NORTH DAKOTA PUBLIC SERVICE COMMISSION

NORTHERN DIVIDE WIND, LLC
NORTHERN DIVIDE WIND ENERGY CENTER
APPLICATION FOR CERTIFICATE OF SITE COMPATIBILITY
AND
NORTHERN DIVIDE 345 kV TRANSMISSION LINE CONSOLIDATED APPLICATION FOR A CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT

CASE NOS. PU-19-376 AND PU-19-377

APRIL 1, 2020

PART III

PREPARED TESTIMONY OF
CLAYTON DERBY

I. Introduction and Background

Q1. Please state your name, by whom you are employed, and your business address.

A. My name is Clayton Derby. I work for Western EcoSystems Technology, Inc. or WEST. My office address is 4007 State Street, Bismarck, North Dakota.

Q2. What is your position with WEST?

A. I am our Chief Services Officer and senior wildlife biologist.

Q3. Briefly describe your educational background and professional experience.

A. I received a Bachelor's degree in Biology from Moorhead State University and a Master's degree in Zoology and Physiology from the University of Wyoming. I have worked for WEST as a wildlife consultant and involved in wind-wildlife related projects for 25 years. During this time, I have been involved in approximately 35 wind energy projects in North Dakota and hundreds across the United States. A copy of my resume is attached hereto as Attachment 1.

Q4. Please describe your role in Northern Divide Wind, LLC's ("Northern Divide Wind") projects?

A. I was retained by Northern Divide Wind to provide wildlife-related advice and assistance on the 200 MW Northern Divide Wind Energy Center ("Wind Project") and the approximately 41-mile, 345 kV transmission line ("Transmission Project," and collectively with the Wind Project, the "Projects"). Specifically, I have been advising Northern Divide Wind on wildlife and habitat studies, managing wildlife studies, assisting with coordination with the United States Fish and Wildlife Service ("USFWS") and North Dakota Department of Game and Fish ("NDGFD," and collectively with the USFWS, the "Wildlife Agencies"), and drafting Northern Divide Wind's Wildlife Conservation Strategy ("WCS"). I have also reviewed all wildlife and native habitat technical reports and pertinent portions of the Projects' Applications.

Q5. Please briefly summarize the purpose of your testimony.

A. In my testimony, I will expand upon Mr. Dustin Jones's overview of wildlife issues related to the Projects by providing more detailed context for Northern Divide Wind's wildlife and habitat studies, summarizing potential wildlife impacts from the Projects, and describing how they relate to scientific literature, and providing information on the potential impacts of the Projects in light of my experience over the last approximately 15 years working on wind projects in North Dakota. Specifically, I will discuss grasslands and grassland nesting birds, sharp-tailed grouse, wetlands and waterfowl, eagles, and threatened and endangered species.

II. Grasslands and Grassland Nesting Birds

Q6. What methodology was used to assess potential impacts to grasslands and grassland nesting birds?

A. Northern Divide Wind asked WEST to assist in analyzing potential impacts by the Wind Project to unbroken grasslands. As Mr. Jones testified, input from the Wildlife Agencies and the Commission regarding the prior Burke Wind Project highlighted the importance of evaluating unbroken grasslands as part of the Wind Project's wildlife assessment. As described in the Wind Project Application, grasslands were identified through review of

existing GIS information, recent aerial photograph interpretation, and field verification to determine if grasslands had been previously broken.[1]

Grassland nesting birds were assessed through desktop evaluation of potential habitat (*i.e.*, grasslands), existing information on species occurrence in Burke County and the surrounding region, general avian use surveys, and specific surveys that targeted breeding birds, including Birds of Conservation Concern ("BCC") and species listed by the NDGFD as Species of Conservation Priority ("SCP"). Additionally, Northern Divide Wind coordinated extensively with the Wildlife Agencies in evaluating potential impacts to grasslands and grassland nesting birds. Consistent with the Wildlife Agencies' recommendations, Northern Divide Wind applied the agency-recommended modeling described in Shaffer *et al.* (2019) to assign offsetting measures for potential indirect impacts to grassland nesting birds.

Q7. What did your assessment indicate with respect to potential impacts to grasslands and grassland nesting birds from the Wind Project?

A. The Wind Project is partially located on the Northern Missouri Coteau, an area largely dominated by remaining tracts of unbroken grasslands. However, based on historic agricultural practices, Northern Divide Wind has sited the Wind Project within a largely tilled portion of the Coteau. Site-specific mapping indicates that the Wind Project contains only approximately seven percent, or 742 acres, of unbroken grasslands. None of the planned Northern Divide Wind turbines will be located in unbroken grasslands.

