Evaluation

of

Need for a Supplemental Environmental Impact Statement

for the

Application for an Incidental Take Permit for the

R-Project Transmission Line

December 17, 2018

The U.S. Fish and Wildlife Service (Service) released a Draft Environmental Impact Statement (DEIS) for the Application for an Incidental Take Permit (ITP) associated with the Habitat Conservation Plan (HCP) for the R-Project Transmission Line on May 12, 2017. The Service announced two public comment periods for the DEIS and the HCP. The last public comment period closed on November 7, 2017. The Service received a letter dated May 23, 2018, from Meyer Glitzenstein & Eubanks, LLP (MG&E) that petitions the Service to prepare a supplemental environmental impact statement (SEIS) for the ITP, HCP, Draft Migratory Bird Conservation Plan (MBTA), and Draft Restoration Management Plan for the proposed R-Project transmission line (R-Project) in Nebraska. This letter contained several exhibits, including a letter dated March 22, 2018, to the Service from Clive Trimble of Valentine, Nebraska, which provided information regarding wind energy development in Cherry County. The Center for Biological Diversity also submitted the MG&E letter and its exhibits to the Service. The letters argue that significant new information has come to light regarding three categories of information: (1) R-Project's direct impacts on whooping crane; (2) the indirect or cumulative effects from wind energy development that may be associated with the project, and (3) impacts on historic and cultural resources. The letter and exhibits are in Attachment A of this document.

After careful consideration of the arguments and information in the MG&E letter and exhibits, the Service has determined that none of the three areas of new information trigger the need for supplementing the DEIS under 40 CFR 1502.9(c)(1) or the Council on Environmental Quality's (CEQ) Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981. This document provides our evaluation of the new information and the basis of our determination.

Requirements for Supplementing an EIS

An agency must prepare a supplement to a DEIS or final EIS (FEIS) if, after circulation of a draft or final EIS but prior to implementation of the Federal action:

- the agency makes substantial changes to the proposed action that are relevant to environmental concerns (40 CFR 1502.9(c)(1)(i));

- there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its effects (40 CFR 1502.9(c)(1)(ii)); or
- the agency adds a new alternative that is outside the spectrum of alternatives already analyzed (see Question 29b,CEQ, Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981)

Purpose of the Service's Proposed Action

The purpose of the Service's proposed action of approving an HCP and issuing a permit is to authorize take of the beetle incidental to the construction, operation, and maintenance (including emergency repairs) of the R-Project, while ensuring conservation of the species by minimizing and mitigating the impacts from the anticipated take to the maximum extent practicable. The need for the Service's Proposed Action is to respond to the Nebraska Public Power District's (NPPD) application for a permit and determine whether permit issuance is appropriate.

New Information at Issue since Publication of the DEIS

The new information available since publication of the DEIS, excerpted from the Meyer, Glitzenstein & Eubanks, LLP letter, includes:

Whooping crane: "After the comment period ended and in response to the Landowners' comments and independent risk assessment by leading whooping crane experts, see Karine Gil & Enrique Weir, Scientific Analysis and Comments Regarding the R-Project Draft Habitat Conservation Plan and Potential Impacts to the Endangered Whooping Crane: Analysis of Whooping Crane Powerline Collision Risk 38 (September 10, 2017) (demonstrating that there is a high likelihood of whooping cranes being killed and injured in collisions with the Project as presently contemplated), the FWS hired an independent expert, Dr. Craig Davis, to review NPPD's risk assessment and offer his "independent opinion" on its methods and conclusions. See Craig A. Davis, *Review of Whooping Crane Risk Assessment Documents for the Draft Environmental Impact Statement on Issuance of an Incidental Take Permit and Implementation of a Habitat Conservation Plan for the R-Project Transmission Line 3* (2018).

The new information contained in Dr. Davis's report demonstrates that the R-Project will "affect the quality of the human environment . . . to a significant extent not already considered" in the DEIS. *Marsh*, 490 U.S. at 374."

The new information and analyses referenced above can be viewed in the Service's memorandum on whooping crane collision risk posted on www.regulations.gov under docket number FWS-R6-ES-2014-0048, along with all the other documents for the FEIS available for public inspection.

Wind Energy: "After the comment period ended, Cleve Trimble, a directly affected constituent, submitted to the FWS new information concerning the extent of wind energy development in Cherry County, which is adjacent to the R-Project's proposed route. See Letter from Cleve Trimble to Eliza Hines, Supervisor, Fish & Wildlife Serv. (Mar. 22, 2018) (Ex. A). Specifically, Mr. Trimble submitted maps developed from public records held at the Cherry County Courthouse, which showed that wind energy development associated with the R-Project

was already underway. See Ex. B. Those records indicated that at least forty-seven landowners in Cherry County alone are "participants" in Cherry County Wind, LLC ("CCW"), a private wind development enterprise. See Ex. A. Moreover, CCW's website claims that over 450,000 acres of land in the vicinity of the R-project are already enrolled, See Cherry Cty. Wind, LLC, *History of Cherry County Wind*, http://www.cherrycountywind.com/history/ (Ex. C), nearly all of which are within the ranges of both the whooping crane and the American burying beetle. Mr. Trimble reported that CCW's "development is directly linked to the expected availability of the R- Project." Ex. A. Significantly, Mr. Trimble also reported that NPPD had actively solicited CCW's support for the R-Project, and worked to encourage wind development in the area."

Cultural and Historic Resources: "New information unaddressed in the DEIS points to additional significant impacts on historic and cultural resources. For example, the R-Project will further endanger the final resting place of a group of gold prospectors who were afflicted with cholera and died on their way to California. *See* Irene North, *NPPD, Historical Society Working to Preserve Oregon Trail Ruts*, N. Platte Telegraph (Apr. 26, 2018) (Ex. D). According to Amanda Gibbs, president of the Nebraska chapter of the Oregon-California Trails Association, the group was unique because it comprised people of several races. *Id*. Detailed primary and secondary sources place the graves near the Sutherland ruts, directly in the path of the R-Project. The R-Project's impacts to such a significant cultural resource were never contemplated in the DEIS, nor were any alternatives to avoid adverse effects on the site."

Analysis in the DEIS Related to the New Information

Whooping Crane: Whooping crane occurrence in the study area and risk of collision with the R-Project transmission line were discussed in the DEIS, Chapter 3, Section 3.7.7. The DEIS described the potential for the R-Project transmission line to present a long-term collision hazard for whooping cranes. NPPD's risk assessment calculations completed for the R-Project, as described in the draft HCP, suggested that the likelihood of whooping crane collisions with the R-Project transmission line would be extremely low, resulting in a risk value of less than one collision over the 50-year life of the Project. The Service conducted a separate whooping crane collision risk assessment in the DEIS that also concluded the risk of whooping crane mortality from collision with the R-Project transmission line would be low (Appendix E in the DEIS). Additionally, the DEIS described the avoidance, minimization, and mitigation measures and further described in the draft HCP and MBCP would further reduce the risk of collisions.

Wind Energy: The potential for wind energy development was discussed in the DEIS in Chapter 3, *Direct and Indirect Effects*, and Chapter 4, *Cumulative Action Scenario*. When discussing the indirect effects of the action alternatives in Chapter 3, *Direct and Indirect Effects*, the Service acknowledges that "By providing transmission access for future wind energy Projects, the R-Project could lead to the development of more wind power generation in the region. However, the exact number and location of such projects cannot be predicted at this time." In Chapter 4, *Cumulative Action Scenario*, the Service stated that "While a number of wind energy projects have been announced and discussed with landowners and the Service, none of these have yet signed an interconnection agreement with NPPD, with the exception of the Thunderhead Wind Energy Center. Thus, none of these potential future wind energy projects meet the definition of a reasonable foreseeable future project as defined by CEQ (see introductory text to Chapter 4, Step 3). Thus, this type of future project is treated in a generic

manner within the cumulative impact analysis." As such, the Service considered the potential impacts of wind development in general on each of the resource factors as part of its cumulative impacts analysis.

Cultural and Historic Resources: In Chapter 3.10, *Cultural Resources* of the DEIS, the Service analyzed the effects of the proposed action and alternatives on cultural and historic resources in the project area, including potential direct and indirect effects on six identified historic properties in the project study area. Efforts to identify and evaluate historic properties included, but were not limited to, reviews of Nebraska State Historical Society records, public scoping, field investigations, and archaeological field surveys. Pedestrian surveys were conducted by POWER Engineers in 2015 and 2016 as right-of-entry to private property had been obtained.

Chapter 3.10.1.2 *R-Project Section 106 Consultation* described the Service's formal consultation process with 19 potentially affected tribes, which began in October 17, 2014. The Service had not included the Cherokee Nation among the list of tribes contacted, because it had not been aware of any potential cultural or historic relationship of the Cherokee Nation with the project area. The DEIS also describes the Service's process for including the Nebraska State Historic Preservation Office (Nebraska SHPO) as a cooperating agency and to assist in the Service's compliance with section 106 of the National Historic Preservation Act, including descriptions of site visits, meetings, and correspondences.

Chapter 3.10. 4 *Avoidance, Minimization, and Mitigation Measures* states that the Service prefers avoidance of adverse effects to historic properties by not allowing permanent or temporary disturbance from construction activities on or directly adjacent to significant cultural resources and by avoiding visual impacts to sites that gain their significance from their setting. However, if avoidance is not possible, the Service would consult with the Nebraska SHPO, NPPD, and other consulting parties to identify treatment that is reasonable and in the public interest. The DEIS also lists numerous measures that NPPD would implement to avoid, minimize, and mitigate potential effects significant cultural resources.

Analysis of the New Information

Whooping Crane: The Service reviewed and summarized information about the risk of whooping cranes colliding with the R-Project transmission line during migration in Section 3.7.7 *Special Status Species, Whooping Crane*, of the FEIS. New information received since the DEIS, including information contained in Dr. Davis' report and the whooping crane satellite location data, is discussed in Section 3.7.7. Furthermore, the Service fully addressed concerns about whooping crane impacts, including collision risk, in its response to public comments in our Analysis of Public Comments on the DEIS in Concern Statements 5.8-1 through 5.8-9.

The Service's review of the various methods and best available science continue to conclude that the risk of whooping crane collision is low (less than 0.5 whooping cranes over the 50-year life of the project). The Service incorporated the satellite location data and found that the risk assessment yielded the same results as methods derived without incorporating the satellite location data. The Service has found no scientifically agreed-upon methodologies that more accurately assess whooping crane collision risk than the analyses conducted by the Service.

NPPD concludes in its HCP that the likelihood of whooping crane collisions with the R-Project transmission line is extremely low. The Service concludes that there is no scientifically reliable evidence that take of whooping cranes from collision with the R-Project transmission line is reasonably certain to occur.

Therefore, we determined that information provided about whooping cranes does not meet the criteria for supplementing our EIS under 40 CFR 1502.9(c)(1). Specifically, we did not make substantial changes to the proposed action as a result of the new information after publication of the DEIS (40 CFR 1502.9(c)(1)(i)), because subsequent evaluation did not change the Service's conclusion that the risk of collision by whooping cranes is low. For the same reason, the new information and its use in the Service's evaluations subsequent to the DEIS do not have bearing on the proposed action and its impacts described in the DEIS (40 CFR 1502.9(c)(1)(ii).

Wind Energy: The Service revised Chapter 4, *Cumulative Impacts*, of the FEIS based public comments on the DEIS to include additional information about the cumulative effects of future wind energy development, describe a typical wind farm development, and analyze general impacts associated with such a development for each environmental resource category evaluated in the FEIS. Furthermore, the Service fully addressed concerns about impacts from potential wind development resulting from the R-Project in its response to public comments in our Analysis of Public Comments on the DEIS in Concern Statements 5.16-1 and specifically potential wind development in Cherry County in 5.16-2. Further responses regarding wind energy development are in Concern Statements 5.6-15; 5.7-2 and 6; 5.11-3; 5.16-4; 5.16-5 through 5.16-10; 5.22-5, 6, and 14; and 5.26-1 and 6.

Based on concerns expressed in DEIS public comments, the Service explored existing information on parcels of leased or invested lands for the purposes of wind energy development in Cherry County and a number of wind development projects being considered in Nebraska, as summarized on the Nebraska Energy Office website referenced in a public comment. The Nebraska Energy Office website lists the following information about a wind project being considered in Cherry County, which the public commenter refers to as the BSH Cascade, LLC project: "One hundred forty–seven (147) turbines are to be constructed for the Cherry County Wind Farm from July 2018 to July 2020 by Bluestem Energy Solutions. The turbines will be located in southeast Cherry County near Thedford (NEO 2018a)." However, the Service was not able to find any publicly available information that specifically describes the status of this potential project, its specific potential location, or other details essential to analyzing the specific cumulative impacts it might pose. Leases or invested lands, meetings between local boards and developers, evaluations from the FAA, and registration of meteorological equipment towers are not sufficient information to analyze the specific potential impacts of these activities in a cumulative impacts analysis.

Overall, the specific locations and details of reasonably foreseeable future wind development activities are unknown, except for the Thunderhead Wind Energy Center, which is the only wind energy project located in the analysis area with a signed interconnection agreement. Therefore, while wind development as a type of action may be reasonably foreseeable, there is insufficient information in terms of the number of projects, their configuration, whether funding exists, whether environmental reviews have occurred, and whether permits have been issued or power purchase agreements entered into to provide a detailed analysis regarding wind development in the FEIS.

The R-Project transmission line has a designed capacity to carry a certain amount of energy, regardless of the generation source. The capacity is also dynamic, i.e., constantly fluctuating. In an interconnected transmission system, the entire system must be analyzed under various loading scenarios and contingency events to determine whether sufficient transmission capacity is available to provide incremental generator interconnection service. Thus, it is impossible to predict the number of turbines that the R-Project would be able to accommodate or to predict what other loads or supplies could also materialize that would consume the capacity of the line.

At this time, NPPD is not proposing to construct any transmission lines, distribution lines, or substations to connect the R-Project to any specific wind energy project(s). Future wind energy development projects that interconnect to the R-Project may trigger permits or other authorizations from federal agencies; these subsequent federal agency actions (e.g., issuance of a permit for take of a federally listed species or authorization to connect to a federally owned and managed transmission line) may require additional NEPA documentation. Because the R-Project would be in place at that time, existing impacts from the R-Project would be considered in the analysis for that project.

We determined that information that MG&E provided about wind energy development does not meet the criteria for supplementing our EIS under 40 CFR 1502.9(c)(1). First, the Service did not make substantial changes to the proposed action as a result of the new information after publication of the DEIS (40 CFR 1502.9(c)(1)(i)). The information regarding wind development in the letters from MG&E and Mr. Trimble did not provide details on any specific future wind projects. Thus, the Service did not receive informations sufficient for analyses of impacts beyond a general cumulative effects analysis of future potential wind development, nor did the Service find sufficient details in further investigation of potential wind energy projects conducted after receiving public comments on the DEIS. Second, the Service determined that the information provided in the letters does not trigger a supplemental EIS because it does not provide "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." The information in the letters is not considered "significant new circumstances or information" (40 CFR 1502.9(c)(1)(ii)) relevant for a supplemental EIS because the letters did not provide sufficient details for meaningful analyses of directs and indirect effects of reasonably foreseeable future wind energy development. Moreover, the information in the letters is not significantly new; public commenters submitted similar concerns regarding the general potential of future wind energy development in the R-Project area. We addressed these concerns through changes in the FEIS and in responses to public comment. Thus, many of the concerns raised in the letters were already addressed through the regular public comment process on the DEIS.

Cultural and Historic Resources: MG&E's letter asserts that new information, not addressed in the DEIS, indicates that remains of gold prospectors are "near the Sutherland ruts, directly in the path of the R-Project." The letter cites an article in the North Platte Telegraph for this information. Based on the information in the article along with historic records, we determined that the referenced remains of the eight prospectors who died of cholera are the ones described by the Cherokee Nation in a letter to us of July 6, 2018 (Attachment B).

The exact location of the remains in relation to the R-Project is unknown. In a July 6, 2018, letter, the Cherokee Nation stated that the remains are thought to be near the I-80 eastbound exit

near Sutherland, which appears to be west of the transmission line route. In their letter, the Cherokee Nation requested discussing whether surveys with non-invasive methods may be necessary if the undertaking cannot avoid the area where the remains may occur. The Service will continue tribal consultation with the Cherokee Nation as requested. NPPD's stated intention is to avoid impacts to these graves by micro-siting should they be discovered to be within the project area.

Furthermore, The Programmatic Agreement between the U.S. Fish and Wildlife Service (USFWS), The Nebraska State Historic Preservation Office (NE SHPO), Nebraska Public Power District (NPPD), and The Advisory Council on Historic Preservation (ACHP) regarding the Federal Undertaking Associated with the Construction, Maintenance, and Operation of the R-Project 345 kilovolt Transmission Line (R-Project) (Programmatic Agreement) provides specific steps to respond to unanticipated discovery of human remains. These steps will ensure the Service and NPPD will comply with the Unmarked Human Burial Sites and Skeletal Remains Protection Act, Neb. Rev. Stat. §§ 12-1201 to 12-1212.

