THE WILDLIFE SOCIETY

South Dakota Chapter

ADDRESS COMMENTS TO:
Crocker Wind EA comments
Waubay NWR Complex
44401 134 A Street
Waubay, SD 57273

RE: Crocker Wind Farm Draft Environmental Assessment

To whom it may concern:

The proposed Crocker Wind Farm Project in Clark County, South Dakota, has come to the attention of the South Dakota Chapter of The Wildlife Society (hereafter: SDTWS) due to the potential impacts that this wind farm may have on natural resources of South Dakota.

The Wildlife Society is an international, nonprofit, scientific and educational organization composed of professionals, students and laypersons active and interested in wildlife research, management, education and administration. The SDTWS is an active affiliate, working to achieve conservation of natural resource issues specific to South Dakota, in part by evaluating the principals involved in proposed actions that affect wildlife and habitats. Wind energy as a renewable, clean energy source is generally a good alternative to fossil fuels, but is not without adverse environmental impacts. The SDTWS respectfully submits the following comments on the draft Environmental Assessment for the Crocker Wind Farm intended to highlight our concerns regarding the actions proposed - and not proposed - within the document, particularly as related to native grassland habitats, waterfowl, other grassland-nesting birds, eagles, and bats.

As noted in the EA, the location of the proposed Crocker Wind Farm is within the Tallgrass Prairie Region of the United States: one of the most endangered ecosystems in the world with less than 1% of the historical extent remaining. The Prairie Coteau ecoregion is home to some of the last remaining acres of this ecosystem in South Dakota. The U.S. Fish and Wildlife Service (USFWS), recognizing the ecological role and functions of the remaining grasslands in the

Crocker Wind Farm area, has worked for decades to purchase numerous wetland and grassland easements and Waterfowl Production Areas in that location. These conservation lands are part of the National Wildlife Refuge System of lands and are maintained for the conservation of wildlife and habitat for the benefit of all Americans.

The Crocker Wind Farm also occurs within the Prairie Pothole Region (PPR), internationally famous as "America's Duck Factory" and the foundation for a large part of the state's natural heritage and culture. Thus, anticipated detrimental impacts to intact grasslands and wildlife at the Crocker Wind Farm pose not only the risk of significant environmental impacts, but also a loss of quality of outdoor life that many South Dakotans value. The South Dakota Department of Game, Fish and Parks has acquired Game Production Areas in the vicinity of the project and has established walk-in areas for hunters, also recognizing the area for its outdoor recreational benefits. The high density of these areas within and surrounding the Crocker Wind Farm Project Area is indicative not only of its high natural resource value, but also its role in supporting a valued aspect of South Dakotan's outdoor recreation heritage including hunting and wildlife observation.

The draft Environmental Assessment (EA) for the Crocker Wind Farm is inadequate in its evaluation of indirect impacts to these resources, and proposes only a 2:1 replacement ratio to compensate for impacts incurred on USFWS easement lands. Further, the EA proposes inadequate mitigation to offset those impacts identified in the EA. As described in the EA, native grassland is difficult if not impossible to replace to its former state once disturbed, thus even "temporary" impacts as described in the EA could in actuality result in permanent degradation of habitat. We recommend a higher mitigation ratio of 5:1 or perhaps 10:1, since preservation of existing habitat is the likely means of a mitigation offset, and a net loss will be incurred.

In addition to direct loss of habitat, grassland-nesting birds and waterfowl are examples of wildlife that are likely to be significantly affected if the Crocker Wind Project is constructed. Native species of the Great Plains evolved in vast, mostly treeless prairies and are negatively affected by anthropogenic activities that disturb and fragment grasslands, including the placement of tall structures (e.g. turbines, power poles) on the landscape. Studies of wind energy impacts on birds have documented significant levels of avian avoidance of wind development in North and South Dakota including three highly relevant studies: Leddy et al. (1999), Loesch et al. (2013), and Shaffer and Buhl (2016) which were all identified in the Crocker Draft EA.