Given the location of the Wind Project on the landscape, desktop reviews indicated the likely occurrence of many species of grassland nesting birds, including potentially several species considered as SCP by the NDGFD and/or species listed as BCC by the USFWS. Site surveys recorded a diverse group of grassland nesting birds, including some species from either or both the SCP and BCC. The species observed included grasshopper sparrow, Nelson's sparrow, Sprague's pipit, bobolink, and western meadowlark, as well as others. The surveys found that locations with the highest grassland-associated avian species richness and abundance were in the eastern half of the larger Burke Wind Project, which had a higher proportion of unbroken grasslands than the current Wind Project. As

[1] Wind Project Application at 5-2 (Exhibit 1).

Mr. Jones has testified, in coordination with the Wildlife Agencies, Northern Divide Wind significantly reduced the former project area and shifted the project layout to now be sited in an area with a much lower percentage of lands characterized as unbroken grasslands.

While no turbines will be placed on unbroken grasslands, Northern Divide Wind utilized the agencies' recommended model from Shaffer *et al*. (2019[2]) to estimate potential displacement of grassland nesting birds by the wind turbines. One of the components utilized by this model is the amount of unbroken grassland within 300 meters of a turbine. A GIS analysis was performed to calculate this total to be 188 acres for the current Wind Project's turbine layout, which is a reduction of 75 percent from the Burke Wind Project turbine layout. The results of this model estimate that between 39 and 116 pairs of grassland nesting birds (78 and 232 individual birds) may be displaced over a five-year period by the Wind Project, which represents a reduction of 75 percent from the Burke Wind Project turbine layout.

Q8. How do predictions from the Shaffer *et al.* (2019) model of displacement of grassland nesting birds relate to the Wind Project?

A. The information on grassland nesting birds used in the Shaffer *et al*. (2019) model was gathered from studies in North and South Dakota, in which all turbines studied were located in larger blocks of unbroken grassland. In contrast, all turbines in the Wind Project are placed off of unbroken grasslands. It is not known what, if any, displacement of grassland nesting birds there may be from turbines placed off of unbroken grasslands. Further, it is unknown if any displaced birds will move to unbroken grasslands further from turbines, as Shaffer and Buhl (2015[3]) found for grasshopper sparrows, but remain in the immediate vicinity to breed, or if they will fly further from the Wind Project. This suggests the model could actually over-predict grassland breeding bird displacement resulting from the Wind Project. Nevertheless, I note that Northern Divide Wind used the results of this model as

[2] Shaffer, J. A., C. R. Loesch, and D. A. Buhl. 2019. Estimating offsets for avian displacement effects of anthropogenic impacts. Ecological Applications 00(00):e01983. 10.1002/ eap.1983.

[3] Shaffer, J. A. and D. A. Buhl. 2015. Effects of Wind-Energy Facilities on Breeding Grassland Bird Distributions. Conservation Biology: doi: 10.1111/cobi.12569.

the basis for its commitment to the Wildlife Agencies to recreate and restore habitat for grassland nesting birds.

Q9. Will the Wind Project have an adverse impact on grasslands and grassland nesting birds?

A. No. I expect the Wind Project to have a minimal adverse effect on grasslands and grassland nesting birds. Northern Divide Wind has made significant efforts to reduce the Wind Project size, move the Wind Project further away from Lostwood National Wildlife Refuge, and sited all turbines off of unbroken grasslands. Overall, the Wind Project has been located in an area dominated by tilled agriculture and previously broken grasslands, thus minimizing adverse effects to grasslands nesting birds and their habitat. This is further demonstrated through Northern Divide Wind's breeding bird survey data, which shows that the Wind Project has been located in an area of lower grassland bird abundance and richness as compared to the eastern portion of the previous Burke Wind Project.

In addition to these avoidance and minimization efforts, Northern Divide Wind has voluntarily committed to the Wildlife Agencies to implement an offset package to help address modeled indirect impacts. Specifically, Northern Divide Wind has agreed to recreate and/or restore 100 grassland-acres for the displacement of grassland bird pairs, thus mitigating any remaining impacts from the Wind Project to grasslands and grassland nesting birds. In combination, these efforts have addressed impacts to grasslands and grassland nesting birds.

III. <u>Sharp-tailed Grouse</u>

Q10. What methodology was used to assess potential impacts to sharp-tailed grouse?

A. Sharp-tailed grouse lek surveys were previously completed to assess the presence of the species within the larger Burke Wind Project and a one-half mile buffer around the Burke Wind Project, and a 1.5-mile buffer around the Burke Transmission Project. These survey areas largely overlap with the current Projects. These surveys located seven grouse leks within or near the current Wind Project. This is fewer leks than were located within the previous Burke Wind Project, potentially due to the new Wind Project having more tilled agricultural and broken grasslands and less unbroken grasslands. As Mr. Jones testified,

the current Wind Project has a smaller proportion of unbroken grassland (approximately seven percent) compared to the Burke Wind Project (approximately 21 percent). Northern Divide Wind will complete pre-construction ground-based surveys to locate new or previously undetected leks.