Thus, we determined that the criteria for supplementing the DEIS under 40 CFR 1502.9(c)(1) have not been met. Specifically, as a result of the information about the remains that were brought to light after we published the DEIS, no substantial changes to the proposed action were made (40 CFR 1502.9(c)(1)(i)). Following the terms of the Programmatic Agreement, continuing tribal consultation, and micro-siting to avoid remains, if discovered, would not represent a substantial changes to the action. Although this new information about the existence of the remains is important, it does not have bearing on the proposed action and its impacts described in the DEIS (40 CFR 1502.9(c)(1)(iI)), because our combined efforts for tribal consultation with the Cherokee Nation, implementing Programmatic Agreement procedures, and NPPD's goal to avoid impacting the remains are anticipated to result in no impacts additional to or different from those analyzed in the DEIS.

Summary of the Service's Conclusion

Here we summarize the basis of our conclusions for each trigger for supplementing an EIS under 40 CFR 1502.9(c)(1) and CEQ's Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981.

The agency makes substantial changes to the proposed action that are relevant to environmental concerns (40 CFR 1502.9(c)(1)(i))

- Substantial changes were not made to the proposed action as a result of the new information regarding whooping crane collision risk after publication of the DEIS, because subsequent evaluation did not change the Service's conclusion that the risk of collision by whooping cranes is low.
- Substantial changes were not made to the proposed action as a result of information regarding wind energy development, because details were not available on any specific wind projects sufficient for analyses of impacts beyond a cumulative effects analysis of future potential wind development in general, nor did the Service find sufficient details in

further investigation of potential wind energy projects conducted after receiving public comments on the DEIS.

- Substantial changes were not made to the proposed action as a result of the new information on the potential existence of remains of members of the Cherokee Nation near the project area, because following the terms of the Programmatic Agreement, continuing tribal consultation, and micro-siting to avoid remains, if discovered, would not represent a substantial changes to the action.

There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its effects (40 CFR 1502.9(c)(1)(ii)).

- Because subsequent evaluation of the new information did not change the Service's conclusion that the risk of collision by whooping cranes is low, this information does not have bearing on the proposed action or its effects..
- The information on potential wind energy development provided in the letters is not considered "significant new circumstances," because it did not provide sufficient details for meaningful analyses of directs and indirect effects. However, the Service addressed similar information provided during the public comment period in the FEIS and responses to public comments. While the information in the letters is "relevant to environmental concerns," it does not provide "significant new circumstances or information."
- Although this new information about the existence of the remains of members of the Cherokee Nation is important, it does not have bearing on the proposed action and its impacts described in the DEIS, because our combined efforts for tribal consultation with the Cherokee Nation, implementing Programmatic Agreement procedures, and NPPD's goal to avoid impacting the remains are anticipated to result in no impacts additional to or different from those analyzed in the DEIS.

The agency adds a new alternative that is outside the spectrum of alternatives already analyzed (Question 29b,CEQ, Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981).

- The Service has not added a new alternative outside the spectrum of alternatives already analyzed.

In conclusion, the information provided in MG&E's letter on whooping crane collision risk, wind energy development, and historic and cultural resources did not result in substantial changes to the proposed action, cause us to add a new alternative, have bearing on the proposed action and the Service's assessment of impacts, or result in significant effects outside the range of effects already analyzed. Therefore, the Service has determined that supplementing the DEIS is not required.

ATTACHMENT A

Request to Supplement the Draft Environmental Impact Statement for the R-Project Transmission Line Habitat Conservation Plan and Incidental Take Permit from Meyer Glitzenstein & Eubanks LLP with Exhibits

Meyer Glitzenstein & Eubanks LLP

4115 Wisconsin Avenue, N.W., Suite 210
Washington, D.C. 20016
Telephone (202) 588-5206
Fax (202) 588-5049
lmink@meyerglitz.com

2601 S. Lemay Ave., #7-240
Fort Collins, CO 80525
Telephone (970) 703-6060
Fax (202) 588-5049
beubanks@meyerglitz.com

May 23, 2018

By Electronic and Certified Mail

Eliza Hines
Field Supervisor
U.S. Fish and Wildlife Service
9325S Alda Road
Wood River, NE 68883
eliza_hines@fws.gov

Re: Petition for a Supplemental Draft Environmental Impact Statement Regarding the Incidental Take Permit Application and Associated Materials for the R-Project Transmission Line in North-Central Nebraska, Docket No. FWS-R6-ES-2014-0048

On behalf of a number of directly affected and interested landowners – Hanging H Real Estate Co. LLC, Bob Price, Jim Haughland, Jim Fleecs, Amy Ballagh, and Lemoyne Dailey (hereafter "Landowners") – we hereby petition the U.S. Fish and Wildlife Service ("FWS") to prepare a Supplemental Draft Environmental Impact Statement for the Incidental Take Permit ("ITP") Application, Draft Habitat Conservation Plan ("DHCP"), Draft Migratory Bird Conservation Plan ("DMBCP") and Draft Restoration Management Plan ("DRMP") for the R-Project Transmission Line in north-central Nebraska (the "R-Project").[1]

As discussed below, after the publication of the Draft Environmental Impact Statement ("DEIS") for the R-Project, significant new information has come to light concerning the R-Project's impacts on the environment, wildlife, and historic/cultural resources. This new information pertains directly to environmental concerns, and demonstrates that the R-Project will impact the environment in a manner not considered in the DEIS. Therefore, the FWS cannot satisfy its obligation to take a "hard look" at the environmental impacts of the R-Project without a supplemental analysis that is made available for public comment.

Statutory Background

Under the National Environmental Policy Act ("NEPA") and implementing regulations, the FWS is required to "prepare supplements to *either* draft or final environmental impact

[1] This petition supplements and incorporates by reference all prior scoping comments, comments on the ITP Application and draft materials, and attachments to those comments submitted by or on behalf of the Landowners.

statements if . . . [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c) (emphasis added); *see also* 516 Dep't of the Interior Manual 4.5 (requiring supplemental statements where "new circumstances, or resultant significant effects are not adequately analyzed in the previously prepared EIS"). When "new information is sufficient to show [the proposed action] will affect the quality of the human environment in a significant manner or to a significant extent not already considered," the agency *must* prepare a supplemental environmental impact statement to consider the changes and their impacts. *Marsh v. Ore. Nat. Res. Council*, 490 U.S. 360, 374 (1989). This standard is clearly satisfied with regard to three categories of information: (1) the R-Project's direct impacts on endangered whooping cranes; (2) the indirect (and/or cumulative) effects associated with wind power expansion; and (3) historic and cultural resource impacts. Any one of these categories of new information is sufficient to trigger the need for a Supplemental DEIS, including a revised consideration of alternatives for avoiding or minimizing adverse impacts. In combination, the new information bearing on these distinct impacts renders the need for a Supplemental DEIS overwhelming.

The Reasons Why A Supplemental DEIS Is Required

A. New Information Concerning the R-Project's Impacts on Whooping Cranes Demonstrates that the R-Project Will Affect the Species to a Significant Extent Not Already Considered, and Must be Fully Examined in a Supplemental Draft Environmental Impact Statement.

The DEIS concluded that the whooping crane need not be addressed as a "covered" species in the ITP/HCP because the "risk of whooping crane mortality from collision with the R-Project transmission line would be low," and the effects associated with habitat disturbance "would not rise to the level of take because of the use of bird flight diverters and the abundance of nearby suitable habitat." DEIS at 3-181. In reaching this conclusion, the DEIS relied heavily on a risk assessment conducted by NPPD. After the comment period ended and in response to the Landowners' comments and independent risk assessment by leading whooping crane experts, *see* Karine Gil & Enrique Weir, Scientific Analysis and Comments Regarding the R-Project Draft Habitat Conservation Plan and Potential Impacts to the Endangered Whooping Crane: Analysis of Whooping Crane Powerline Collision Risk 38 (September 10, 2017) (demonstrating that there is a high likelihood of whooping cranes being killed and injured in collisions with the Project as presently contemplated), the FWS hired an independent expert, Dr. Craig Davis, to review NPPD's risk assessment and offer his "independent opinion" on its methods and conclusions. *See* Craig A. Davis, *Review of Whooping Crane Risk Assessment Documents for the Draft Environmental Impact Statement on Issuance of an Incidental Take Permit and Implementation of a Habitat Conservation Plan for the R-Project Transmission Line* 3 (2018).

The new information contained in Dr. Davis's report demonstrates that the R-Project will "affect the quality of the human environment . . . to a significant extent not already considered" in the DEIS. *Marsh*, 490 U.S. at 374. As demonstrated by Dr. Davis's analysis, the best available science confirms that NPPD's risk assessment "oversimplifie[d] the potential risk that the R-

Project poses to migrating whooping cranes."[2] Davis, *supra* at 3. Indeed, NPPD relied on inaccurate historic whooping crane sightings data despite the availability of more recent and accurate location data, improperly excluded from its analysis "factors that may make whooping cranes more vulnerable to power line collisions,"[3] incorrectly assumed that all transmission lines within the migration corridor pose the same risk to whooping cranes,[4] and significantly underestimated the amount of suitable habitat that would be impacted by the R-Project.[5] *See id.* at 2-10. Dr. Davis concluded that NPPD's approach to calculating collision risk that was "*not justifiable*," and "skew[ed] their results lower." *Id.* at 4 (emphasis added). Moreover, Dr. Davis determined that "NPPD's current description of their whooping crane survey and monitoring protocol is insufficient" to ensure minimum disturbance to whooping cranes during the construction of the R-Project. *Id.* at 9. Thus, Dr. Davis's report raises serious concerns regarding NPPD's analysis of impacts on a highly endangered species that were not addressed (or even

---

[2] Dr. Davis faulted NPPD for relying solely on the historic whooping crane sightings data compiled by the FWS when a more recent and accurate location data collection based upon GPS tracking would "provide a more comprehensive and accurate representation of whooping crane occurrences in the R-Project [a]rea." Davis, *supra* at 3. He noted that the historical data used by NPPD relied on "incidental observations that are influenced by observer accessibility to an area and [the] number of observers likely to be in an area." *Id.* at 2. In contrast, the Whooping Crane Tracking Partnership's location data – collected by marking individual whooping cranes with GPS transmitters from 2010 until 2014 – presented an "unbiased," "consisten[t]," and "accura[te]" data collection, and the "best available science." *Id.* at 2-3.

[3] According to Dr. Davis, such factors include: "flight characteristics of whooping cranes, response to environmental conditions, vision, age and sex, behavior response to disturbance." Davis, *supra* at 3-4.

[4] Dr. Davis criticized the "rather simple mathematical equation" that NPPD used to estimate the risk of whooping crane collisions with the R-Project transmission line, and explicitly stated that NPPD's assumption that all transmission lines within the migration corridor pose the same risk to whooping cranes "is incorrect given that not all transmission lines are located near or over potential whooping crane habitat." Davis, *supra* at 4.

[5] Dr. Davis also criticized NPPD's habitat suitability model, and detailed "several flaws . . . that result[ed] in an underestimation of suitable wetlands [habitat] for whooping cranes." Davis, *supra* at 7. NPPD used a desktop whooping crane habitat assessment tool to identify suitable stopover habitat located within one mile of the R-Project. *Id.* Notably the assessment "focuse[d] on potential wetland stopover sites that may be suitable for migrating whooping cranes, but d[id] not include riverine habitats . . . that may provide roosting habitat for whooping cranes." *Id.* at 6. Additionally, NPPD improperly eliminated wetlands as unsuitable for whooping cranes either without sufficient explanation, or based on the incorrect assumption that wetlands smaller than 0.25 acres do not provide suitable stopover habitat for whooping cranes. *Id.* at 8. In fact, as Dr. Davis reported, whooping cranes have been observed using wetlands less than 0.25 acres *within the one-mile zone* around the proposed R-Project. *Id.*

considered) in the DEIS. This is the paradigmatic example of new information that must be considered, and made subject to public scrutiny, in a Supplemental DEIS.[6]

Indeed, not only is the standard for a Supplemental DEIS obviously satisfied by Dr. Davis's analysis, but "NEPA's aims for environmental protection" forbid the FWS from "ignor[ing] reputable scientific criticisms that have surfaced." *Seattle Audubon Soc'y v. Espy*, 998 F.2d 699, 703–04 (9th Cir.1993) (affirming injunction because agency did not consider intervening FWS report that "'raise[d] serious questions'" about the agency's analysis). Therefore, the FWS must take a "hard look" at the new information contained in Dr. Davis's report and reexamine the project's impacts on whooping cranes based upon a more accurate risk assessment. *See Habitat Educ. Ctr., Inc. v. U.S. Forest Serv.*, 673 F.3d 518, 528 (7th Cir. 2012) (holding that agencies are required to take a "hard look" at the new information when deciding whether to supplement their environmental analyses). The FWS must also reconsider whether to include the species in the HCP and ITP based on this new information.

In short, Dr. Davis's findings, which were solicited by FWS itself, necessitate substantial changes to the FWS's consideration of impacts to whooping cranes, how those impacts should be analyzed, and a reconsideration of whether the whooping crane must be covered by the ITP/HCP. While NEPA does not require an additional round of public comments every time an agency revises its analysis during the environmental review process, a supplement to a draft EIS "*is required* . . . when changes are substantial, and . . . if the substantial change is relevant to environmental concerns." *Mid-States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520 (8th Cir. 2003) (emphasis added). The public must also be permitted to comment on such substantial modifications to the agency's analysis. *See Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (noting NEPA's "twin aims" of ensuring that agencies "consider every significant aspect of the environmental impact of a proposed action" and "inform the public that it has indeed considered environmental concerns in its decisionmaking process" (internal quotation omitted)); *cf. NRDC v. Hughes*, 437 F. Supp. 981, 989-90 (D.D.C. 1977) (holding that a substantial modification to the alternatives analysis between the draft and final EIS contravened the purpose of NEPA as an "environmental full disclosure law" and the statutory requirement of public consultation). Consequently, the FWS *must* prepare and circulate a draft supplemental EIS that fully discusses this new information. *See* 40 C.F.R. § 1502.9(c).

B. New Information Regarding Wind Energy Development Must be Fully Examined in a Supplemental Draft EIS.

The DEIS identifies one of the central purposes of the R-Project as "provid[ing] opportunities for development of renewable energy projects, including wind power, in

[6] The Landowners do not agree with the entirety of Dr. Davis's analysis, including some instances in which he parts company with the Gil and Weir assessment of risk. That, however, merely reinforces the need for supplemental NEPA analysis so that the public can opine, in the manner contemplated by NEPA, on vital scientific questions that have been raised concerning the impact of the R-project (and the wind power it is designed to facilitate) on a highly endangered species that NPPD has insisted on excluding from ITP/HCP coverage.

Nebraska," DEIS at 1-7, an overt acknowledgement that extensive wind power development is an anticipated indirect effect of the construction of the transmission line. However, the DEIS *never* evaluated the impacts of increased wind development. In the impacts analysis in the DEIS, the FWS notes only that "the R-Project *could* lead to the development of more wind power generation in the study area." *See, e.g.*, DEIS at 3-260, 3-323 (emphasis added). NPPD has maintained that the FWS does not have to examine the cumulative or indirect effects of wind energy development because such impacts are not "reasonably foreseeable" and – most relevant here – because it does not know enough about where potential wind facilities may be located.[7]

After the comment period ended, Cleve Trimble, a directly affected constituent, submitted to the FWS new information concerning the extent of wind energy development in Cherry County, which is adjacent to the R-Project's proposed route. *See* Letter from Cleve Trimble to Eliza Hines, Supervisor, Fish & Wildlife Serv. (Mar. 22, 2018) (Ex. A). Specifically, Mr. Trimble submitted maps developed from public records held at the Cherry County Courthouse, which showed that wind energy development associated with the R-Project *was already underway*. *See* Ex. B. Those records indicated that at least forty-seven landowners in Cherry County alone are "participants" in Cherry County Wind, LLC ("CCW"), a private wind development enterprise. *See* Ex. A. Moreover, CCW's website claims that over 450,000 acres of land in the vicinity of the R-project are already enrolled, *See* Cherry Cty. Wind, LLC, *History of Cherry County Wind*, http://www.cherrycountywind.com/history/ (Ex. C), nearly all of which are within the ranges of both the whooping crane and the American burying beetle. Mr. Trimble reported that CCW's "development is directly linked to the expected availability of the R-Project." Ex. A. Significantly, Mr. Trimble also reported that NPPD had actively solicited CCW's support for the R-Project, and worked to encourage wind development in the area.[8] *Id.*

---

[7] Insofar as NPPD has insisted in a "White Paper" that the indirect and cumulative impacts from future wind development catalyzed by the R-Project do not merit analysis in the EIS because such impacts are not "reasonably foreseeable," and that the indirect impacts from such development should also be disregarded because the R-Project is not the "legally relevant cause," *see* Neb. Pub. Power Dist., *White Paper on Cumulative Impacts and Direct Effects* (Feb. 18, 2018), its analysis is significantly flawed for the reasons set forth in the Landowners' response paper, attached hereto as Exhibit E. The Landowners incorporate the response paper by reference in their request for a Supplemental DEIS. The response reinforces the Landowners' prior comments that even aside from the new information that has come to light since the DEIS was issued, the DEIS's failure to seriously grapple with the anticipated significant expansion of wind power rendered the FWS's NEPA analysis fatally flawed. Combined with the new information demonstrating that NPPD itself has long known far more about the R-project's intricate relationship with wind power expansion than is reflected in the DEIS, the legal case for preparation of a supplemental analysis focusing on the wind power issue is open and shut.