- Leddy et al. (1999) examined avian use in Conservation Reserve Program (CRP) grassland areas near turbines and in reference CRP grassland areas and documented greater avian densities in control areas located 180 m from turbines than areas within 80 m of turbines.

- Shaffer and Buhl (2016) documented significant avoidance behavior in seven of nine species of grassland nesting birds. They found avoidance within 300 m (0.2 mi) of wind facilities, and avoidance rates continued to increase over time.
- Loesch et al. (2013) focused on waterfowl avoidance and identified a pattern of reduced use of wetlands within 805 m (0.5 mi) of turbines by five species of ducks, including mallard, northern pintail, blue-winged teal, gadwall, and northern shoveler.

The aforementioned research projects were local studies, used reference areas, underwent peer review and were published in highly reputable journals. In the case of Shaffer and Buhl (2016), pre- and post-construction data was gathered at three wind farms and compared to control sites over several years, thus constituting a rarely utilized (due to the effort involved) but optimal study design (due to its scientific rigor): a long-term, Before-After-Control-Impact (BACI) study. Loesch et al. (2013) was also conducted over several years at two wind farms with control sites and garnered a very large sample size, documenting wetland use of nearly 16,000 duck pairs. These studies involved the same species that have been documented to exist on the proposed Crocker Wind Farm Project Area, as indicated by the pre-construction surveys reported in the Draft EA. The results of all three studies clearly indicate that habitat use by numerous avian species within the vicinity of turbines will be reduced, but this information appears to be marginalized in the Draft EA.

Shaffer and Buhl (2016) and Loesch et al. (2013) developed means to determine the levels of avian displacement based on the results of their studies. Specifically, they devised methods for calculating the wetland and grassland acreage required to compensate for the number of waterfowl and grassland-bird breeding pairs displaced by the presence of turbines. Via further analysis of the waterfowl data, Loesch et al. (2013) estimated that avoidance of wind turbines causes an average of 20% reduction in duck-pair density within 805 m (0.5 mi) of turbines. Similarly, Shaffer and Buhl (2016) estimated that avoidance to wind turbines causes an average of 60% reduction in breeding-bird pairs within 100 m of turbines and averaged 56% avoidance out to 300 meters.

Avoiding such impacts entirely is the best alternative, but if the project is to move forward, the SDTWS urges Crocker Wind Farm to use these scientifically-based methods to calculate the indirect impacts of their farm on waterfowl and grassland-bird pairs and to report that impact to the public. This information is not in the draft EA and therefore makes it difficult for reviewers to understand how the proponents have offset indirect impacts to grassland nesting birds and waterfowl. We recommend that a mitigation plan be developed to specify which and how the anticipated impacts to those resources will be offset. The draft EA did not do this and we believe a mitigation plan is critical to demonstrate that the project will not have significant impacts to natural resources.

The indirect impacts of avian avoidance described above will be in addition to direct avian and bat mortality that is known to occur at every wind facility. The American Wind Wildlife

Institute, a partnership of the wind and wildlife-management industries, acknowledges that fatalities to birds and bats have been recorded at all wind farms for which results are publicly available (AWWI 2017). The Draft EA states the average avian mortality rate ranges from 3 to 6 birds/MW/year, stating that lower levels (estimates not provided) are likely to occur at the Crocker Wind Farm. We recommend identifying the likely rate of mortality, and quantifying it for this 400 MW wind farm that will be in place for 30 years to demonstrate the potential loss to bird populations.

As a species known to suffer mortality via turbine collisions, eagles are among the species of concern at the Crocker location as well. Golden eagles may occur in the project area, but are not prevalent in eastern South Dakota. However, the Draft EA reveals at least 4 active bald eagle nests in the vicinity of the Project Area, and preconstruction surveys within the Project Area documented eagle use in areas where turbines are being proposed. Bald eagles were absent from South Dakota for many years after the species' decline resulted in federal listing of the species, but since the species was again discovered nesting in South Dakota in the late 1990's, bald eagles have been steadily increasing in the State with more nests discovered each year. The Draft EA states that the risk to eagles posed by the proposed Crocker Wind Farm is low, and suggests that this is not likely to change. However, the EA does not present the risk to eagles per the recommendations within the USFWS's Eagle Conservation Plan Guidance which includes modeling to classify that risk, and it is not apparent that consideration for increased population of eagles in South Dakota over time was included in the Draft EA's "low risk" determination. The risk of bald eagle mortality at the proposed Crocker Wind Farm appears to require further analysis.

