BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY DEUEL HARVEST WIND ENERGY LLC FOR ENERGY FACILITY PERMITS OF A WIND ENERGY FACILITY AND A 345-KV TRANSMISSION LINE IN DEUEL COUNTY, SOUTH DAKOTA FOR THE DEUEL HARVEST NORTH WIND FARM

SD PUC DOCKET NO. _____

PRE-FILED DIRECT TESTIMONY OF ANDREA GIAMPOLI ON BEHALF OF DEUEL HARVEST WIND ENERGY LLC

November 30, 2018

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, employer, and business address.

A. My name is Andrea Giampoli. I am employed by Invenergy LLC ("Invenergy"), and my business address is One South Wacker Drive, 1800, Chicago, Illinois 60606.

Q. Briefly describe your educational and professional background and duties.

A. I obtained a Bachelor of Arts degree from the University of Wisconsin-Madison in 2006 with a double major in Communication Arts and Spanish. I worked as a writer and editor for four years before starting law school in 2010 at Rutgers University School of Law. I graduated in December 2013, and briefly worked as an associate. I joined Invenergy as a specialist in my current position in September 2014. I was promoted to manager in March 2016, and to senior manager in March 2018. I manage environmental permitting and compliance with federal, state, and local laws and policies for development and operation of wind and solar projects in the United States. I also oversee teams of environmental consultants at project sites during the preparation and execution of field studies through to the editing of final technical reports. My resume is attached as **Exhibit 1**.

Q. What is your role with respect to the Deuel Harvest North Wind Farm ("Project")?

A. I am the environmental manager overseeing the wildlife and wetlands survey work and permitting for the Project.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony is to provide information concerning existing environmental conditions in the area of the proposed Project ("Project Area"), potential impacts of the Project on the existing environment, and how the Project will avoid or minimize potential impacts. In addition, I describe the environmental

survey work conducted on behalf of Deuel Harvest to analyze the Project Area, local permitting, as well as the associated federal and state agency correspondence and coordination.

Q. Please identify which sections of the Application you are sponsoring for the record.

A. I am sponsoring the following sections of the Application:

- Section 10.0: Environmental Information
- Section 13.0: Effect on Terrestrial Ecosystems
- Section 14.0: Effect on Aquatic Ecosystems
- Section 15.0: Land Use (with the exception of those subsections concerning sound, shadow flicker, and electromagnetic interference)
- Section 17.0: Water Quality
- Section 18.0: Air Quality
- Section 27.1: Permits and Approvals
- Section 27.2: Agency Coordination
- Section 27.3: Public and Agency Comments
- Appendix B: Agency Correspondence
- Appendix G: Wetland Delineation Report
- Appendix I: 2017 Raptor Nest Survey
- Appendix J: Avian Use Report
- Appendix K: Second Year Large Bird Use Study
- Appendix L: 2016 Bat Mist-Netting Survey Report
- Appendix M: 2017 Bat Acoustic Study
- Appendix N: 2018 Protected Butterfly Species Report
- Appendix O: Bird and Bat Conservation Strategy ("BBCS")

III. ENVIRONMENTAL SURVEYS/STUDIES

Q. What was the overall approach to environmental analysis of the Project Area?

A. Deuel Harvest conducted or authorized various environmental surveys and studies in and around the Project Area. The purpose of this analysis was to identify the potential for sensitive species and their habitats, wetlands/waterways, and other environmental resources within the Project Area and identify strategies to avoid or minimize impacts to those resources. The surveys address numerous resources and have been conducted to comply with applicable regulations and guidelines, including the U.S. Fish and Wildlife Service ("USFWS") Land-Based Wind Energy Guidelines, the USFWS Eagle Conservation Plan Guidance, and the South Dakota Siting Guidelines for Wind Projects. Survey results have informed Project design efforts and have been used to develop avoidance or minimization strategies to be implemented in connection with Project construction and operations.

Q. Discuss the environmental surveys and/or studies conducted with respect to the Project.

A. The environmental studies and field surveys conducted for the Project are summarized in Table 2-1 of the Application and below:

Study	Dates	Status
Site Characterization Studies	Fall 2017 and Spring 2018	Complete
Wetland Delineations	Fall 2018	Complete
Wetlands and Waterbodies Surveys	Fall 2016; and Fall 2017	Complete
Raptor Nest Surveys	Spring 2016 and Spring 2017	Complete
Breeding Bird Survey	June 2016	Complete
Small Bird Use Surveys	April-November 2016; and March 2017	Complete
Large Bird Use Surveys	April 2016-March 2017; and May 2017-April 2018	Complete
Bat Mist Netting Survey	Summer 2016	Complete
Bat Acoustic Surveys	Summer-Fall 2016; and Summer-Fall 2017	Complete
Protected Butterfly Species Habitat Surveys	Fall 2017 and 2018	Complete
Cultural Resources Surveys (Level I and Level III)	Summer 2018	Complete
Historic / Architectural Survey	Summer 2018	Complete

Study	Dates	Status
AM and FM Radio Report	November 2018	Complete
Communication Tower Study	November 2018	Complete
Microwave Study	November 2018	Complete

In addition to the studies above, a sound study (Appendix D) and shadow flicker study (Appendix F) were completed, and those analyses are discussed further in the Direct Testimony of Mr. Mike Hankard and Ms. JoAnne Blank, respectively.