[8] Mr. Trimble also reported that NPPD "has been involved in a series of its meetings beginning with NPPD's Chief Executive Officer (2/8/11) and running through a combined meeting with the Southwest Power Pool (8/9/11)." Ex. A. These meetings are detailed on CCW's website. *See* Cherry Cty. Wind, LLC, *supra* (noting that CCW officers met with NPPD representatives to discuss how the group could "help facilitate transmission lines in Cherry County to export [wind]

The new information submitted by Mr. Trimble is highly relevant to environmental concerns and presents "a *seriously* different picture of the environmental landscape" than was addressed in the DEIS. *Nat'l Comm. for the New River v. FERC*, 373 F.3d 1323, 1330 (D.C. Cir. 2004) (describing when agencies must issue supplements to their EISs). Although the placement of wind farms within the Central Flyway creates serious and obvious risks for special status migratory bird species, including the whooping crane, the DEIS *never considered* the effects of future wind development, dismissing such projects and their impacts as "speculative." *See, e.g.*, DEIS at 3-260, 3-323; Neb. Pub. Power Dist., *White Paper on Cumulative Impacts and Direct Effects* (Feb. 18, 2018). However, the maps identifying the tracts of land that have been reserved for wind development and the information regarding the relationship between NPPD and wind developers confirm that the impacts from wind energy development are not only reasonably foreseeable – they are fully expected and *virtually certain to occur*. The maps also demonstrate that the footprint of the R-Project has expanded to an extent not contemplated in the DEIS.[9] Thus, the proposed action "will affect the quality of the human environment . . . to a significant extent not already considered." *Marsh*, 490 U.S. at 374. Particularly given the fact – as evidenced by the scoping comments – that whooping crane and migratory bird mortality is of the greatest concern to the public, *see* DEIS at 1-13 (noting that the potential for increased migratory bird mortality was "of greatest concern to [scoping] commenters"), the FWS must take a "hard look" at the new information and fully evaluate – and allow the public to comment on – the impacts of the increased wind development that will result from the R-Project in a Supplemental DEIS. *See* 40 C.F.R. § 1502.9(c); *Habitat Educ. Ctr.*, 673 F.3d at 518.

C. New Information Concerning the R-Project's Impacts on Historic and Cultural Resources Demonstrates that the Project will Impact such Resources in a Significant Manner Not Previously Considered, which Must be Fully Examined in a Supplement to the Draft Statement.

---

energy produced by the area"). Thereafter, CCW began to recruit landowners into the Cherry County Wind Energy Association, a group formed to represent member landowners in negotiations with wind developers. *Id.* Significantly, CCW explicitly relied upon the availability of, and the ability to link wind projects to, the R-Project when courting landowners and other investors. *Id.* (recruiting potential members based on the construction of the R-Project, and promising to "represent member landowners in negotiations with potential developers who can be difficult to deal with"). Given this factual context, none of which is mentioned, let alone considered, in the DEIS, it is palpably unreasonable (and hence unlawful) for FWS to refuse to examine the impacts of wind power development concurrently with those of the construction of the R-Project in a Supplemental DEIS.

[9] While Mr. Trimble only submitted maps detailing wind power development in Cherry County, Nebraska, it is likely that similar maps could be generated based on public records in the other counties adjacent to the R-Project. This is precisely the kind of information that must be incorporated in a Supplemental SEIS. *See* 40 C.F.R. § 1502.22(a) ("If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, *the agency shall include the information in the environmental impact statement*." (emphasis added)).

The DEIS acknowledges that the R-Project will "have a long-term, high-intensity indirect (visual, auditory, and atmospheric) effect" on "a section of extremely well-preserved and intact trail ruts" of the Oregon-California Trails. DEIS at 3-306 to 3-307. These cultural resources constitute "some of the most clearly defined and preserved segments" of the trails, *id.*, and represent some of the region's most important historic and cultural treasures. NPPD's proposed final route would "bisect[] the intact portion of the ruts." *Id.*

New information unaddressed in the DEIS points to additional significant impacts on historic and cultural resources. For example, the R-Project will further endanger the final resting place of a group of gold prospectors who were afflicted with cholera and died on their way to California. *See* Irene North, *NPPD, Historical Society Working to Preserve Oregon Trail Ruts*, N. Platte Telegraph (Apr. 26, 2018) (Ex. D). According to Amanda Gibbs, president of the Nebraska chapter of the Oregon-California Trails Association, the group was unique because it comprised people of several races. *Id.* Detailed primary and secondary sources place the graves near the Sutherland ruts, directly in the path of the R-Project. The R-Project's impacts to such a significant cultural resource were never contemplated in the DEIS, nor were any alternatives to avoid adverse effects on the site.

Conclusion

For all of the foregoing reasons, the FWS is obligated to publish a Supplemental DEIS for public comment before it proceeds further in its consideration of the ITP application. We therefore hereby petition the FWS to do so, and request a response to this petition within no more than thirty days, indicating whether the FWS will issue a Supplemental DEIS and, if not, the reasons for that refusal.

Sincerely,

/s/Elizabeth Lewis

Elizabeth Lewis

/s/Eric R. Glitzenstein

Eric R. Glitzenstein

Counsel for the Landowners

cc: Bob Harms, FWS (by e-mail)
Bonnie Hostetler, NPPD (by e-mail)
Todd McWha (by e-mail)
Al Fugate (by e-mail)

March 22, 2018

Eliza Hines, Supervisor
United States Fish and Wildlife Service
9325 South Alda Road
Wood River, Nebraska 68883

RE: DEIS, NPPD 'R'-Project, (May 2017)

Dear Ms. Hines:

I respectfully request that the Draft Environmental Impact Statement dated May 2017 (DEIS) regarding Nebraska Public Power District's (NPPD) 'R'-Project be revised in light of recent information that had not been made available to the United States Fish and Wildlife Service at the time of that assessment. Public records in the Cherry County Courthouse list 47 landowners as participants in Cherry County Wind, LLC (CCW), a private wind development enterprise (Attachment#1), the land holdings of which are shaded on the sectional map of Cherry County (Attachment #2). It is likely that this list and map are incomplete because CCW's website claims an enrollment of 70, not just 47, families; the extent of its subscribed lands is thus indeterminate but likely well over the 450,000 acres claimed. For example, the Nebraska Board of Educational Lands and Funds (BELF) shows 26,491 enrolled acres, whereas it actually controls between 167,000 and 181,000 acres in Cherry County, some or all of which could eventually be added to subsequent wind development. In any case, the implications are obvious as related to the impacts and consequences of this intended extension of the 'R'-Project to essentially involve and impact almost all of Cherry County, which had not been revealed and therefore was not included in the DEIS analysis which had essentially confined/limited its analyses to the projected footprint of the transmission line *per se*.

Cherry County Wind's development is directly linked to the expected availability of the 'R'-Project, a relationship portrayed in a series of its meetings beginning with NPPD's Chief Executive Officer (2/8/11) and running through a combined meeting with the Southwest Power Pool (8/9/11), all detailed on http://www.cherrycountywind.com/history/ . In the meeting of 4/22/11 (Attachment #3), NPPD set out four requirements – one being connectivity to a transmission line -- whereupon the ensuing enlistment of landowner-participants relied upon confidence in the availability of and linkage to the 'R'-Project to a degree that enrollees have purportedly responded to several capital calls/cash infusions to CCW or one of its associated companies, *e.g.,* Bluestem Sandhills, LLC, (BSH) which does development for CCW, or to its partners Bluestem Energy Solutions or Sandhills Wind Energy. Of NPPD's other requirements, two are not in evidence, namely "environmental aspects and community support": it was perhaps hoped that the May 2017 DEIS might have sufficed to satisfy environmental concerns, and that the Cherry County Commission might act however necessary to satisfy the appearance of community support.

Although a relationship between CCW and the 'R'- Project preceded the DEIS, it was not factored therein. By linking a potentially enormous wind project over extremely fragile terrain into that transmission line – thus becoming a direct and functional extension beyond its initially analyzed connectivity -- creates a distortion of cumulative impacts upon natural and human environments far beyond what had been initially assessed. As evidenced by this map, the cumulative impacts upon Cherry County's flora and fauna in general, and endangered species in particular, will likely be enormous and is reasonably foreseeable. The construction, operations, and eventual decommissioning of turbines and supportive infrastructure

Ex. A

will impose a complex network of connecting facilities and vehicular expeditions upon extremely fragile, sensitive, porous, sandy soils throughout a region with shallow water tables that interconnect to the Ogallala aquifer. This expanded footprint was not known and therefore not contemplated in the DEIS, thus justifying reassessment of cumulative impacts before issuance of any incidental 'take' permits.

When Cherry County's zoning regulations were initially codified a decade ago, the then-chairman of the 'planning and zoning committee' also headed a wind development enterprise; yet scant attention was given to criteria for wind energy implementation because an imposition of today's turbines upon the Sand Hills was unimaginable: no one then believed that the sanctity of this special place would ever be besmirched, that the generational land stewards would never allow such a travesty. Recently, however, CCW and its developer BSH applied for a conditional use permit (BSH Kilgore), which triggered review by the 'planning and zoning committee'; and after extensive, contentious public hearings, that committee's recommended amendments to the initial (insufficiently vetted) zoning criteria were rejected on February 7, 2018 by Cherry County's Commissioners (all three of whom have a personal and/or a first-degree family member(s) with direct investments, and none recused themselves). This was the first time that any recommendation by the 'planning and zoning committee' had ever been rejected. On February 27th, 2018, and again on March 13, a request by concerned citizens for a public referendum to gauge the community's support for wind turbines (an essential requirement, according to NPPD) was also rejected by these Commissioners. This background is furnished simply to point out that in a rush to begin wind farm development (federal tax benefits expire in 2019), input to regulations *is not being allowed* to address critical features such as height; density; spacing; setbacks; corridors for viewsheds, wildlife, or prior interests of value; provisions for remediation and decommissioning; or for community support, the absence of which ablates local safeguards which, in turn, begs that the DEIS now exercise *reasonable foresight* in evaluating newly evident and potentially extensive *cumulative impacts*. Each category listed in Table 4-1 of the DEIS (Summary of the Cumulative Effects of the Project) requires that an analysis of the cumulative effects be revised with full awareness that local regulations are not likely to call for meaningful restrictions, thus enabling unforeseen or extreme impacts.

Understanding that even a single 400-foot turbine can affect the viewshed and skyline of more than 2,500 square miles, it is probable – as evidenced by the attached map -- that no place in Cherry County's 6,000 square miles will be unaffected. Destruction of the presently unfettered skyline/horizon and night sky (the major "dark region" east of the Rocky Mountains) will have deleterious effects on well-established revenue-generating recreational endeavors that are dependent upon aesthetics – canoeing, hiking, star-gazing, hunting, fishing, golfing – which provide much-needed economic diversity. Of immediate impact, lifelong alliances are now shattered, and the community is bitterly divided between those who seek to exploit the 'R'-Project and those dedicated to preserving the essence of this fragile place. Most of the latter live here for the very reasons that have earned the Nebraska Sand Hills a place in the registry of "*Natural National Landmarks*". Also included in that registry is the Valentine National Wildlife Refuge, the leadership of which has never been informed of intended wind development by CCW, another example of the furtive manner of this development. Nonetheless, the potentially massive imposition of turbines is a direct response to the 'R'-Project's availability, and absence of a competent assessment of cumulative impacts causes local discussions to be subjective, not objective, which heightens the conflict and blocks cohesion. Reassessment is necessary because we are no longer talking only about an endangered beetle but, moreover, about the potential destruction of an entire unique ecosystem and its human culture.

The National Environmental Policy Act requires agencies to evaluate the direct, indirect, and cumulative impacts of a proposed action [40 C.F.R.₹1508.25(c)]. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" [40 C.F.R. ₹1508.7]. The Department of the Interior's regulations define *reasonably foreseeable future actions* to include those federal and non-federal activities not yet undertaken but sufficiently likely to occur that a responsible official of ordinary prudence would take such activities into account in reaching a decision. These federal and non-federal activities that must be taken into account in the analysis of impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative [43 C.F.R.₹46.30].

From the above, it is evident that criteria have been met to completely re-evaluate what are reasonably foreseeable cumulative impacts. For example, funding has been initiated (multiple capital calls); existing decisions are evidenced by the 147 unit project at Thedford and BSH Kilgore; CCW has been incorporated and developed subsidiary corporate relationships. Hurriedly implementing the *'R'-Project and the wind farms that are poised to follow* in a region vaunted for its fragility, sensitivity, and uniqueness -- in the present absence of proper studies -- is made even more egregious when NPPD's longest serving director has stated: ***"the utility has enough power to supply its needs without adding additional renewable resources."*** No less notable are categorical rejections of wind turbines by Interior Secretary Zinke and President Trump. The fact that irreparable harm will be done to a planetary treasure at a time when there is no perceived need, when the technology's sustainability and value have been linked almost solely to tax benefits (Warren Buffet), is reprehensible. Risking these iconic Sand Hills forever for the fleeting financial benefit of a few (who mainly live elsewhere) speaks for itself.

Your consideration of revising the DEIS and its conclusions is appreciated.

Cleve Trimble MD, FACS

Highway 97 South
Valentine, Nebraska 69201-0427

402-376-1330

Attachments: 1. List of participants in private wind farm venture

2. Map of Cherry County with participant's parcels shaded
3. Minutes, Cherry County Wind, LLC April 2011

Cherry County Wind Energy

Friday, 22 April 2011 05:58

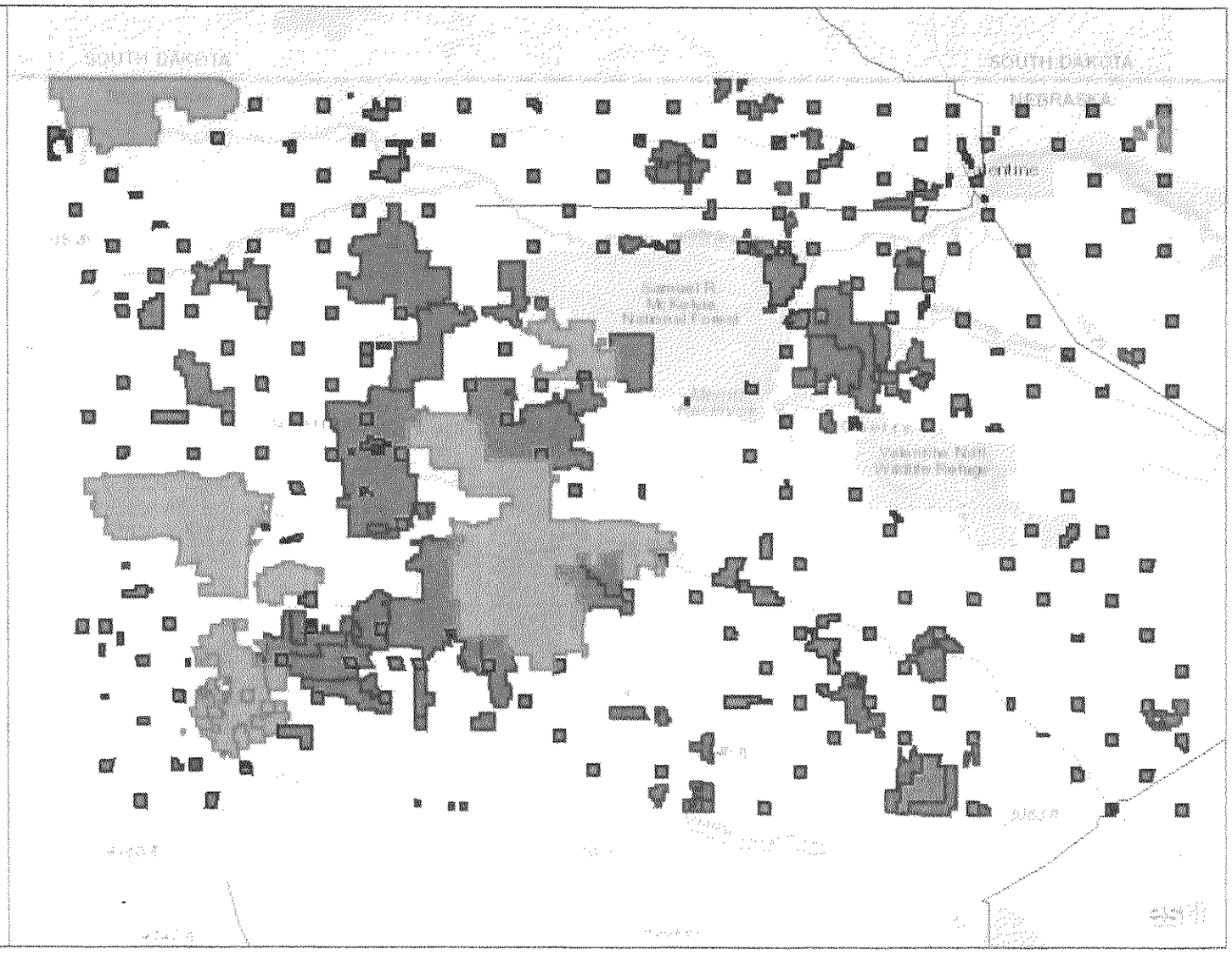
The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met with three representatives of Nebraska Public Power District on Wednesday to discuss wind energy development in Cherry County. John O'Connor and Dave Rich from NPPD were the main presenters and covered opportunities and challenges in the development of wind power in Nebraska and more specifically in Cherry County. NPPD has a goal of 10% renewable energy by the year 2020. Currently only 2% of energy comes from wind power in Nebraska. Mr. O'Connor sated that there are basically four areas to explore: prove the wind potential is there, transmission lines for export of power, environmental aspects and community support. The local committee will continue to approach this endeavor as a long term project which could have multiple benefits to the community.