Q11. What did your assessment indicate with respect to potential impacts to sharp-tailed grouse from the Wind Project?

A. As a population, sharp-tailed grouse have a geographic distribution generally corresponding to the northern Great Plains. The species can be found from central Canada, through the Dakotas and Montana, and into Nebraska and Wyoming. While there are sharp-tailed grouse within and near the Wind Project, steps have been taken to minimize potential impacts to the species by placing all turbines out of unbroken grassland habitats,[4] conducting additional pre-construction surveys, locating all turbines more than one-half mile from known leks, and minimizing construction activities within one-half mile from known lek locations by implementing construction timing limitations to restrict construction activities during morning and evening hours between March 15 and June 1 when leks may be active.

Q12. Will the Wind Project have an adverse effect on sharp-tailed grouse populations?

A. No. I expect that relocating the Wind Project into an area of lower grassland density, setting back turbines and minimizing construction activities within at least one-half mile from lek locations will avoid and minimize potential impacts to grouse leks.

IV. Wetlands and Waterfowl

Q13. What methodology was used to assess potential impacts to wetlands and waterfowl?

A. Wetlands were evaluated through a combined effort including desktop review and field wetland delineations within the Projects' construction corridors. Potential impacts to waterfowl, including northern pintails, canvasback, and lesser scaup, three species listed as SCP by the NDGFD, were evaluated through general avian surveys, dedicated waterfowl surveys, and evaluation of existing literature.

[4] Appendix B.5 to Wind Project Application (Exhibit 1).

Q14. What did your assessment indicate with respect to potential impacts to wetlands and waterfowl from the Projects?

A. As Mr. Jones testifies, based on Northern Divide Wind's wetland delineations, all wetlands will be avoided and no impacts will occur.

With respect to waterfowl, avian and waterfowl-specific surveys found waterfowl use throughout the Wind Project. The studies found that in general, use by wetland-associated species, including SCP species, was similar or lower within the Wind Project when compared to the Burke Wind Project. However, most historic research has shown very limited direct impacts from wind projects to waterfowl. This includes studies specifically done in the Dakotas (Gue *et al.* 2012[5]). Overall, waterfowl comprise less than three percent of all wildlife fatalities from wind projects, even though waterfowl often are one of the most common bird groups observed during pre-construction surveys.

Similarly, most research to date has shown limited to no displacement of, or impacts to, migratory waterfowl from wind projects. For example, studies conducted in Iowa showed no impacts to duck and goose use days at wildlife areas immediately adjacent to a wind project after construction when compared to usage before construction (Jones *et al.* 2010[6]).

Recent research, and one of the only studies to investigate breeding waterfowl displacement, showed some displacement of duck pairs within proximity to operating wind turbines. This research showed that overall, 18 percent of duck pairs were displaced within one-half mile of turbines (Shaffer *et al*. 2019). For the Wind Project, this translates into an estimated 486 pairs, or 972 individual ducks, potentially being displaced. However, based on the research to date, it is unknown whether these individuals relocate to a wetland further from turbines and successfully breed.

[5] Gue, C.T., J.A. Walker, K.R. Mehl, J.S. Gleason, S.E. Stephens, C.R. Loesch, R.E. Reynolds, B.J. Goodwin. 2012. The effects of large-scale wind farm on breeding season survival of female mallards and blue-winged teal in the Prairie Pothole Region. The Journal of Wildlife Management; DOI: 10.1002/jwmg.583.

[6] Jones, J., K. Kosciuch, T. Gys, J. Lindsay, and G. Zenner. 2010. Do operational turbines create a barrier to waterfowl movement in the Prairie Pothole region of North America? A poster presented at the Wind Wildlife Research Meeting VIII, October 19-21, 2010, Lakewood, CO.

Q15. Will the Projects have an adverse effect on wetlands and waterfowl?

A. No. There will be no impacts to wetlands from the Projects and I expect the Projects to have minimal adverse effect on waterfowl.

Potential direct impacts to waterfowl are anticipated to be limited, and indirect impacts will be offset through Northern Divide Wind's voluntary offset package. Mortality of waterfowl is expected to be similarly low as other wind projects within North Dakota and other locations. For example, Gue *et al*. (2012) noted that of 165 ducks radio-marked at wind projects in northeastern South Dakota, only one female mallard was found as a wind turbine mortality. Similar to expected low impacts from the Wind Project, changes in migrating waterfowl use are expected to be minimal, as was documented by Jones *et al*. (2010) in Iowa.