Higher mortalities of bats than birds have been reported at wind energy facilities and no consistent pattern has been discerned between habitat type and mortality rates. The majority of these bats are migratory tree-roosting species – some of which were identified during preconstruction surveys at the Crocker Project Area. Bats have low reproductive rates and are long-lived, making population recovery difficult for this taxa. The secretive nature of bats and lack of information regarding demographic rates has made assessing the impacts of wind energy bat fatalities difficult. However, a recent publication (Frick et al. 2017) attempted to evaluate those impacts using an example of one species, the hoary bat, and presented a potential 90% decline of the species in North America over the next 50 years (Frick et al. 2017). Bat mortality can be reduced by raising cut-in speeds of wind turbines and feathering/braking turbine blades when not generating energy. This is a simple means proven to reduce bat mortality at wind turbines, and has been shown to have little impact on the economics of wind energy facilities. It is not apparent in the Draft EA that Crocker will implement cut-in speeds at an adequate level to be protective of bats, nor feather blades to minimize bat mortality. Up to 6.9 m/s is the recommended speed to protect the endangered Indiana bat in other parts of the country, but somewhat lower speeds (5.0 m/s) have also been shown to be protective of bats. The EA notes that the South Dakota Department of Game Fish and Parks recommends these actions. The EA

commits Crocker to higher cut-in speeds during periods when bat activity levels are higher (i.e. fall migration), but it does not identify what those cut-in speeds would be. We recommend the Crocker Wind Farm Project commit to increasing the cut-in speed of its turbines to 5.0 m/s at least during the peak migratory bat activity periods in South Dakota a and feathering/braking blades to minimize impacts to bats throughout the year.

We are also aware that several other wind projects are being proposed in eastern South Dakota (SDPUC). Much of this proposed development is focused along the Prairie Coteau Ecoregion and impacts the Tallgrass Prairie and/or Prairie Pothole region. If constructed, they likely will have similar cumulative effects on the habitats and species discussed above. These projects and effects do not appear to be reflected in the Draft EA, as the current scope of cumulative effects is limited to immediate vicinity of Crocker. We recommend expansion of this section to more accurately capture the impacts these wind projects, any other eastern South Dakota activities, will have on the natural resources of the Tallgrass Prairie and Prairie Potholes. In summary, the Crocker Wind Farm Project is proposed within a high wildlife use area of the State that harbors considerable amounts of publicly-protected land dominated by grasslands and wetlands of the Prairie Potholes and Tallgrass Prairie regions. The area hosts a diversity of species that will experience direct mortality and habitat loss, fragmentation, and degradation by both Crocker and other development activities in eastern South Dakota. The current Draft EA does not adequately disclose indirect effects of the project; it limits proposed compensation to a 2:1 replacement ratio for direct impacts of the footprint on USFWS easement lands, ignoring the remainder of the project impacts and much larger indirect effects, and does not encompass adequate cumulative effects. The Final EA should reflect these missing impacts accurately, and include an appropriate mitigation plan that is commensurate with the anticipated level of direct and indirect impacts that will occur on the entire project area to compensate for the significant reduction in natural resource value of this area if the project is built. We recommend that a mitigation plan or section in the final EA be developed to specify how the anticipated impacts to nesting grassland birds, waterfowl, bats, eagles and the National Wildlife Refuge System will be offset. The draft EA did not do this and we believe a mitigation plan is critical to demonstrate that the project will not have significant adverse impacts to natural resources.

Sincerely,

Dr. Kent C. Jensen
Chair, Energy Committee
South Dakota Chapter of The Wildlife Society

LITERATURE CITED

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