Cherry County Wind, LLC lands have been designated to Bluestem Energy, LLC.

rry County Wind, LLC Investor Lands

tric Power
nsmission Lines

Map Legend	Cherry County Wind, LLC Investor Map
Ownership Color	Landowner
	Cherry County Wind, LLC Investor
	Non – Investor Proponent and/or Lobbyist for Cherry County Wind, LLC
	State of Nebraska Owned Lands



of State and Privately Invested Lands in Cherry County Wind, LLC. Map Produced by T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

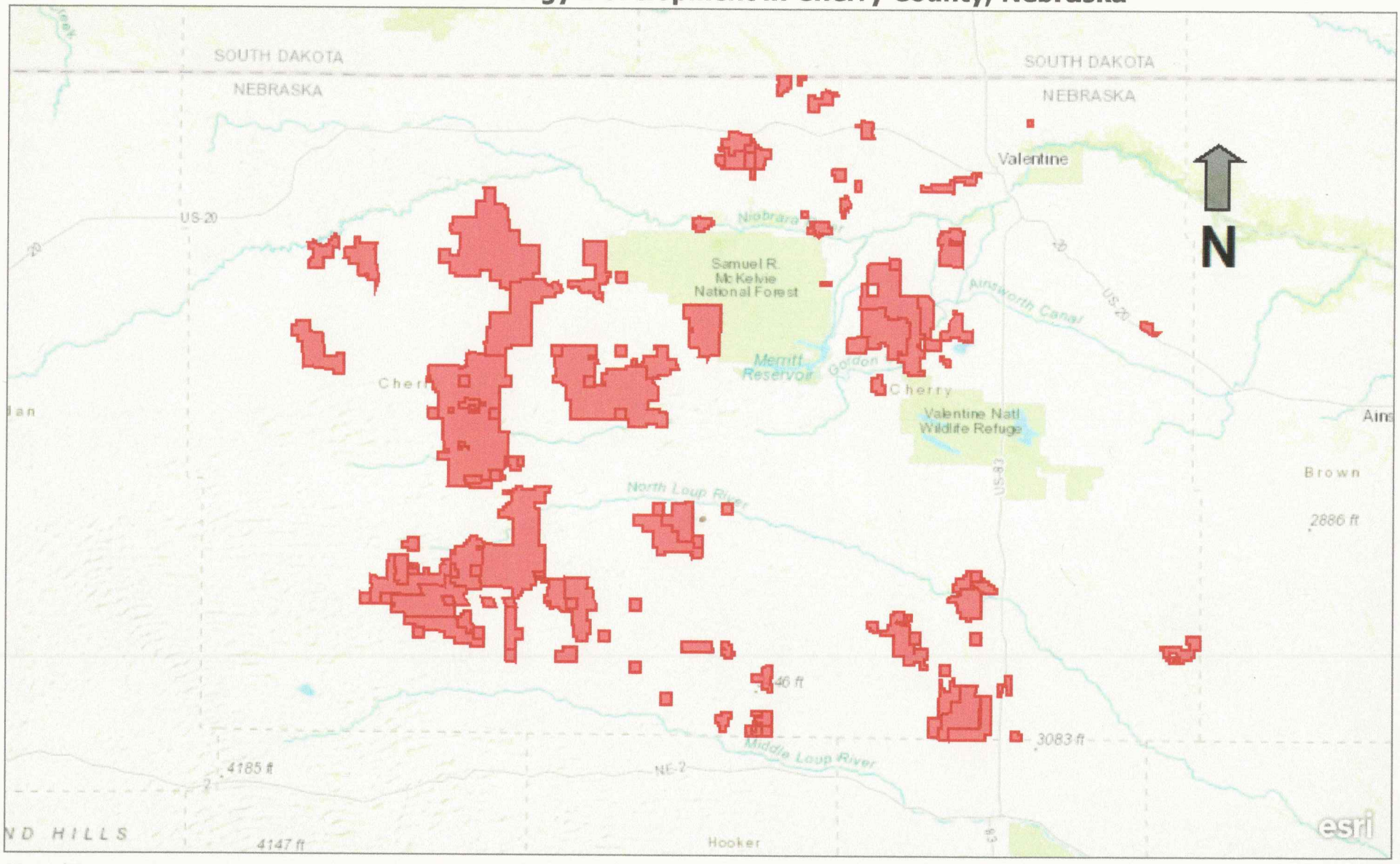
Cherry County Wind LLC Agreements as Filed in Cherry County Legal Documents				
Entity Name	Indicated Address	Entity Acreage (1	Acreage Source	Agreement File Date
Abbott Cattle Company (Christopher J. Abbott)	Gordon	48676	(B	Dec 2015
Taylor G. and Kerri Adamson	Bluejacket, OK	1240	(B	Nov 2017
Todd M. Adamson	Cody	2706	(A	Nov 2017
Jeanne K. Ang and Wayne R. Wright	Spring Grove, IL	1431	(C	Nov 2017
William D. Barner and Donalee A. Barner	Mullen	1104	(C	Nov 2017
Board of Educational Lands and Funds	Lincoln	26491	(C	Dec 2015
Bow & Arrow, LLC	Auburn, AL	20224	(C	Nov 2017
Broken Box Company (Rex Adamson)	Cody	37002	(B	Dec 2015
Glen Coble and Sons, Inc. (Matt G. Coble)	Mullen	19922	(A	Dec 2015
Don Cox Ranch Company	Mullen	6167	(B	Dec 2015
Donald B. and Deborah S. Cox	Mullen	640	(B	Dec 2015
Curtis Ranch, Inc. (Marie Wiese)	Whitman	6120	(B	Nov 2017
Donald D. and Jolene M. Grunhaupt	Crookston	760	(B	Dec 2015
Reed Hamilton Ranch, Inc. (David W. Hamilton)	Thedford	5733	(B	Dec 2015
Henderson Land and Livestock Company (Michael Henderson)	Whitman	11372	(B	Dec 2015
Casey L. Henderson	Hyannis	640	(B	Dec 2015
Elmus M. and Tonya J. Henderson	Whitman	7142	(A	Dec 2015
Larry and Carolynn T. Henderson	Whitman	15698	(B	Dec 2015
Mark and Janelle Johnson	Kilgore	615 (2	(C	Dec 2015
Krajeski and Johnson, Inc. (John Johnson)	Cody	2598	(B	Dec 2015
Krajeski and Johnson, Inc.	Cody	2440	(B	Nov 2017
Robert B. Lord; Robert B. and Donna Mae Lord	Lamar, CO	9001	(C	Nov 2017
Robert B. Lord, Wendy Fritzler and Phy Lord	Lamar, CO	2454	(C	Nov 2017
Dean R. and Jennifer A. Marsh	Kearney	1259	(C	Nov 2017
Robert J. Marsh; Robert J. and Peggy L. Marsh	Mullen	1393	(C	Nov 2017
Wade W. Marsh and Kelly M. Marsh	Minden	320	(C	Nov 2017
Lyn J. (DeNaeyer) Messersmith	Alliance	8080	(A	Dec 2015
Matthew A. Miles and Carmen V. Miles	Brownlee	1465	(B	Nov 2017
North LLC (Marian L. Nutter)	Thedford	4683	(C	Dec 2015
Daniel W. and Shirley E. Osborn	Mullen	2836	(C	Nov 2017
Michael Don Peterson and Tammy J. Peterson	Kilgore	399	(C	Nov 2017
Ivan R. and Phyllis M. Phillips	Whitman	1829	(B	Dec 2015
Lyle D. and Twila F. Phillips	Mullen	1888	(C	Nov 2017
John N. and Patsy L. Phipps	Whitman	1680	(B	Dec 2015
Duane R. and Carolyn J. Porath	Valentine	631	(A	Dec 2015
Powderhorn Ranch, Inc. (William W. Fischer)	Nenzel	12281	(A	Dec 2015
Ridenour Land and Cattle, Ltd. (Larry Ridenour)	Mullen	7493	(C	Nov 2017
Rocking J Taylor Company (Taylor Adamson)	Cody	3712	(C	Dec 2015
Rocking J Todd Company (Todd Adamson)	Cody	16140	(B	Dec 2015
S.K.K.B. Carpenter Ranch, LLC (Larry Ridenour)	Mullen	5560	(C	Nov 2017
Fink-Sheer Inc. (Kevin Sheer)	Elsmere	2989	(C	Nov 2017

Nancy and Robert Sinnett	Valentine	2684	(C	Dec 2015
South LLC (Marian L. Nutter)	Thedford	2863	(B	Dec 2015
Sunny Slope Ranch, Inc. (Adam Fischer)	Valentine	9730	(B	Dec 2015
Three Bar Cattle Company (John W. Ravenscroft)	Nenzel	26694	(C	Nov 2017
James L. and Michalene R. Van Winkle	Wood Lake	657	(A	Dec 2015
Yeager Ranch Land, Inc. (Rex Adamson)	Cody	4121	(B	Dec 2015

(1 Acreage totals have been rounded to the nearest whole number
(A – total given with document
(B – summation of parcel acres given with document
(C – parcel acreage as derived from county GIS and other assessor records
(2 Acreage total 615 with 2015 agreement and 447 acres in 2017 amended document

Invested Lands for Industrial Wind Energy Development in Cherry County, Nebraska

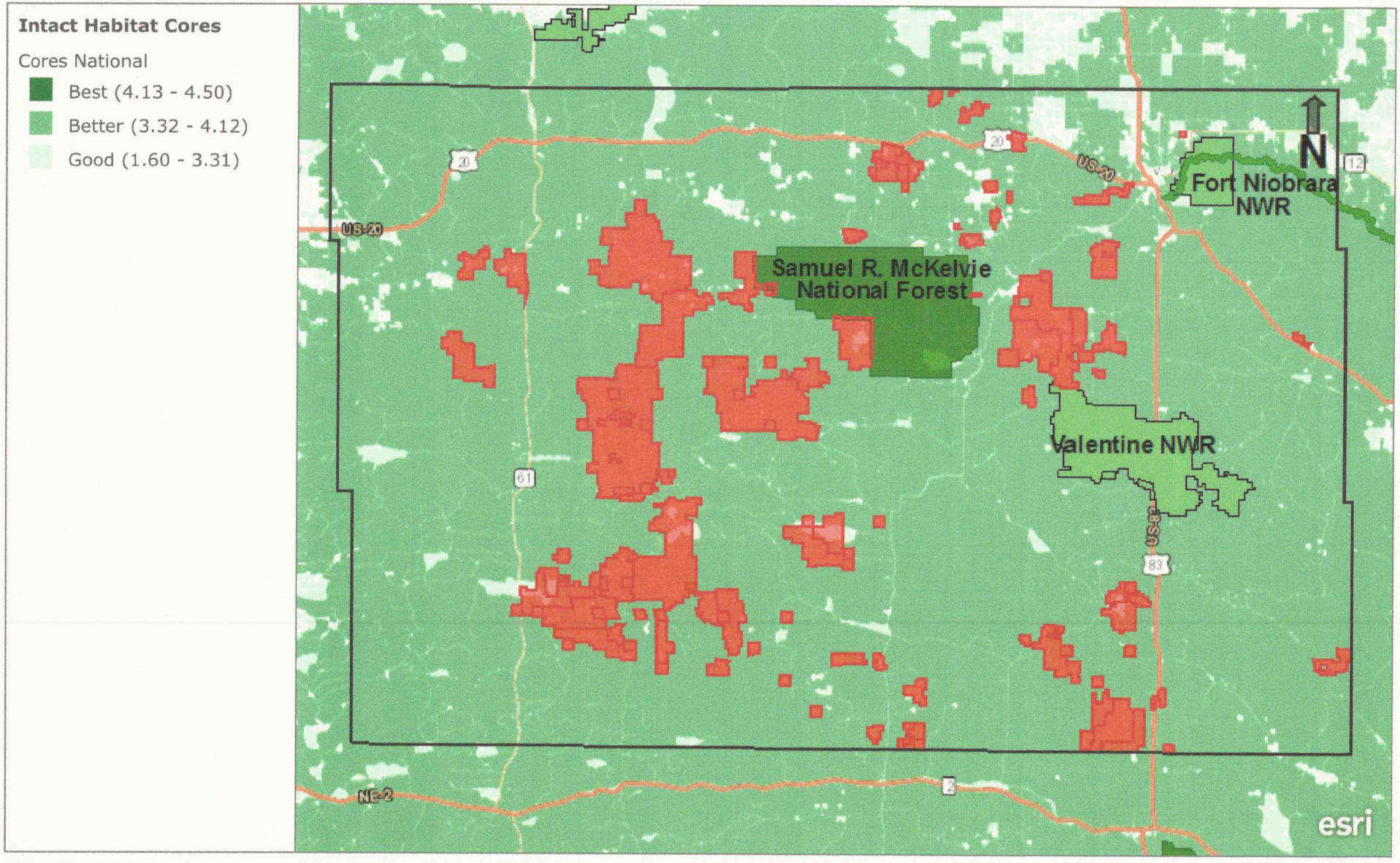
Ex. B



Map of State and Privately Invested Lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Information acquired from the Cherry County Register of Deeds and GIS. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Copyright:© 2013 National Geographic Society, i-cubed | Esri | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

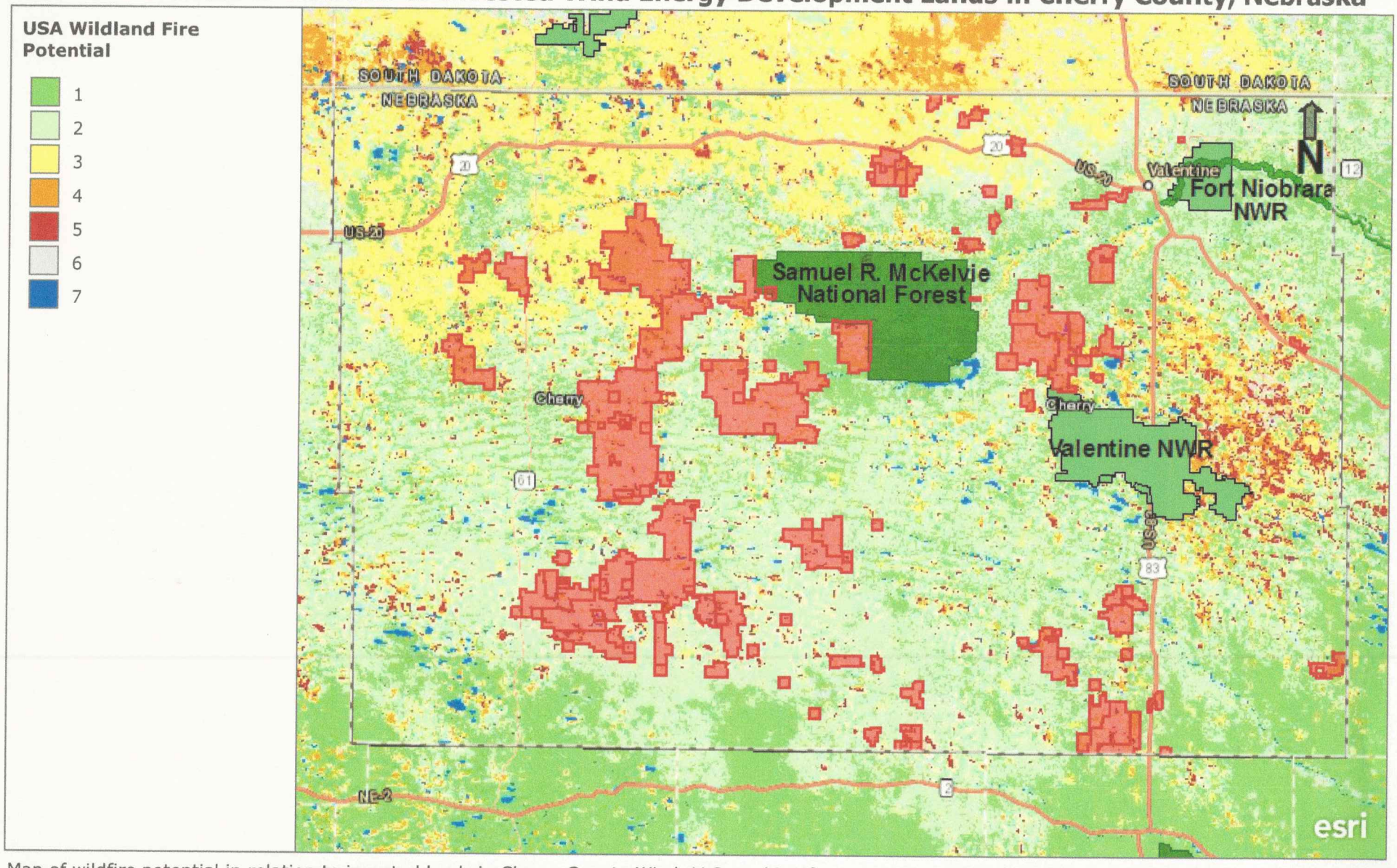
Intact Habitat Cores in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of intact habitat cores, or minimally disturbed natural areas, in relation to invested lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI),