Based upon recommendations from the Wildlife Agencies, the Shaffer *et al*. (2019) model was used to estimate displacement of waterfowl from turbines. This model estimates the displacement of approximately 18 percent of breeding duck pairs within one-half mile of turbines could be expected. This displacement could result in approximately 486 pairs of ducks being displaced, but, as noted above, it is possible that these ducks simply move to another wetland and successfully breed. If 486 pairs are displaced, this would be approximately 0.03 percent of the estimated 3,400,000 breeding duck population in North Dakota as estimated in the NDGFD 2019 survey, which population level was an increase of 20 percent from 2018 duck population (NDGFD 2019).[7] To offset this potential displacement of breeding waterfowl pairs, Northern Divide Wind has committed to recreate and restore 196 wetland-acres (±98 2-acre wetland basins).

I would note that waterfowl are above long-term averages, per USFWS data (USFWS 2019[8]). Given this, and the fact that Northern Divide Wind will provide voluntary offsets that consider and mitigate potential impacts to waterfowl through creation and/or restoration of wetlands, adverse impacts to waterfowl from the Wind Project is not anticipated.

[7] North Dakota Department of Game and Fish Department. 2019. Big jump in North Dakota spring breeding duck numbers, Outdoor News, June 24, 2019 (https://www.outdoornews.com/2019/06/24/big-jump-in-north-dakota-spring-breeding-duck-numbers/).

[8] U.S. Fish and Wildlife Service. 2019. Waterfowl population status, 2019. U.S. Department of the Interior, Washington, D.C. USA.

V. Eagles

Q16. What methodology was used to assess potential impacts to bald and golden eagles?

A. As described in Mr. Jones's testimony, several eagle and avian use surveys and nest surveys were conducted in 2017 and 2018. Additionally, data on eagle nest occurrence was requested from the NDGFD. Risk was assessed using eagle use rates measured throughout a 12-month period including, location of the use, timing of use, and results of the nest surveys completed for the much larger Burke Wind Project that largely overlaps the current Wind Project.

Q17. What did your assessment indicate with respect to potential impacts to bald and golden eagles from the Wind Project?

A. Limited numbers of bald and golden eagles were observed during surveys for the larger Burke Wind Project, as well as within the Wind Project. For bald eagles, use observed during standardized surveys was limited to the spring and fall migration periods with incidental observations during the winter and none observed during the summer. When considering the total survey effort for the larger Burke Wind Project, most eagle use was observed east of the current Wind Project. In regard to bald eagles, only five were observed at points within the Wind Project. For golden eagles, only one individual was observed within the Wind Project. The limited use within the Wind Project by eagles does not suggest a spatial pattern that might indicate concentrated eagle use within the area; furthermore, land contours and habitat features within the Wind Project do not appear unique or more likely to concentrate use as compared to the surrounding region. No nests for either species were located within the Wind Project or within a minimum 8-mile survey buffer and none were identified by the NDGFD. Based on use data and lack of eagle nests within the Wind Project and vicinity, overall eagle use in the area appears to be low and limited to migration periods and winter.

Q18. Will the Wind Project have an adverse effect on bald and golden eagles?

A. No, impacts to bald and golden eagles are expected to be low and similar to other wind projects in North Dakota. The location of the Wind Project indicates that turbines have been sited within a region with lower eagle use compared to areas east of the Wind Project.

There were no eagle nests located during surveys or through coordination with the NDGFD. No eagle use was observed during surveys in the summer, further indicating a lack of breeding eagles in the vicinity. Additionally, Northern Divide Wind will conduct a pre-construction survey to confirm no new or previously undetected eagle nests will be impacted.

VI. Threatened and Endangered Species

Q19. What methodology was used to assess potential impacts to threatened and endangered species?

A. A combination of desktop review of existing information from the USFWS and other sources along with focused species-specific field surveys when and where appropriate were completed. Based on the desktop review, there are seven species that have potential to be within Burke or Mountrail Counties, with six having some potential for occurrence with the Projects. Of these six, four species are very unlikely to occur within the Projects and were addressed in more detail in Mr. Jones's testimony; these species include the least tern, piping plover, rufa red knot, and northern long-eared bat. Two other species, including whooping crane and Dakota skipper, have potential habitat within the Projects and/or were observed during surveys and are discussed further in my testimony.

For whooping cranes, risk was generally assessed through a review of potential whooping crane roosting habitat, position within the migratory corridor, availability of roosting and foraging habitat, and evidence of significant historic concentration areas. Further, inference is made from existing information on the lack of direct whooping crane impacts and lack of sandhill crane impacts from wind energy within the migratory corridor.

For Dakota skipper, risk was assessed through a detailed desktop habitat assessment to identify potential habitat followed by a field verification of suitable habitat. Field surveys were conducted under the direction of a Dakota skipper permitted biologist.

Q20. What did your assessment indicate with respect to potential impacts to whooping cranes from the Projects?

