning dove and cliff swallow.

Q. Were raptors analyzed differently?

A. Following a desktop assessment of potential raptor roosting habitat, prey base and species distributions, a total of 16 diurnal raptors, one vulture and six owls were determined to have the potential to occur within the Project Area. Of these species, one vulture, five species of diurnal raptors and five species of owls have the potential to nest near or within the Project Area (Table 9-4 of the application).

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

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

Q. What about bats and bat mortality?

A. Based on range maps from Bat Conservation International, eight bat species are possible residents and/or migrants in the Project Area (Table 9-5 of the application). The Townsend's big-eared bat is included due to the greater overall range map, but is unlikely to occur based on habitat restrictions. Six species that have potential to occur in the Project Area based on range

maps (Table 9-5 of the application) have been documented as fatalities at wind energy facilities. These species include big brown bat, eastern red bat, hoary bat, little brown bat, northern long-eared bat and silver-haired bat.

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

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

Q. Will the Project have a mitigation strategy?

A. The Project has been sited to avoid or minimize impacts to federally and state- protected species. Pending completion of pre-construction avian and bat studies and reporting, Triple H will prepare a Bird and Bat Conservation Strategy (BBCS) that will be implemented during construction and operation of the Project. The BBCS will consist of Triple H's corporate standards for minimizing impacts to avian and bat species during construction and operation of wind energy projects and will be developed in a manner that is consistent with the USFWS Land- Based WEG. It will include Triple H's commitments to wind project siting, construction practices and design standards, operational practices, permit compliance and construction and operation worker training. These are all further discussed in greater detail in Section 9.2.3 of the application.

Dated this 6th day of February, 2019.

Clayton Derby, Western EcoSystems Technology, Inc.