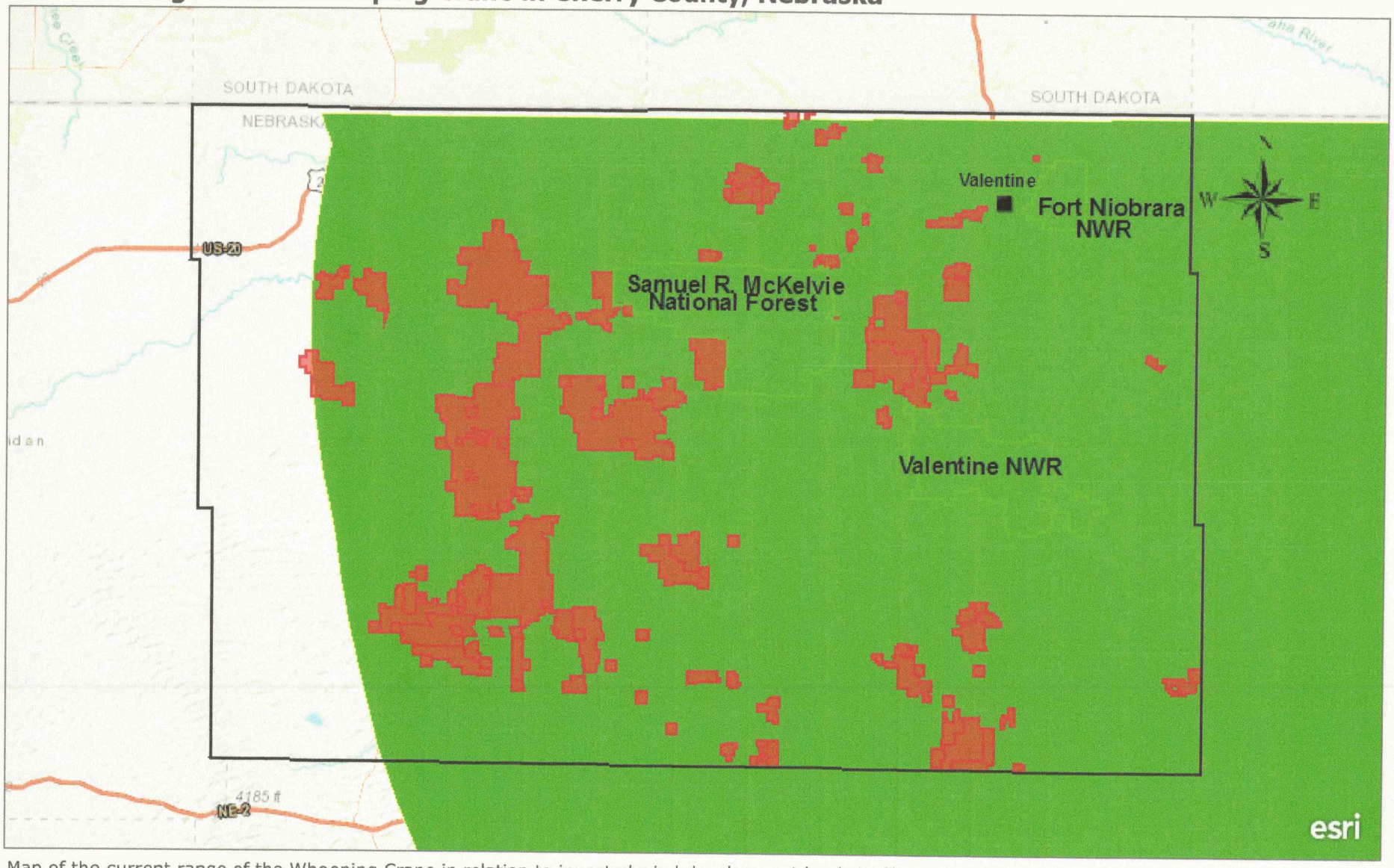
Wildfire Potential in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of wildfire potential in relation to invested lands in Cherry County Wind, LLC, ranking from 1 to 5, with 5 being the highest severity. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Esri, HERE, Garmin | Earthstar Geographics

Current Range of the Whooping Crane in Cherry County, Nebraska



Map of the current range of the Whooping Crane in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

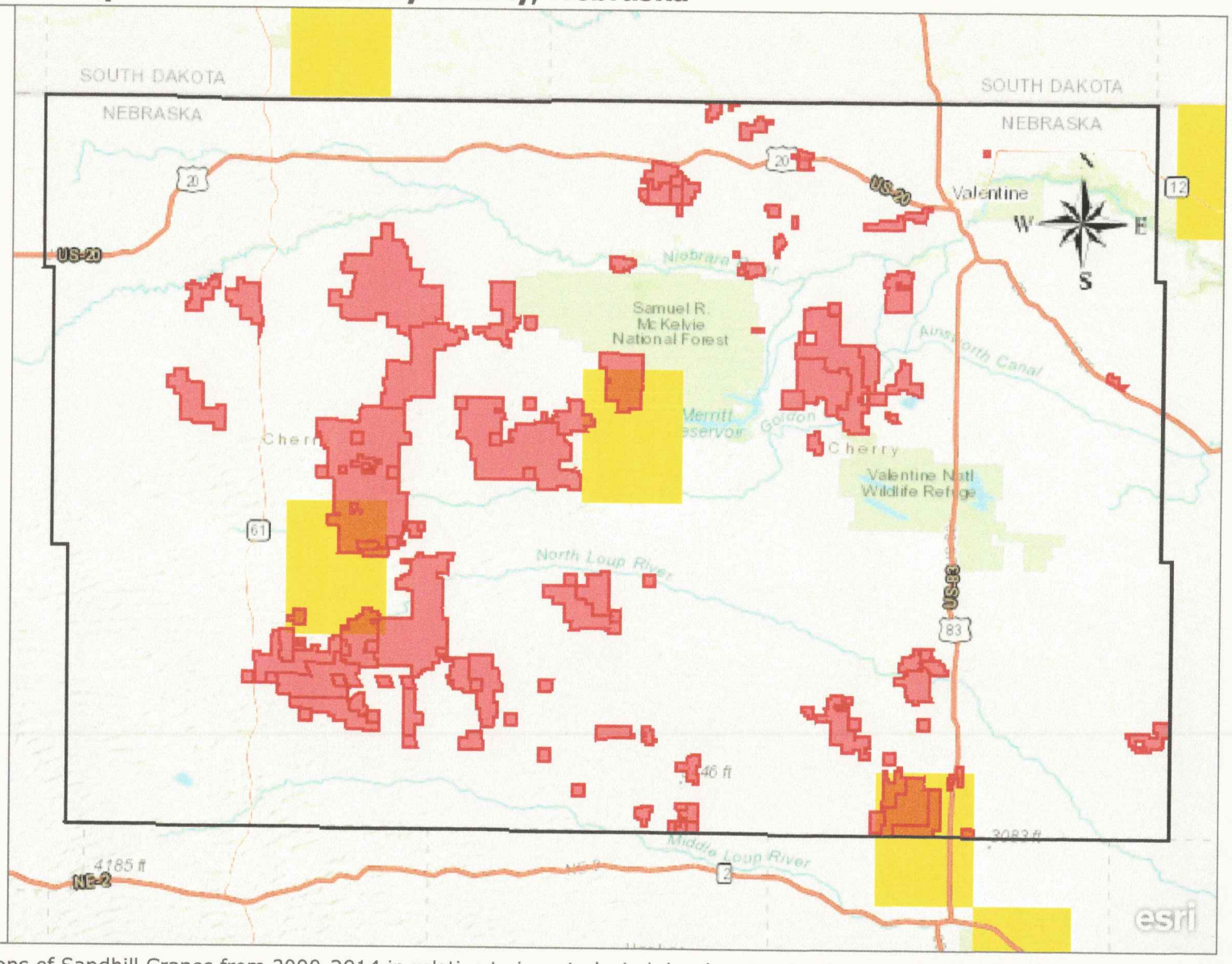
Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright: © 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Sandhill Crane Frequent Stopover Areas in Cherry County, Nebraska

Sandhill Crane Frequent Stopover Areas

All Sandhill Crane Sightings

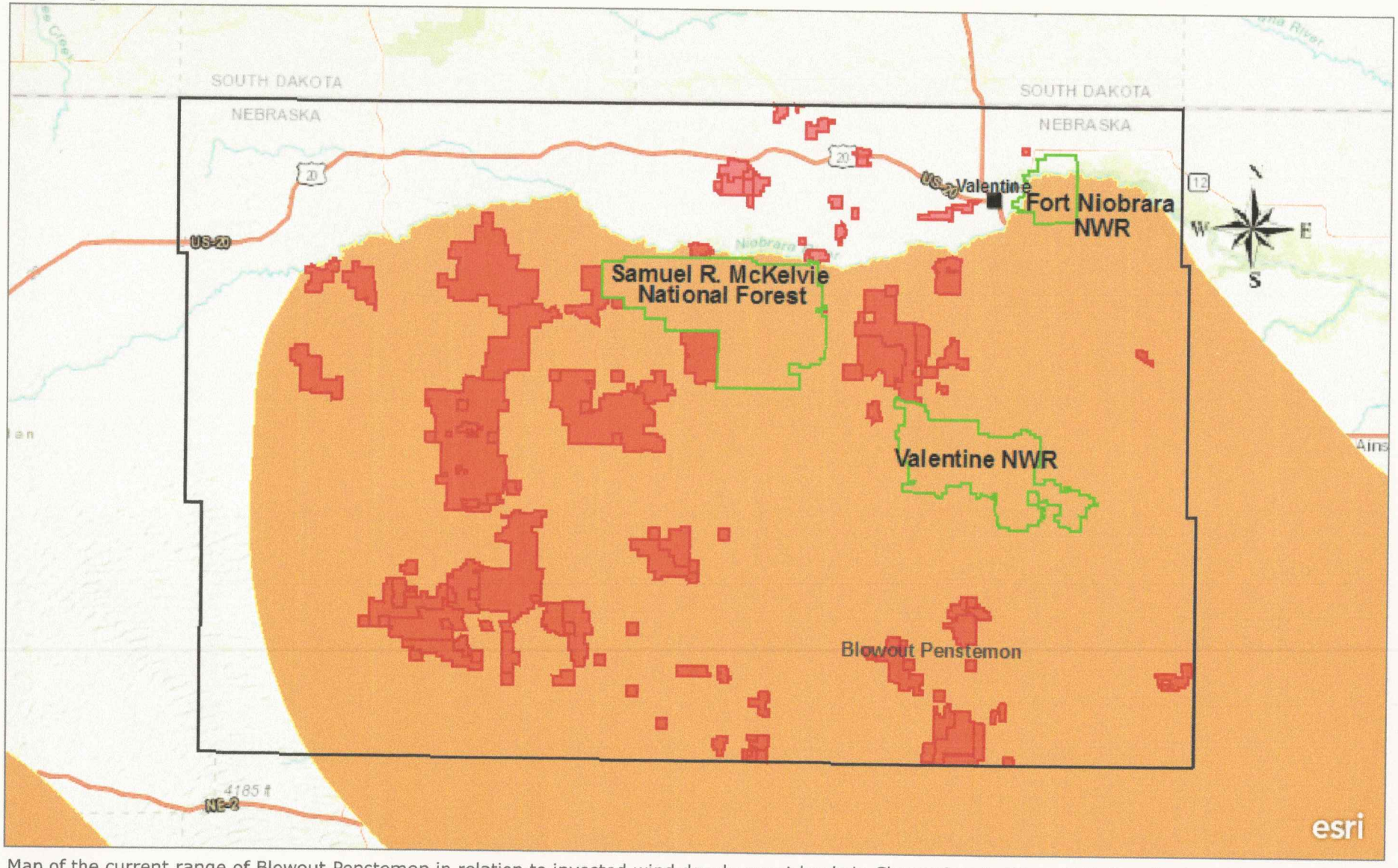
- 1
- 2



Map of frequent stopover locations of Sandhill Cranes from 2000-2014 in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE

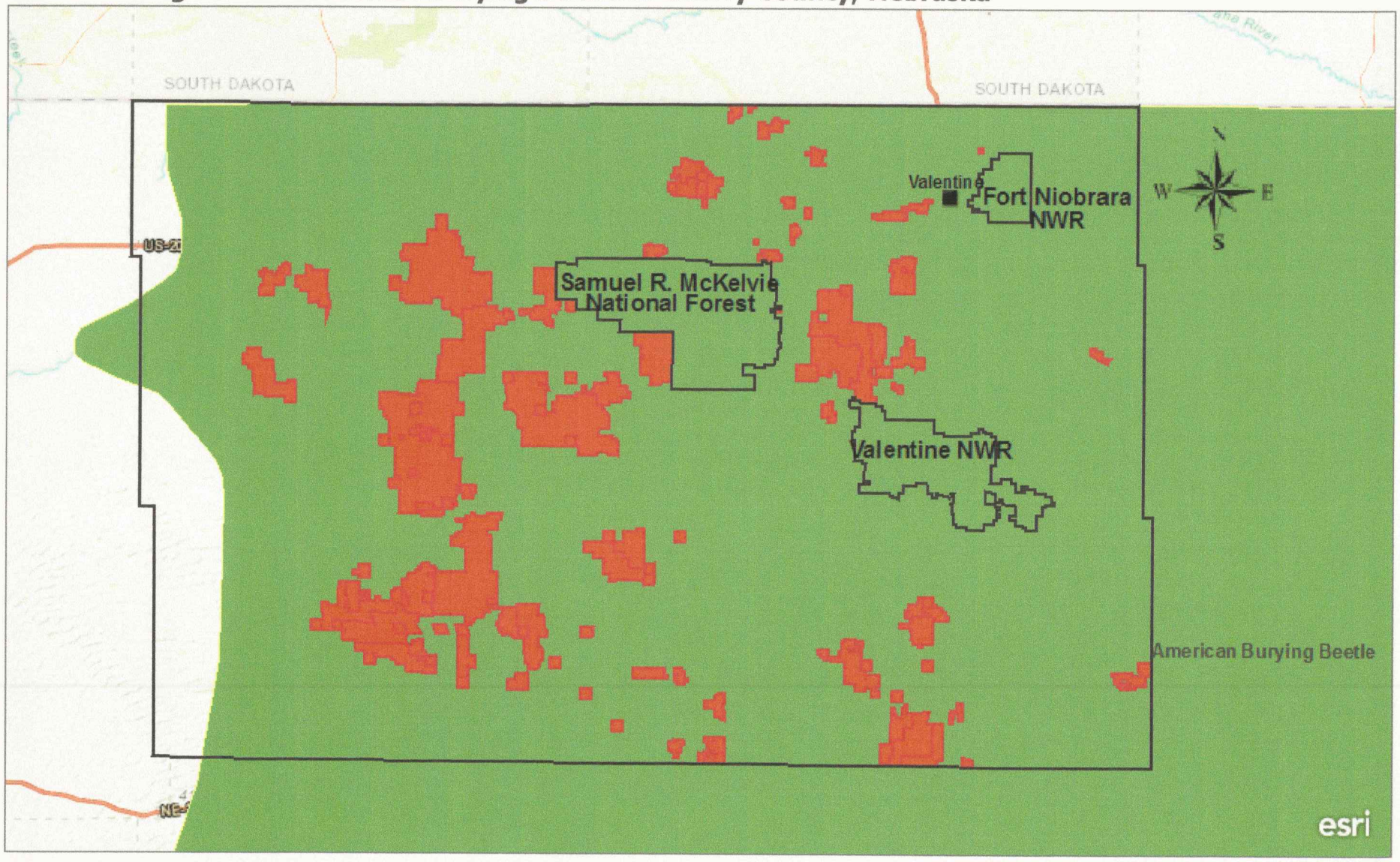
Current Range of Blowout Penstemon in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of the current range of Blowout Penstemon in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Current Range of the American Burying Beetle in Cherry County, Nebraska