A. No critical habitat for any threatened or endangered species, including whooping crane, is located within the Wind Project or Transmission Project.

The whooping crane review included utilizing guidance from the Wildlife Agencies to utilize a model developed by the USFWS and published by Niemuth *et al.,* in 2018.[9] This model includes two different outputs. The first output evaluates potential use by whooping cranes throughout North and South Dakota by equally dividing all acres within the states into relative deciles or ten equal groups. This output is useful for evaluating potential use across broad geographic areas (*e.g.*, an area in Burke County compared to an area in Cass County). The decile map corresponds closely to the migratory corridor with most of the corridor through both states having a higher decile ranking. The second output evaluates relative probability of use by whooping cranes, with a range of low to high (probability of 0 to 1). This output is useful to evaluate potential use by whooping cranes within more defined locations or across locations in close proximity. It can be used to assess whether the relative probability of use with a Wind Project is higher, lower, or similar to adjacent areas.

The Projects are located within the whooping crane migratory corridor, as are numerous wind projects from North Dakota to Texas (*see* Figure 1), and accordingly, the decile evaluation for the Wind Project indicated that most of the area is within the upper decile range. However, looking at the finer probability of use, the Wind Project has low, and similar, probability of use compared to adjacent areas (*see* Figure 2).

To date, no whooping cranes have been found as fatalities at any wind facility. While there are only approximately 500 whooping cranes in the migratory Aransas-Wood Buffalo population that traverses North Dakota, it could be argued that lack of finding one is simply coincidental. However, there are 660,000 or more sandhill cranes that migrate the same general migratory corridor (Caven *et al*. 2019[10]). As the USFWS has stated: "Information on sandhill cranes is relevant because they are considered a surrogate species

[9] Niemuth, N.D., A.J. Ryba, A.T. Pearse, S.M. Kvas, D.A. Brandt, B. Wangler, J.E. Austin, and M.J. Carlisle. 2018. Opportunistically Collected Data Reveal Habitat Selection by Migrating Whooping Cranes in the U.S. Northern Plains. Condor 120(2): 343-356. doi: 10.1650/CONDOR-17-80.1. Available online: https://pubs.er.usgs.gov/publication/70196575.

[10] Caven, Andrew J.; Brinley Buckley, Emma M.; King, Kelsey C.; Wiese, Joshua D.; Baasch, David M.; Wright, Greg D.; Harner, Mary J.; Pearse, Aaron T.; Rabbe, Matt; Varner, Dana M.; Krohn, Brice; Arcilla, Nicole; Schroeder, Kirk D.; and Dinan, Kenneth F. 2019. Temporospatial shifts in Sandhill Crane staging in the Central Platte River Valley in response to climatic variation and habitat change. Monographs of the Western North American Naturalist: Vol. 11, Article 4. Available at: https://scholarsarchive.byu.edu/mwnan/vol11/iss1/4.

for whooping crane behavior and habitat use in migration" (USFWS 2009[11]). Like whooping cranes, no sandhill cranes have been found as fatalities at any wind facility within the migratory corridor. A detailed study that extended several years and across several wind projects in North and South Dakota corroborated these overall flyway results, *i.e.*, no whooping or sandhill cranes fatalities were found (Derby *et al*. 2018[12]).

Q21. Do sightings of whooping cranes flying over the Wind Project change the impact analysis?

A. No. The sighting of whooping cranes migrating over the Wind Project is not unexpected given, as stated above, the Wind Project is within the migratory corridor.

Q22. Will the Projects have an adverse effect on whooping cranes?

A. No. Based on the assessment and evaluation of the Wind Project, lack of direct impacts to any cranes in the migratory corridor, comparisons to existing studies and information, and on the additional measures that Northern Divide Wind plans to implement, the Projects are not anticipated to impact whooping cranes.

While the Wind Project is within the overall whooping crane migration corridor and potential habitat exists within the Wind Project, similar to numerous other projects in North and South Dakota, the scientific research does not show whooping crane or sandhill crane mortalities at wind projects in the migratory corridor, and impacts to whooping cranes are not anticipated.

To further mitigate potential risk, Northern Divide Wind will develop and implement a voluntary Whooping Crane Identification Training and Curtailment Procedure to shut-down turbines when whooping cranes are found to be within one mile of turbines. Additionally, Northern Divide Wind will mark the entire Transmission Line following recommendations from the Avian Power Line Interaction Committee ("APLIC") to

[11] USFWS. 2009. Whooping cranes and wind development – An Issue Paper. Technical report prepared by Region 2 and Region 6, US Fish and Wildlife Service. 27 pp.