Q. How has Deuel Harvest incorporated the results of the surveys and studies conducted into Project design?

A. Results of environmental studies have influenced Project design and have been used to avoid or minimize impacts to potentially sensitive environmental areas. During the Tier 1 and 2 site characterization studies, protected and designated lands, potential habitat and other environmental resources were identified and mapped in the Project Area. The Project facilities have been sited to avoid these resources. For example, no Project facilities have been sited on USFWS critical habitat or USFWS easements. Suitable northern long-eared bat ("NLEB") foraging habitat was also mapped and turbines were sited at least 1,000 feet away; raptor nests were also located and all turbines are set back at least 1,312 feet from these nests. Turbines are also sited more than two miles from the nearest known eagle nest. The Project also mapped and evaluated undisturbed grasslands, and Project facilities were removed and adjusted to minimize impacts to those resources.

IV. ENVIRONMENTAL SITE ANALYSIS OVERVIEW

Q. Please provide a general overview of the Project Area from a land use perspective.

A. Land use within the Project Area is predominantly agricultural, with land cover consisting of a mix of cultivated crops, hay/pasture and herbaceous vegetation (including grassland). Analyses from the field and grassland reconnaissance documented grassland areas including both native and introduced species. The

remaining land cover in the Project Area consists of developed land, open space; emergent herbaceous wetlands; deciduous forest; open water; and shrub/scrub vegetation; woody wetlands. There are 91 occupied residences within the Project Area.

Q. What steps will Deuel Harvest take to avoid or minimize impacts to existing land uses?

A. As discussed in more detail in Section 15.0 of the Application, Project construction will result in conversion of only a small portion of the land within the Project Area from existing land uses into Project facilities. Following completion of construction, areas disturbed due to construction that will not host permanent facilities will be re-vegetated with vegetation types matching the surrounding agricultural landscape.

Q. Describe the wetlands present within the Project Area.

A. Formal wetland and stream delineations were completed in August and September 2018. A follow-up wetland delineation was conducted on November 14, 2018 to survey an additional 30.2 acres, referred to as the Interconnection Area, resulting from design changes. A total of 25.25 acres of wetlands and 2,879 linear feet of stream channel were identified within the Survey Corridor and Interconnection Area. Section 13.2 and Appendices G and H provide additional detail on wetlands within the Project Area.

Q. What measures will Deuel Harvest employ to avoid or minimize potential impacts to wetland resources?

A. If needed, Deuel Harvest will obtain coverage under a U.S. Army Corps of Engineers ("USACE") Section 404 permit in connection with impacts to wetlands or waterbodies under USACE jurisdiction and will comply with all applicable permit requirements.

Q. Are aquatic ecosystems present in the Project Area and, if so, what measures will Deuel Harvest employ to avoid or minimize potential impacts?

A. Surface waters are present within the Project Area; however, Deuel Harvest will employ various Best Management Practices ("BMPs") to avoid or minimize any impacts to aquatic habitat, and if determined to be present, will avoid impact to any state or federally protected aquatic species.

Q. Are any federally-listed species, federally-designated critical habitat, or state-listed species present within the Project Area?

A. There is the potential for certain federally-listed wildlife species to occur within the Project Area, although the likelihood may be extremely low. The species include: whooping crane, NLEB, rufa red knot, Dakota skipper, Poweshiek skipperling, and Topeka shiner. Five species that are State-listed may occur in Deuel County: whooping crane, osprey, banded killifish, northern redbelly dace, and northern river otter. The whooping crane, rufa red knot, osprey, banded killifish, northern redbelly dace, and northern river otter are not likely to occur within the Project Area due to limited suitable habitat and lack of historical records.

More than 800 hours of avian surveys were conducted. During those surveys, there were two osprey observations recorded on the same day in September 2017, potentially of the same individual, identifying the potential for this species to be extremely low. No other federally or state endangered or threatened species have been observed during surveys in the Project area. One parcel of land designated as critical habitat for the Dakota skipper occurs within the Project Area; this same parcel is also critical habitat for the Poweshiek skipperling. No NLEB were captured during bat mist netting surveys; however, they have the potential to migrate through the Project Area during the fall. Federally-protected bald and golden eagles have been observed in the Project Area, though turbines have been sited away from the nearest known eagle nests.

Q. Is the Project anticipated to impact federally-listed species, federally-designated critical habitat, or state-listed species?