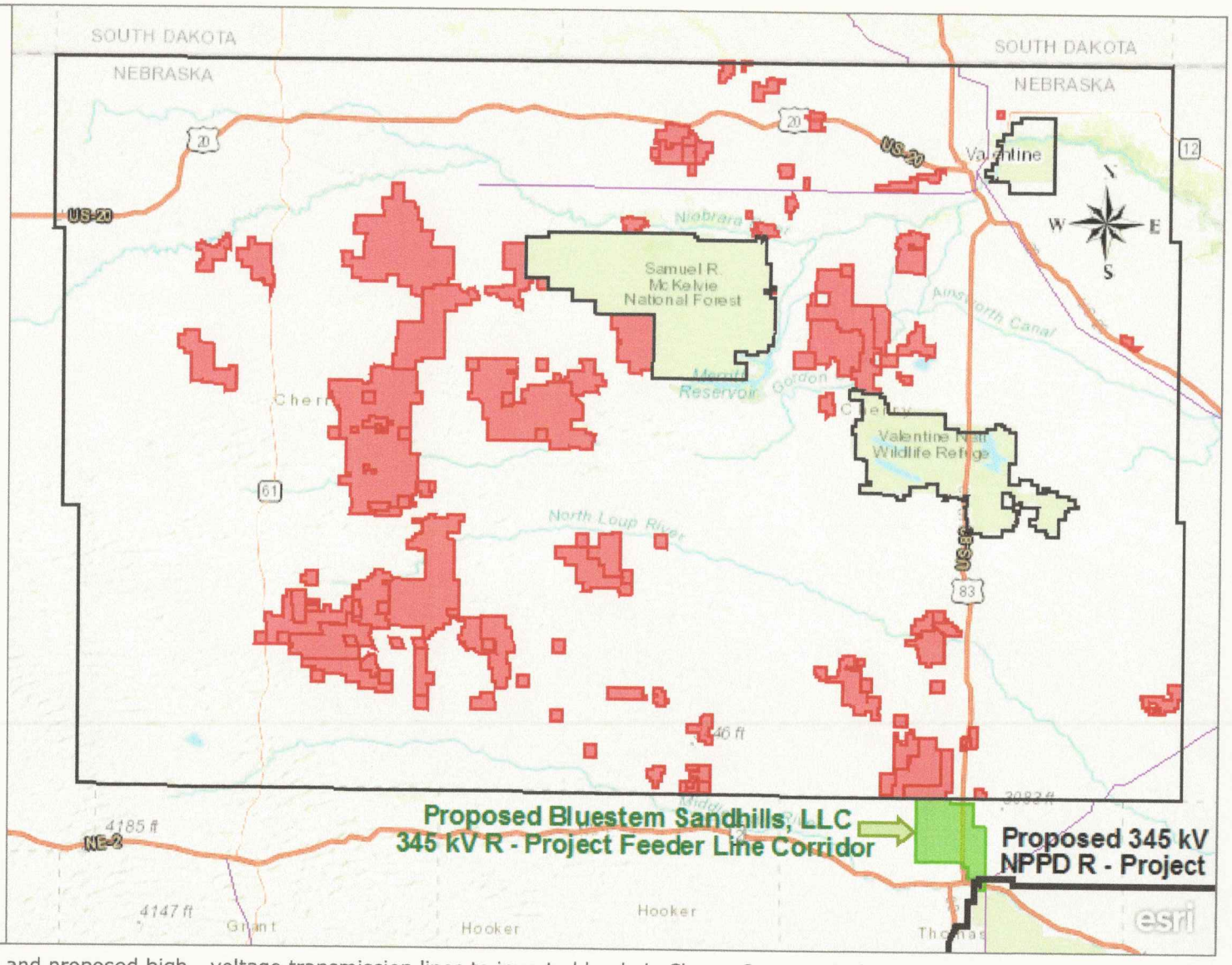


Map of the current range of the American Burying Beetle in relation to invested wind energy development lands in Cherry County, Nebraska. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Copyright:© 2013 National Geographic Society, i-cubed | Esri | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Proximity of High - Voltage Transmission Lines to Invested Lands for Wind Development in Cherry County, Nebraska

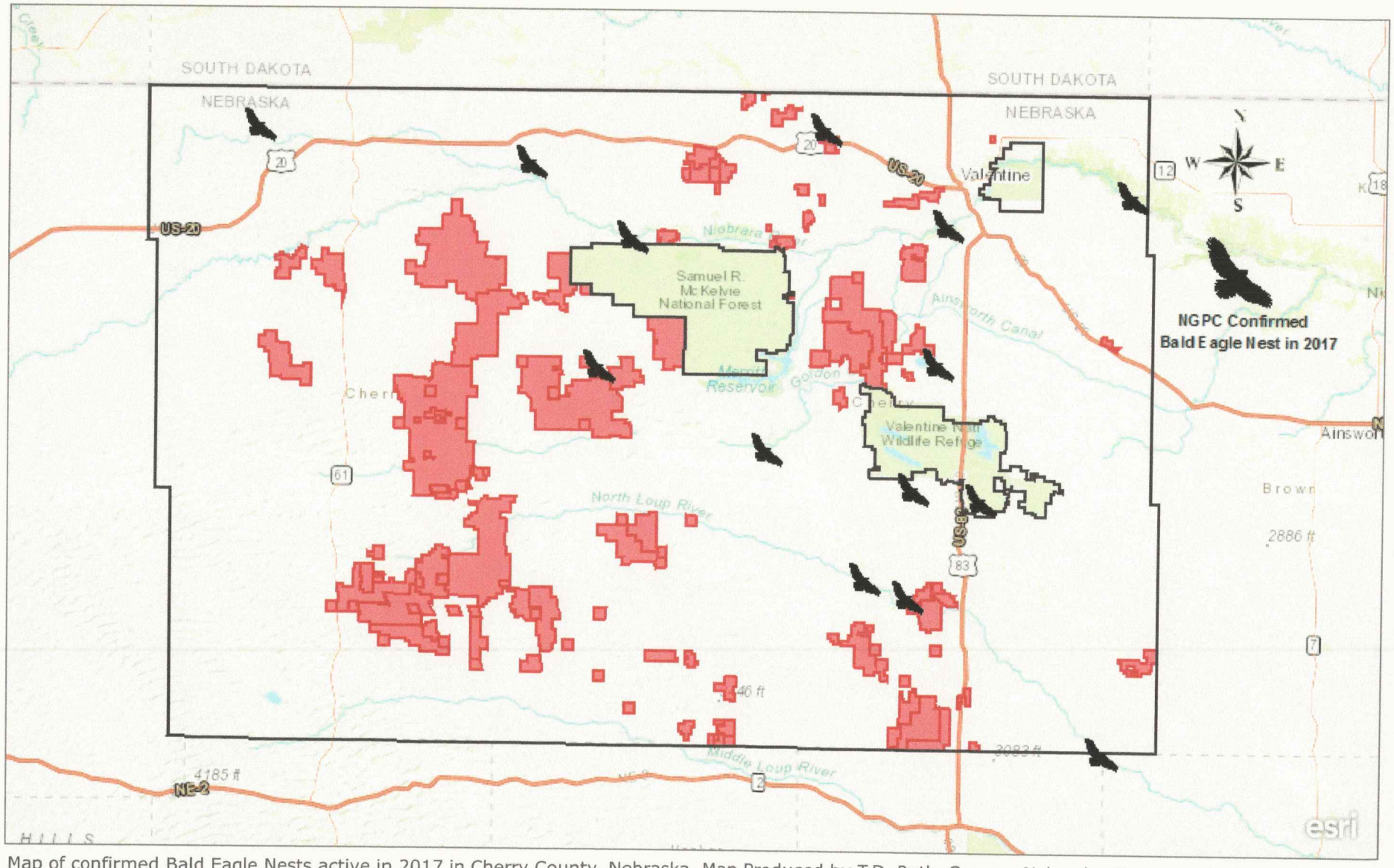
Electric Power Transmission Lines



Map of the proximity of existing and proposed high - voltage transmission lines to invested lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

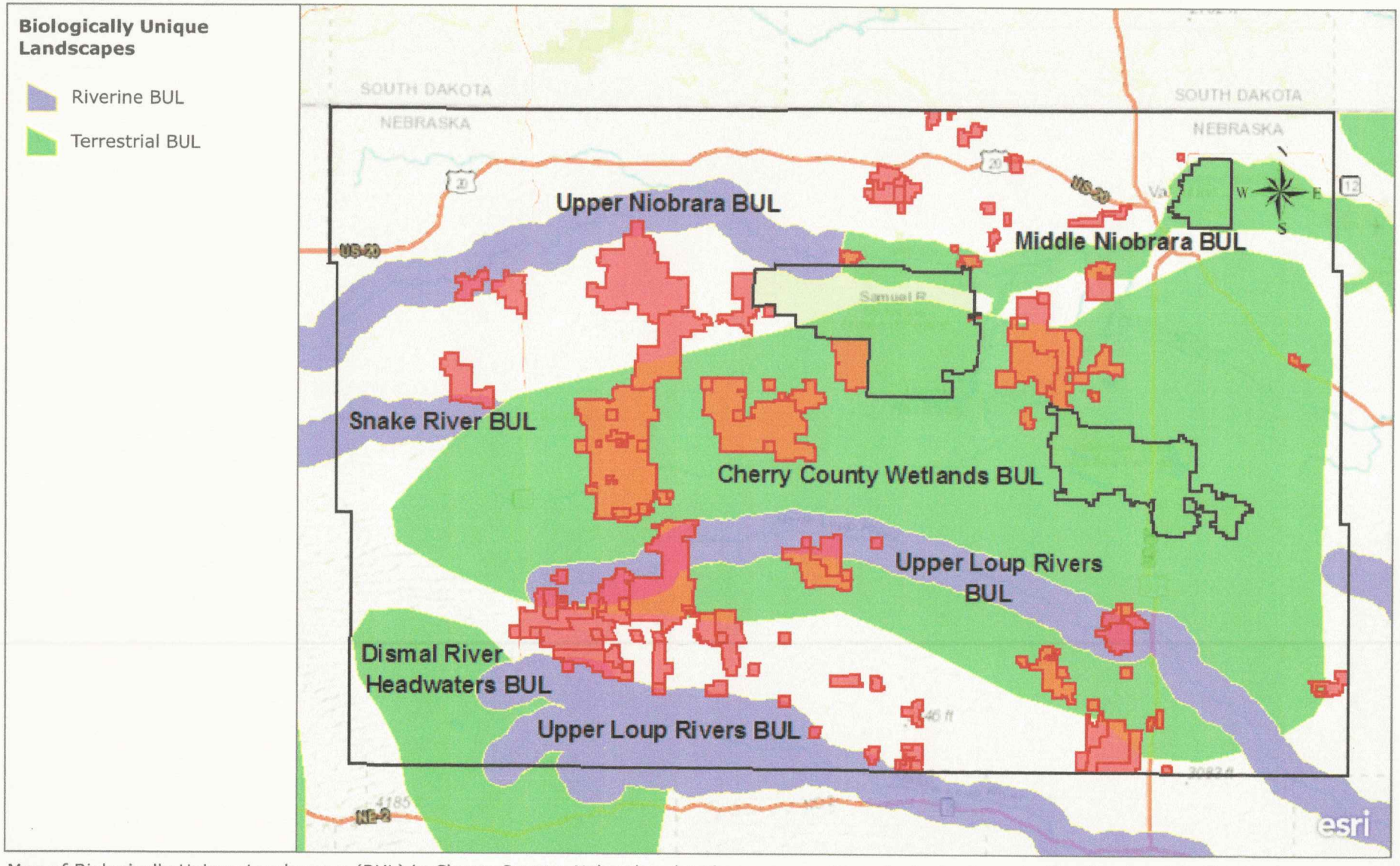
Confirmed Bald Eagle Nests in Relation to Invested Wind Development Lands in Cherry County, Nebraska



Map of confirmed Bald Eagle Nests active in 2017 in Cherry County, Nebraska. Map Produced by T.D. Rath. Source: Nebraska Game and Parks Commission. Reproduction of this map is prohibited without written consent of T.D. Rath.

Source: USDA NRCS, Esri | Source: USGS, EPA, Horizon Systems, Esri | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

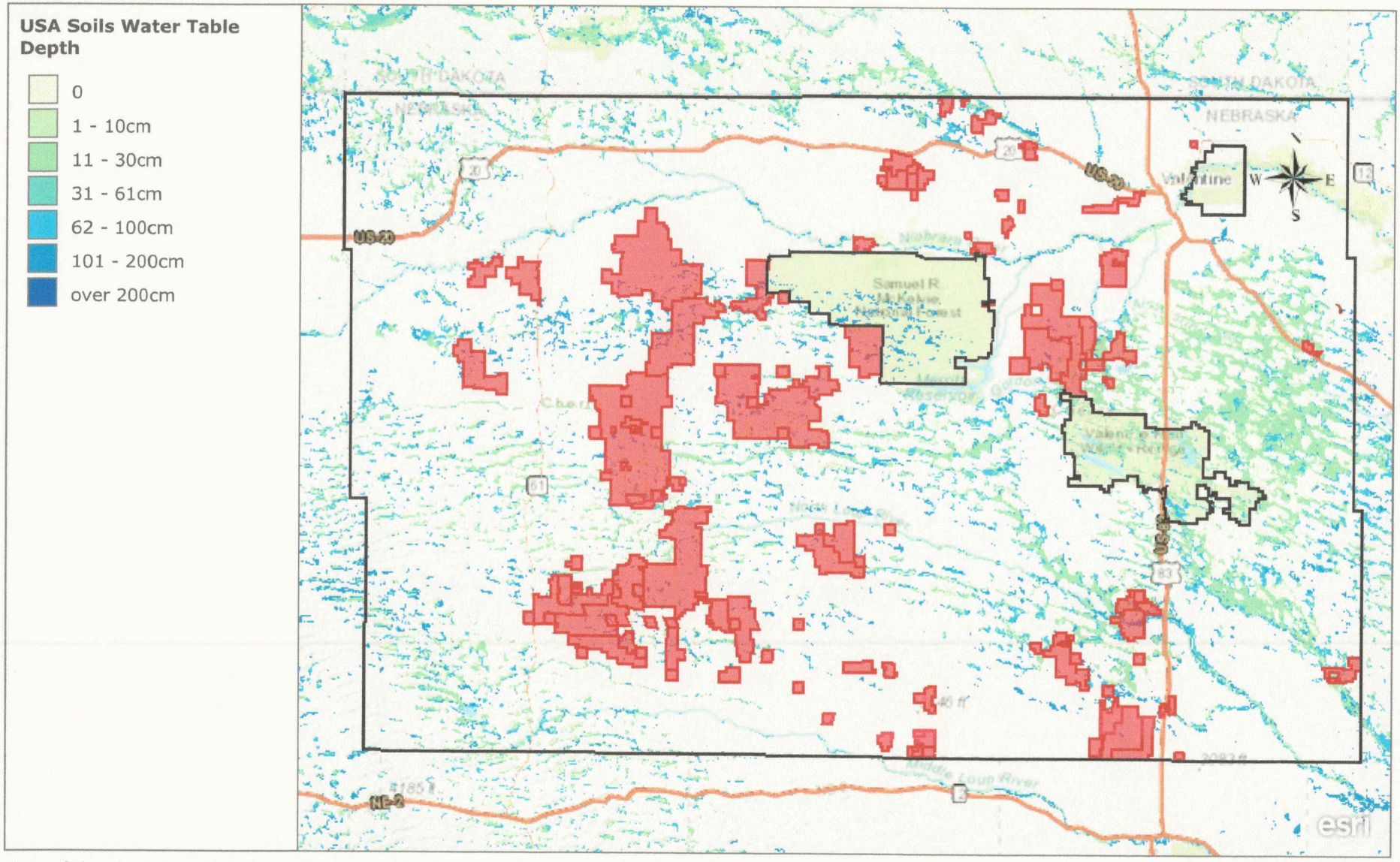
Biologically Unique Landscapes of Cherry County, Nebraska in Relation to Invested Wind Energy Development Lands



Map of Biologically Unique Landscapes (BUL) in Cherry County, Nebraska, detailing conservation priority landscapes. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