[12] Derby, C. E., M. M. Welsch, and T. D. Thorn. 2018. Whooping Crane and Sandhill Crane Monitoring at Five Wind Energy Facilities. Proceedings of the North American Crane Workshop 14: 26-34. Available online: https://www.west-inc.com/wp-content/uploads/2018/12/Derby-et-al.-2018.-Whooping-crane-and-sandhill-crane-monitoring-at-five-wind-energy-faciities.pdf.

minimize bird collision. Taken together, impacts to whooping cranes from the Projects are not anticipated.

Q23. What did your assessment indicate with respect to potential impacts to Dakota skipper from the Projects?

A. A desktop habitat evaluation was completed for the Projects. In this evaluation, all areas showing current or previous disturbance were removed from consideration as potential habitat. Areas of potential habitat remaining within the Project's construction footprint were field surveyed to determine the presence/absence of suitable habitat, with all habitat determinations approved by a federally permitted biologist from SWCA Environmental Consultants.

Only five acres were identified within the Wind Project construction easement as suitable Dakota skipper habitat. Wind Project infrastructure was sited to avoid impacting all suitable Dakota skipper habitat. Additional areas of suitable habitat were identified within the Transmission Line corridor; however, impacts to these areas will also be avoided.

Q24. Will the Projects have an adverse effect on Dakota skipper?

A. No impacts to Dakota skipper are anticipated. No construction activities for the Projects will occur within identified suitable Dakota Skipper habitat. The Projects have identified and will avoid all suitable habitat for Dakota skipper. Avoidance will include siting structures and other temporary and permanent infrastructure outside of suitable habitat boundaries. Suitable Dakota skipper habitat boundaries will be marked during construction to restrict entry by construction equipment. Additionally, no construction will occur during the Dakota skipper adult flight period (between June 15 and July 18) in areas adjacent to field-verified Dakota skipper suitable habitat. Northern Divide Wind will educate construction contractors about threatened and endangered species and associated measures being implemented for each respective species, including observance of areas to be avoided by construction and timing stipulations.

VII. Conclusion

Q25. Has Northern Divide Wind committed to any additional avoidance and mitigation efforts with respect to the Projects?

A. Yes, Northern Divide Wind has committed to a WCS. The WCS is analogous to a Bird and Bat Conservation Strategy outlined in the USFWS WEGs. The WCS is used to help Northern Divide Wind fully evaluate risk to wildlife, document efforts taken to reduce potential impacts through avoidance and minimization efforts, establish post-construction efforts, and outline agreed upon offsetting measures or mitigation.

Q26. Has Northern Divide Wind avoided, minimized, and mitigated potential adverse impacts to wildlife and native habitats associated with the Projects?

A. Yes. Through Northern Divide Wind's overall siting of the Projects including the relocation of wind turbines, and planned offsetting measures, the Projects' overall impacts have been appropriately avoided, minimized, and mitigated.

Q27. Does this conclude your testimony?