A. No. Most of the species listed above are not expected to occur in the Project area due to a lack of suitable habitat. Project facilities have also been sited to avoid federally-designated critical habitat, USFWS easements, protected lands, and sensitive resources that may provide habitat for protected species. As stated above, Deuel Harvest set turbines back 1,000 feet from potential foraging habitat for NLEB. Deuel Harvest also conducted a field assessment for Dakota skipper and Poweshiek skipperling habitat, and sited Project facilities to avoid grasslands with the potential to support these species. Deuel Harvest conducted a wetlands and waterways delineation to avoid impact to water resources that may host aquatic species. As mentioned, turbines were sited away from eagle and other raptor nests.

Q. Discuss the analyses conducted of avian use in the Project Area.

A. Two years of avian/eagle use point-count surveys were completed for the Project from April 2016 to April 2018 to evaluate species composition, relative abundance, and spatial characteristics of avian use in accordance with agency recommendations (Appendices I, J, and K). The Year One surveys, conducted April 2016 to March 2017, included large-bird surveys and small-bird surveys. The Year Two surveys, conducted May 2017 to April 2018, included surveys for large birds. The small-bird surveys conducted in Year One recorded 2,715 birds in 1,073 groups (defined as one or more individuals), representing 49 species.

During Year One of the large-bird use surveys, 42 unique bird species, including 30,640 observations in 1,039 separate groups, were recorded. Waterfowl accounted for most (95.7 percent) observations recorded. Raptors (8 different species) accounted for 0.7 percent of large bird observations. The most common raptor species were red-tailed hawk (*Buteo jamaicensis*) and northern harrier (*Circus cyaneus*). Bald eagle and unidentified eagles accounted for 19.6 percent of raptor observations (39 and 2 observations, respectively) and 0.1 percent of large bird observations. Sensitive species observed during the Year One large bird surveys included American white pelican (*Pelecanus erythrorhynchos*), bald eagle, marbled godwit (*Limosa fedoa*), and willet (*Tringa semipalmata*). No

State- or federally threatened or endangered species were observed, and no golden eagles were observed.

During Year Two of the large-bird surveys, 3,528 large bird observations of 29 species in 539 separate groups were observed. Waterfowl accounted for 86.5 percent of observations (3,051 observations). Raptors accounted for 6.3 percent of large bird observations (223 observations). The most common raptor species identified was the red-tailed hawk, with 130 observations. Eagles accounted for 6.7 percent of raptor observations (15 observations). Eagle observations included 11 bald eagles and 4 golden eagles. Sensitive species observed during the Year Two surveys included American white pelican, bald eagle, golden eagle, and osprey. Two osprey observations were recorded a few hours apart in September 2017. The osprey is listed by the South Dakota Game, Fish and Parks ("SDGFP") as a threatened species.

Q. Is the Project anticipated to impact wildlife species?

A. Terrestrial wildlife species could be impacted during the construction phase of the Project. Direct disruption of habitat and potentially direct mortality could occur during the construction phase of the Project, though the potential for these impacts is low. Permanent habitat loss due to construction of wind turbines and other Project facilities, including the 150-foot long Transmission Line, would be minimal across the Project Area and localized. The Project will follow various BMPs as discussed in the BBCS (Appendix O) to minimize these impacts. With respect to wildlife species impacts, bird and bat species are typically the primary concern associated with wind energy facility construction and operation. The Project may directly impact birds and bats. However, the Project has been sited in an area and designed in a manner to avoid and minimize impacts to birds and bats, including indirect impacts to grassland birds. The Project was sited to minimize impacts to potentially undisturbed grasslands.

Q. What measures will Deuel Harvest implement to avoid or minimize impacts to other wildlife species?

A. Construction crews will be instructed on how to avoid disturbing and harassing wildlife. BMPs will be practiced by construction and operations personnel to reduce attractants to scavengers and potential nest predators.

Q. Is the Project anticipated to impact existing water or air quality?

A. No. As discussed in Sections 17.0 and 18.0 of the Application, the Project is not anticipated to have significant impacts to water or air quality.

V. AGENCY COORDINATION

Q. Please discuss Deuel Harvest's agency coordination efforts.

A. As discussed in Section 27.2 of the Application and in the BBCS (Appendix O), Deuel Harvest has coordinated with various federal, state, and local agencies regarding the Project. Numerous meetings and discussions have been held with USFWS and SDGFP regarding avoidance and minimization of potential impacts to wildlife and associated habitat. Deuel Harvest anticipates that Project coordination will continue.

VI. PERMITS AND APPROVALS

Q. In addition to Energy Facility Permits, what other permits are required for the Project?

A. Various federal, state, and local approvals may be required for the Project. Table 27-1 in the Application identifies potential permits or approvals required for the construction and operation of the Project, and also identifies the status of each permit/approval.

Q. Will Deuel Harvest obtain all local, state, and federal permits required for the Project?

A. Yes. Deuel Harvest or its contractors will obtain all permits and licenses required for the Project.

VII. CONCLUSION

Q. Does this conclude your direct testimony?

244 A. Yes.

Dated this 30th day of November, 2018.

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Andrea Giampoli