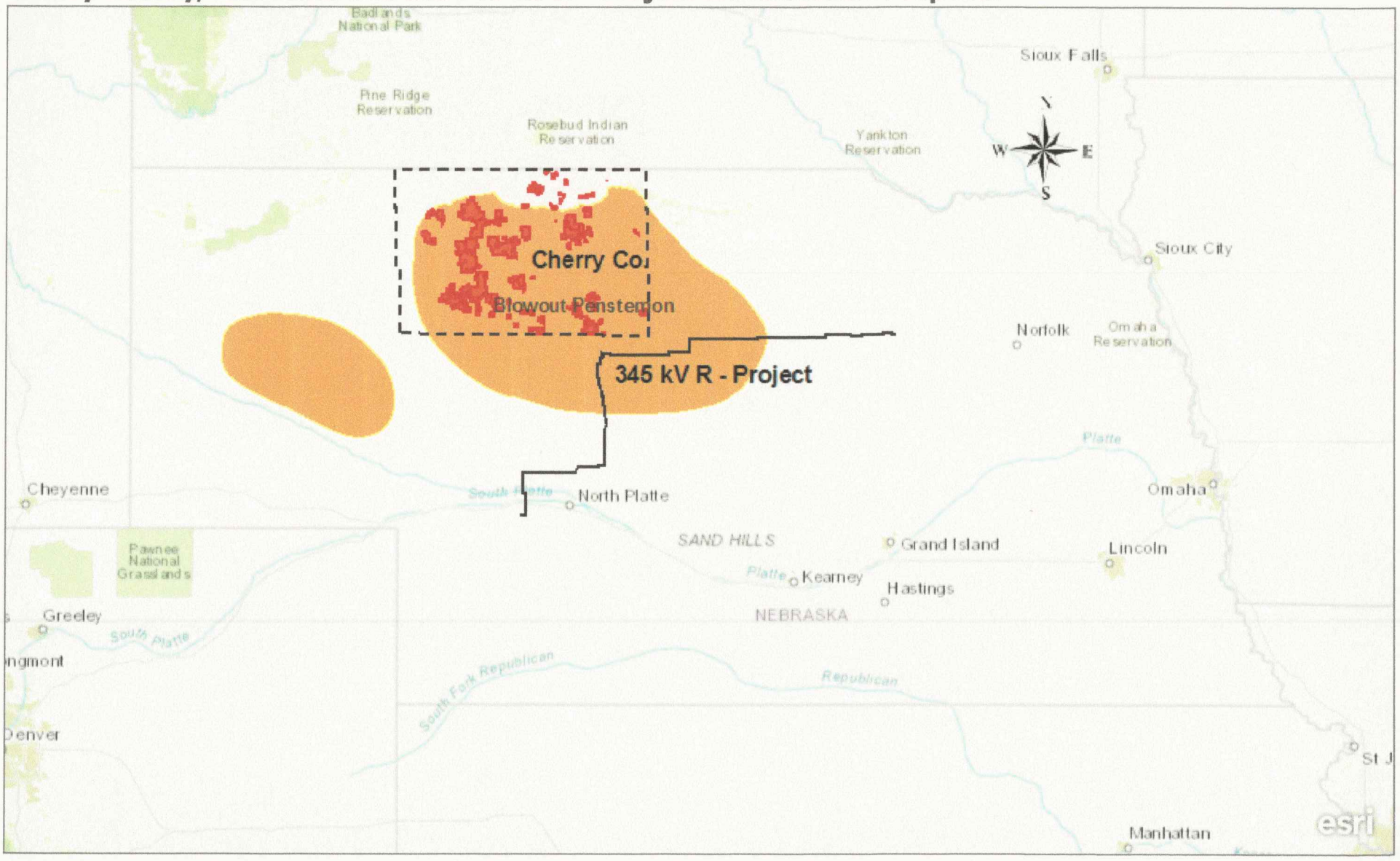
Water Table Depth in Cherry County, Nebraska in Relation to Invested Lands for Wind Energy Development



Map of the depth to which groundwater can be found in Cherry County, Nebraska. Map Produced by T.D. Rath. Source: Soil Survey Geographic Database (SSURGO). Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Source: USDA NRCS, Esri | Esri, HERE

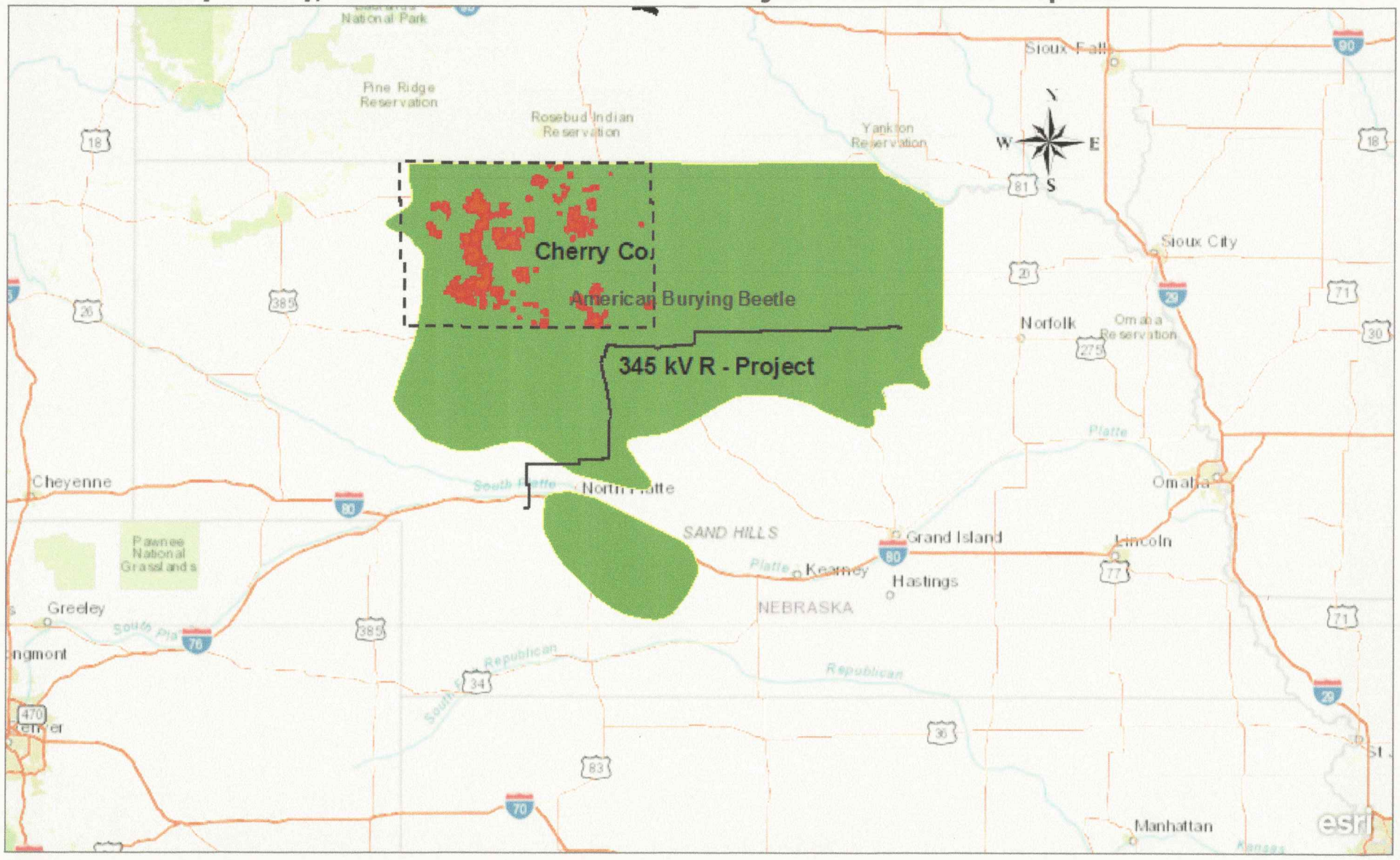
Current Range of Blowout Penstemon in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the Blowout Penstemon in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

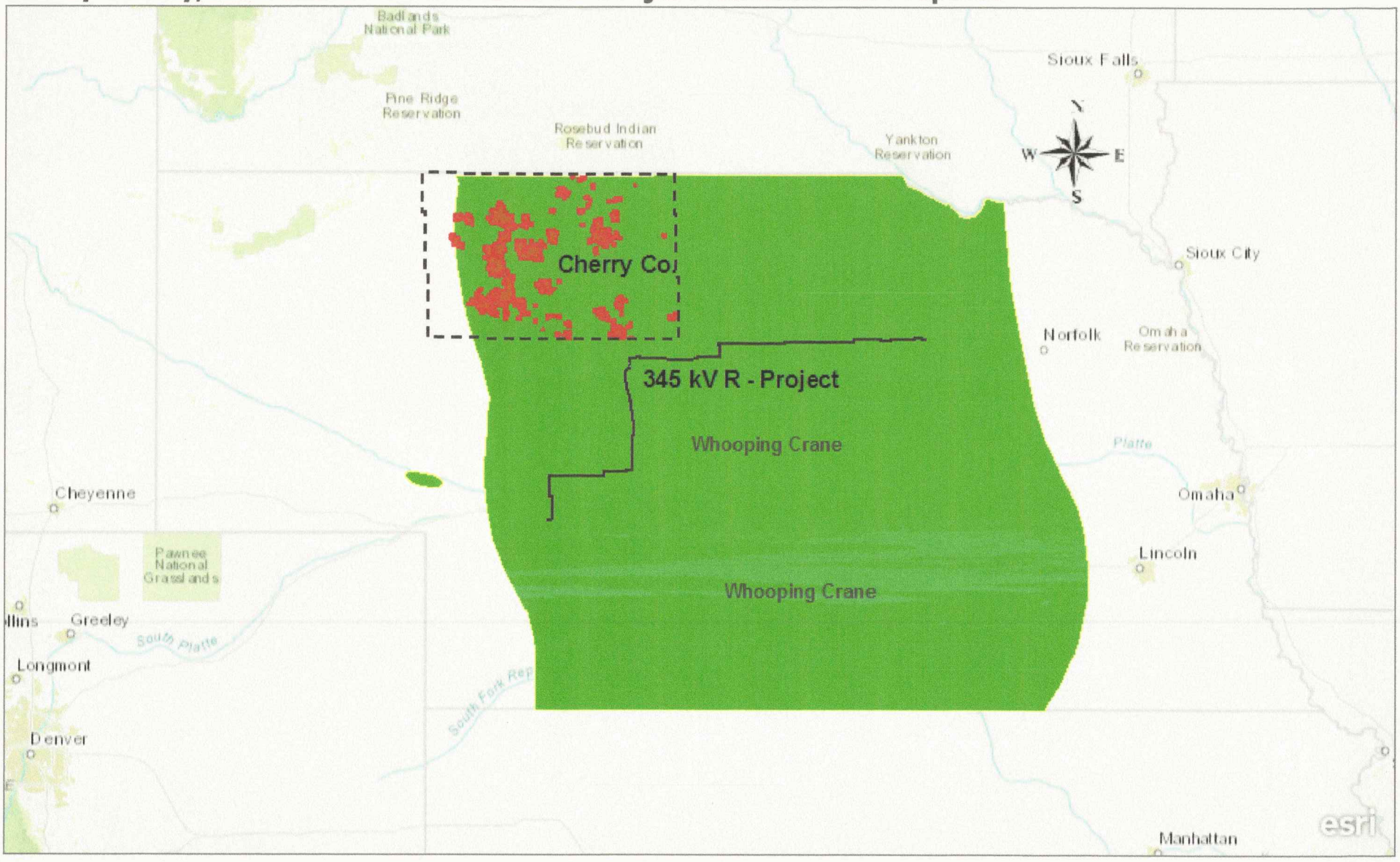
Current Range of the American Burying Beetle in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the American Burying Beetle in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

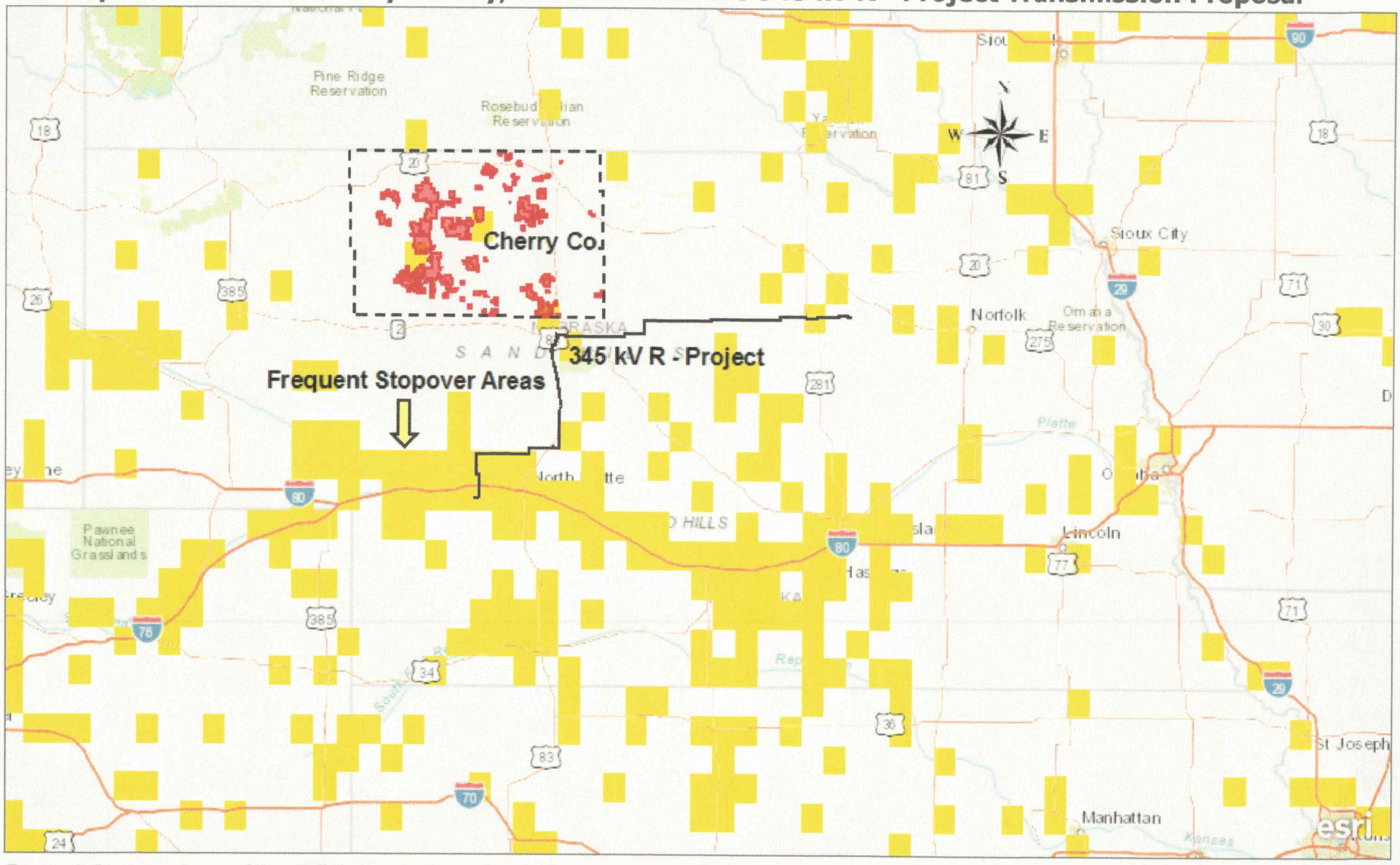
Current Range of the Whooping Crane in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the Whooping Crane in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Sandhill Crane Frequent Stopover Areas from 2000 - 2014 in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Frequent Stopover Areas of Sandhill Cranes in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | International Crane Foundation | Esri, HERE

History of Cherry County Wind

In January of 2010 the Cherry County Board of Commissioners appointed three individuals to research and discuss the potential impacts and opportunities of wind energy development in Cherry County. By year's end this committee grew to nine members. The committee determined that there was significant interest in landowner-directed local development and Cherry County Wind Energy Association was formed in early 2011.

To ensure the fullest participation, multiple forms of outreach were undertaken:

- Letters of invitation were sent to all Cherry County landowners with more than 100 acres.
- Two Board Members of the Association spoke on several radio appearances.
- Public informational meetings were held in Thedford, Mullen, Nenzel, and Valentine.

In 2012 the Association moved to form Cherry County Wind, LLC to develop wind energy projects on member lands, with the top priority of preserving the environmental health of the region and maximizing the benefits to the broader community. Members include 70 landowners representing close to 450,000 acres.

Cherry County Wind Begins

News Stories Chronicling the Founding of Cherry County Wind

Ex. C

COUNTY WIND COMMITTEE MEETS

Tuesday, 14 December 2010 08:43

The Cherry County Wind Committee metMonday evening at the Cherry County Court House. The group is in its infancy and continues to explore topics such as transmission lines, wind associations, legal issuesand other topics. One of the main topics of discussion has been making sure that wind energy is beneficial for everyone in Cherry County with possible reduction of total reliance on property taxes. Committee President George Johnson reported on the Nebraska Wind Energy Conference he attended last month in Kearney. Johnson reported that there were several good presentations and lots of excitement about wind energy potential in Nebraska. Cherry County has long been recognized for energy development potential. The next meeting of the Cherry County Wind Committee will be January 10th.

CHERRY COUNTY COMMISSIONERS MEET

Wednesday, 08 December 2010 10:50

The Cherry County Board of Commissioners met in regular session on November 30th. Tim Gentile, Bryan Herrick and Gary Weaver provided an update on the Justice Center construction. They discussed some additional cameras, floor finishing and timelines for moving the dispatch equipment and the Sheriff's office. It was the consensus of the Board to allow Chairman Van Winkle to sign the formalized change request orders that were approved at a previous meeting.