A. Yes.

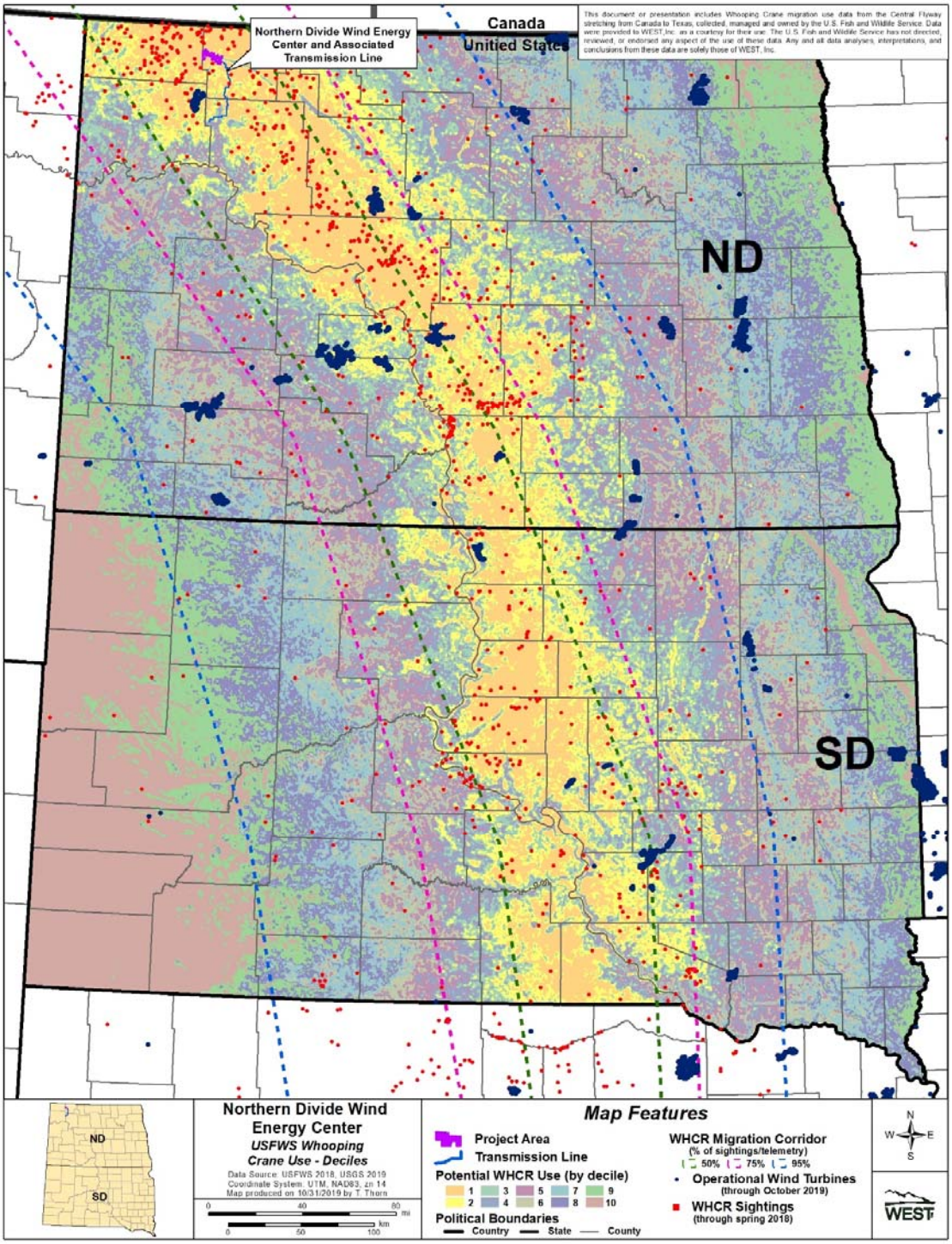

Figure 1. Projects within the whooping crane migration corridor in North and South Dakota.

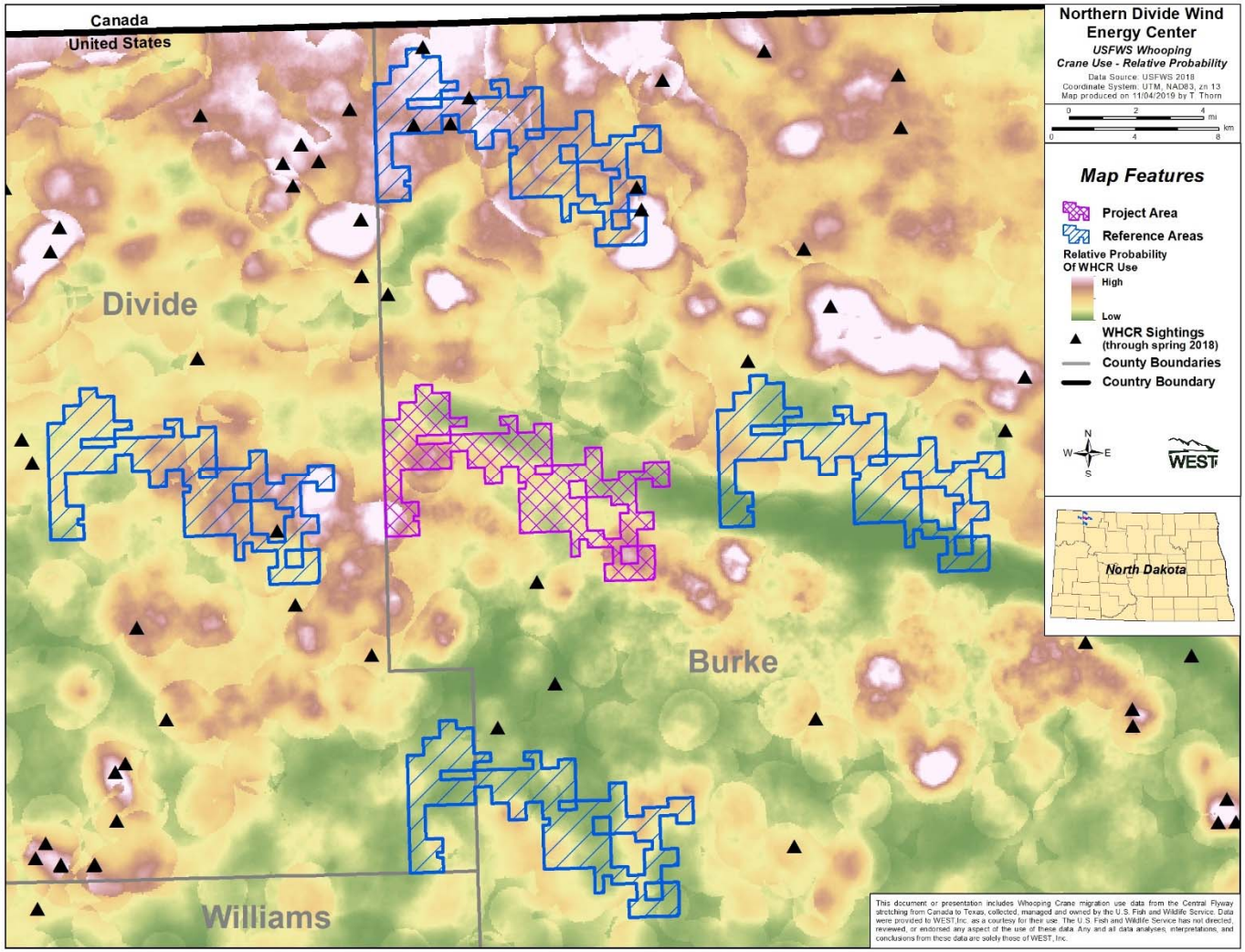

Figure 2. Relative probability of whooping crane use of the Northern Divide Wind Project and reference areas.

Attachment 1. Resume for Clayton Derby

Clayton Derby, *Chief Services Officer/Project Manager*

PROFESSIONAL EXPERIENCE

2016-Present	*Chief Services Officer/Project Manager,* Western EcoSystems Technology, Inc., Bismarck, North Dakota
2005-2015	*Senior Manager/Project Manager*, Western EcoSystems Technology, Inc., Bismarck, North Dakota
1995-2005	*Wildlife Biologist/Project Manager*, Western EcoSystems Technology, Inc. Cheyenne, Wyoming
1994	*Wetland Ecology Teaching Assistant,* University of Wyoming, Laramie Wyoming
1994	*General Biology Teaching Assistant,* University of Wyoming, Laramie, Wyoming
1992-1995	*Graduate Research Assistant,* University of Wyoming, Laramie, Wyoming
1992	*Environmental Technician*, Falkirk Mining Company, Underwood, North Dakota
1988-1992	*Research Assistant,* North Dakota State University, Fargo, North Dakota

EDUCATION

M.S.
University of Wyoming
Laramie, Wyoming
1995
Zoology

B.S.
Moorhead State University
Moorhead, Minnesota
1992
Biology

SPECIALTY AREAS

Mr. Derby serves as the Chief Services Officer (CSO) for WEST; in this role he is responsible for ensuring quality standards and client satisfaction. Mr. Derby assists in leading national business development and internal and external teaming opportunities for the retention and development of new business.

Project Management: Mr. Derby has been the project manager for wind energy development projects throughout the country, several large and involved multi-state natural gas, crude oil, and natural gas liquid pipeline development projects in the western and Midwestern U.S., and numerous other projects throughout the country. As project manager, Mr. Derby has insured that the federal and state listed species, wildlife, wetland, vegetation surveys and reviews are completed on time, in budget, and to the resource agencies and client's high demands. As part of managing numerous projects from across the country, Mr. Derby has worked with resource agencies and development personnel to address the biological and regulatory needs of many species including the whooping crane, eagles, piping plovers, least terns, and other state and/or federally listed species.

Cooperative Agreements and Consensus Building: Mr. Derby was the Assistant Executive Director to the Platte River Endangered Species Partnership. Mr. Derby has experience facilitating meetings, consensus building and coordinating with representatives from the States of Nebraska, Wyoming, Colorado, Department of the Interior, water users, and environmental organizations. This work involved working with and building consensus among a very diverse group of stakeholders and interested parties related to pallid sturgeon, least terns piping plovers and whooping cranes. Mr. Derby has provided several presentations on whooping crane habitat use at international meetings and prepared habitat management methods documents and monitoring protocols for targeted threatened and endangered species.

Wildlife Studies: Mr. Derby has conducted numerous wildlife studies, including general wildlife observations and census studies for natural gas pipelines, wind energy developments, highway corridor projects and reclaimed coal mine land; conducting breeding bird counts of song birds, waterfowl, upland birds, and raptors; nest searching and nest monitoring of waterfowl; small mammal identification surveys and trapping; prairie grouse lek counts; aerial surveys for big game and raptor nests; black-footed ferret searches; aquatic macroinvertebrate and habitat bioassessments; and wetland delineations.

Fisheries and Piscivorous Bird Research: Mr. Derby has extensive field research experience investigating food habitats of cormorants and pelicans. Experience in fish habitat investigations, macroinvertebrate sampling, water quality investigations and fish kill investigations.

Soils and Hydrology Field Work: Experience with field research in plant, water, and soil sampling of research plots, private fields, and drainage lysimeters to monitor nitrogen movement under irrigated corn; laboratory experience in the analysis of various plant, water, and soil samples for nitrogen and phosphorus content determination; wetland delineations.