Commissioner Jerry Adamson moved to enter into a lease agreement with a purchase option through Union Bank and Trust for a 2006 Caterpillar loader with the trade-in of a 1985 Cat loader and a 48 month financing

arrangement. Motion carried.

Gary Weaver presented some information from CBM Managed Services proposing to contract for food service operations for the Justice Center. It was the consensus of the Board to research the matter further before making a decision.

The Board discussed the need for a site where the County could store and mix oil millings.

Commissioner Jerry Adamson moved to authorize Chairman of the Board Van Winkle to work with the County Attorney to negotiate terms and enter into an agreement on behalf of the Cherry County Board to acquire approximately 6.7 acres of land near Valentine to be used by the County Road Department

The Board further discussed the Rockford Bridge and the possibility of making some improvements to the roads in the area. No formal Board action was required at this time.

County Attorney Eric Scott, Rusty Osburn and Gary Weaver discussed the concept of a County Corrections Board. Commissioner Van Winkle moved to create the Cherry County Board of Corrections pursuant to Nebraska Revised Statute with the Board to become effective January 1, 2011. Motion carried.

Commissioner Jerry Adamson moved to accept the written resignation submitted by Jack Ravenscroft from the office of Cherry County Zoning Administrator, effective Dec. 1, 2010.

The Board discussed the membership of the newly formed wind committee. Commissioner Jerry Adamson moved to appoint Matt Coble, George Johnson, Todd Adamson, Adam Fischer, Mike Burge and Gary Garvin to the Cherry County Wind Advisory Committee

CHERRY COUNTY WIND ENERGY

Tuesday, 08 February 2011 06:24

The Cherry County Wind Energy Committee met with NPPD Chief Operating Officer Pat Pope and other NPPD representatives Monday night to discuss the potential for wind energy in the county. The committee has been directed by the Cherry County Commissioners to help research and direct potential wind energy development. At last nights meeting, Mr. Pope gave the committee direction on working with the Southwest Power Pool to help facilitate transmission lines in Cherry County to export energy produced by the area. It could be 5 to 7 years before proposed lines are actually constructed. NPPD has a goal of 10% of energy generated being from renewable sources by the year 2020.

Cherry County Wind Energy

Friday, 22 April 2011 05:58

The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met with three representatives of Nebraska Public Power District on Wednesday to discuss wind energy development in Cherry County. John O'Connor and Dave Rich from NPPD were the main presenters and covered opportunities and challenges in the development of wind power in Nebraska and more specifically in Cherry County. NPPD has a goal of 10% renewable energy by the year 2020. Currently only 2% of energy comes from wind power in Nebraska. Mr. O'Connor sated that there are basically four areas to explore: prove the wind potential is there, transmission lines for export of power, environmental aspects and community support. The local committee will continue to approach this endeavor as a long term project which could have multiple benefits to the community.

Wind Energy in Cherry County

Tuesday, 09 August 2011 05:09

The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met last evening for a regular meeting. The group continues to work on the two main areas of concern which include transmission lines and landowner association. In order for wind energy to work in Cherry County the Southwest Power Pool has to agree to move a proposed transmission line north so electricity can be transmitted out of the county to other parts of the country that need it. It is also important for landowners to work together in dealing with potential wind energy developers to ensure that they get the best deal for their wind. At the direction of the County Commissioners, the group will continue to toward positive development of wind energy in Cherry County.

WIND ENERGY IN CHERRY COUNTY

Tuesday, 15 November 2011 06:57

Cherry County Landowners should have received a letter in the mail introducing the Cherry County Wind Energy Association and announcing a couple of upcoming informational meetings.

The Wind Energy Association is a non-profit organization dedicated to promoting wind energy development in Cherry County. The Association is the result of a directive of the Cherry County Commissioners that led to the formation of a Wind Advisory Committee in March of 2010. Informational meetings will be held in Valentine on November 21, 5:00 CT, at the Niobrara Lodge, and in Mullen on November 22, 5:00 MT at the Bullseye. Landowners interested in learning about: prospects for wind

energy development, new transmission line development, environmental issues, plans to maintain local control, and who will benefit, are encouraged to attend.

The Association members are actively planning a large wind energy development in Cherry County. The Board of Directors of the Association intends that the wind energy development directly benefit all Association landowner members. Association membership will be available for a limited time. If you are unable to attend either of the meetings, contact one of the Board members for more information or Chairman George Johnson 402-823-4067. Other board members include:

Matt Coble, Gary Garvin, Todd Adamson, John Hansen, Mark Adamson, Mike Burge, Tom Cooper, Adam Fischer.

WIND ENERGY ASSOCIATION ACCEPTING SIGN UPS

Wednesday, 14 December 2011 11:53

The Cherry County Wind Energy Association is continuing to accept sign up forms for acres in the new landowner association. The deadline to submit acres is Thursday, December 15th. At this time the board needs a commitment of the number of acres only, and not the legal description. There is a $100 fee that goes along with becoming a member of the association which will be used to offset initial costs of the landowner association. If you need more information contact a board member including; George Johnson, Todd Adamson, Matt Coble, Tom Cooper, Mark Adamson or Mike Burge. Sign up forms can be mailed or dropped off to those board members.

THEDFORD WIND ENERGY MEETING

Tuesday, 06 December 2011 08:00

About 35 area landowners and interested people attended the informational meeting last evening in Thedford, to hear about a plan for wind energy development in Cherry County. The Cherry County Wind Energy Association hosted the meeting. At this time the association in a non-profit organization with a goal of distributing information about a potential large wind development project for Cherry County and signing up landowners who are interested in being part of the association. The Southwest Power Pool will decide in January if they will build a 345 kilo-volt transmission line through Cherry County in the next ten years. If this line is approved for construction, it will open the doors for a very large wind development in the county and the landowners association would evolve into a for profit organization. The Wind Association would represent member landowners in negotiations with potential developers who can be difficult to deal with. Because of the approach the local association will take to negotiations, profits could be higher for local property owners. December is the deadline to return forms to pledge acres for the association. For more information contact one of the committee members, Matt Coble, Todd Adamson, Gary Garvin, Tom Cooper, Todd Adamson, George Johnson, Mark Adamson, Adam Fischer or Mike Burge.

FIRST WIND ENERGY ASSOCIATION MEETING HELD

Tuesday, 22 November 2011 06:26

About 70 area landowners and interested people attended the informational meeting last evening to hear about a plan for wind energy development in Cherry County. The Cherry County Wind Energy Association hosted the meeting at the Niobrara

Lodge in Valentine and will host another meeting tonight in Mullen at 5 Pm Mountain time. At this time the association in a non-profit organization with a goal of distributing information about a potential large wind development project for Cherry County and signing up landowners who are interested in being part of the association. The Southwest Power Pool will decide in January if they will build a 345 kilo-volt transmission line through Cherry County in the next ten years. If this line is approved for construction, it will open the doors for a very large wind development in the county and the landowners association would evolve into a for profit organization. The Wind Association would represent member landowners in negotiations with potential developers who can be difficult to deal with. Because of the approach the local association will take to negotiations, profits could be higher for local property owners. The informational meeting tonight in Mullen will be held at the Bullseye at 5 PM local time.

Cherry County's first wind turbine will be erected west of Valentine this week. The turbine will supply the City of Valentine with 1.85 megawatts of electricity when it goes online in the very near future. The city signed a long term contract to purchase the power in an effort to reduce the peak electric rates paid to NPPD during the winter heating season. This peak rate determines the overall kilowatt per hour rate paid by utility customers all year long. The goal is to reduce the overall rate per kilowatt for residents served by city power. The turbine will be erected on private land approximately 3 miles west of Valentine and south of Highway 20. The project is located on lands enrolled in the Cherry County Wind Energy Association which formed out of a directive from the Cherry County Commissioners to direct the development of wind energy in the county in a positive manner. The association represents numerous landowners in Cherry County that are interested in wind energy development.

Wednesday, 02 July 2014 09:30

Cherry County's first wind turbine has started the erection process. The turbine will supply the City of Valentine with 1.85 megawatts of electricity when it goes online. The city signed a long term Power Purchase Agreement with Bluestem Sandhills, LLC in November. The goal is to diversify power sources and provide a long-term hedge against rising energy costs for the citizens of Valentine. The turbine will be erected on private land approximately 3 miles west of Valentine and south of Highway 20. The turbine will produce enough energy to power approximately 400 homes a year, and supply roughly 10-15% of Valentine's power. The project is located on lands enrolled in the Cherry County Wind Energy Association which formed out of a directive from the Cherry County Commissioners to direct the development of wind energy in the county in a positive manner. The association represents numerous landowners in Cherry County that are interested in wind energy development.

Friday, 05 September 2014 05:11

An official ribbon cutting ceremony for the new wind turbine west of Valentine, will take place this Wednesday, September 10 at 5:30 p.m. at the Valentine Wind Project Site, 3 miles west of Valentine. There will be a large tent for the ribbon cutting if there is inclement weather.

The public is invited to attend the ribbon cutting, which will include short remarks from the representative of the site's developer, Bluestem Sandhills, LLC. Various elected officials and representatives from the Valentine area are expected to attend the ceremony. The project was constructed in cooperation with Cherry County Wind Energy Association.

A GE wind turbine was installed this summer by Bluestem Sandhills, LLC, which owns and operates the turbine. Bluestem Sandhills, LLC, signed a power purchase agreement in January

with the City of Valentine in an effort to reduce overall electric rates for city customers. Bluestem Sandhills, LLC, is responsible for maintenance of the turbine.

Please contact Nicole McDermott at (mailto:%20%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20var%20prefix%20%3D%20'mailto:';%20var%20suffix%20%3D%20'';%20var%20attribs%20%3D%20'';%20var%20path%20%3D%20'hr'%20+%20'ef'%20+%20'%3D';%20var%20addy81936%20%3D%20'nmcdermott'%20+%20'@';%20addy81936%20%3D%20addy81936%20+%20'bstem'%20+%20'.'%20+%20'biz';%20document.write(%20'%3Ca%20'%20+%20path%20+%20'%5C''%20+%20prefix%20+%20addy81936%20+%20suffix%20+%20'%5C''%20+%20attribs%20+%20'%3E'%20);%20document.write(%20addy81936%20);%20document.write(%20'%3C%5C/a%3E'%20);%20//--%3E%20%3C/script%3E%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20document.write(%20'%3Cspan%20style%3D%5C'display:%20none;%5C'%3E'%20);%20//--%3E%20%3C/script%3EThis%20e-mail%20address%20is%20being%20protected%20from%20spambots.%20You%20need%20JavaScript%20enabled%20to%20view%20it%20%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20document.write(%20'%3C/'%20);%20document.write(%20'span%3E'%20);%20//--%3E%20%3C/script%3E)402.637.4455 if you plan to attend.

Cherry County Wind, LLC, Valentine, NE, USA

© *Cherry County Wind, LLC* 2016

http://www.nptelegraph.com/news/local_news/nppd-historical-society-working-to-preserve-oregon-trail-ruts/article_fe59e9d0-4987-11e8-9b2e-67b1e8460a42.html

NPPD, historical society working to preserve Oregon Trail ruts

By Irene North BH News Service Apr 26, 2018

The twin brick strips and steel hoops beyond testify to the Oregon Trail's path on O'Fallon's Bluff, now home to an Interstate 80 rest area near Sutherland.

Todd von Kampen / BH News Service

Buy Now

SUTHERLAND — A group of Cherokee and whites were traveling along what was then known as the Great Platte River Road. It was part of the Oregon-California Trail and they were headed west. They became afflicted with cholera and passed away near Sutherland.

The group was made up of Cherokee, led by Dr. Jeter Lynch Thompson, one of the first Cherokee medical doctors, and a group from Missouri, led by Judge Lewis Bolling Tully. At one point, 14 members traveled ahead of the main company and were afflicted with cholera. Eight of them perished.

Ex. D

Their final resting place could be in danger as the future progresses onto that same land. A proposed 220-mile long transmission project, 345,000-volt transmission line, known as the R-Project, by the Nebraska Public Power District would pass through this area.

R-Project and historical ruts

The R-Project is part of necessary upgrades to prevent power outages. It will run from NPPD's Gerald Gentleman Station near Sutherland to NPPD's existing substation east of Thedford. It will then proceed east and connect to a second substation in Holt County.

In 2012, that area saw several issues with power. The summer was unusually hot, straining the system to its breaking point. Farmers needed power for irrigation and, with the increased heat, residents were demanding more electricity for their air conditioners. The new line will provide more reliable electricity and relieve congestion on the transmission lines.

The proposed powerlines would run near the Sutherland rest stop, where there are ruts from wagons that traveled along the trails.

"Part of our job with OCTA (Oregon-California Trails Association) is to protect and preserve the trail for future generations," said Amanda Gibbs, OCTA Nebraska chapter president.

The Nebraska State Historical Society, which maintains a historical marker on the site, has become involved. The marker is at the end of a path that leads away from the Sutherland rest stop. It is there that ruts from wagon trains remain, etched into the land.

The review process for NPPD has taken several years because all the organizations involved need to work out compromises and review the relevant laws. The process is completed in four steps, including identification of historic properties and potential detrimental effects to them.

"That's where we ran into lengthy discussions among parties about what to include," said Jill Dolberg, deputy state historic preservation officer with the State Historical Society. "We are making headway."

Dollberg said because the ruts cannot be moved, it won't be possible to excavate.

“With this scar left on the landscape, you can’t dig it up and move it,” Dolberg said.

NPPD has been working on the project since 2012, looking at ways for the line to avoid areas of potential historical significance or that would disrupt natural habitats. At the Sutherland rest stop, NPPD has already looked into ways to avoid damaging the ruts.

“We’ve looked at using other building techniques, such as using helicopters to pull the lines instead of by taking them over land,” said Mark Becker, supervisor of media services with NPPD.

American burying beetle

In the past, on projects such as the one in Ainsworth, before a project began, NPPD gathered endangered American burying beetles and moved them to a different location until they had finished building their wind farm. However, the beetle can fly and relocated quickly, so this method has not been recommended in several years.

The newly proposed site would also endanger another habitat of endangered burying beetle, according to Bob Harms, U.S. Fish and Wildlife biologist. The beetles were, at one time, widespread throughout the central and eastern U.S. The beetles need a large, expansive habitat, such as the Sandhills, which has dwindled because land has been converted and other animals, such as skunks and raccoons, move in and compete for resources.

As part of the National Environmental Policy Act, the U.S. Fish and Wildlife Service needs to consider the effects of its permits to the natural and human environment before taking action. Under Section 106 of the National Historic Preservation Act, Fish and Wildlife has spoken with organizations such as OCTA and the Nebraska State Historical Society to get feedback on the situation as part of its preparations of an environmental impact statement, which is expected at the end of 2018. Becker said NPPD will work with Fish and Wildlife.

“This is a project that helps Nebraska, but we also want to look at anything else to have less impact on the land,” Becker said.

The permit will likely hinge on the potential danger for the beetle. It cannot be issued if, during the process of injuring or killing the beetle, which would happen as part of NPPD's work, it would cause the extinction of the species. Fish and Wildlife officials will have to decide if they will outright reject the permit or if there will be acceptable losses to the species.

"We don't take issuance of these permits lightly," Harms said.

Potential remains

Among the records of people traveling the California Trail to search for gold, many are filled with stories of cholera. Several first hand accounts tell of the passing of the mixed group who perished on the trail.

The Aug. 20, 1849, edition of The Cherokee Advocate wrote they had received word that Thompson and 14 others in his company traveled about two to three days ahead of the main company. When they were just past the Platte River, they were struck with cholera and eight of them died. Those who died were Cherokees Samuel W. Bell, Brice Martin, William Parks, Elijah Blythe and James Henry; slaves Purly and Markham; and Judge Lewis Bolling Tully.

Detailed primary and secondary sources put their graves near the Sutherland ruts. Gibbs said OCTA does not want to lose the site.

"Not a lot of people know it's there," Gibbs said. "Education of the site is the biggest thing."

Dolberg said everyone needs to know if there are human remains on the site before moving on. If the results are positive, it will have a large impact on confirming a small part of life along the trail.

"That's what makes it unique," Gibbs said. "You have someone of prominence, blacks and Cherokees traveling together."

Dolberg said the State Historical Society's first choice would be to move the line. If that were not possible, they would like to minimize any effect on the landscape.

“Whatever we do, we’re going to have to work together,” Dolberg said. “And we’re going to have to be creative.”

Meyer Glitzenstein & Eubanks LLP

4115 Wisconsin Avenue, N.W., Suite 210
Washington, D.C. 20016
Telephone (202) 588-5206
Fax (202) 588-5049
lmink@meyerglitz.com

2601 S. Lemay Ave., #7-240
Fort Collins, CO 80525
Telephone (970) 703-6060
Fax (202) 588-5049
beubanks@meyerglitz.com

May 23, 2018

Response of Nebraska Landowners to Nebraska Public Power District's White Paper on Cumulative Impacts and Indirect Effects

On behalf of a number of directly affected and interested landowners – Hanging H Real Estate Co. LLC, Bob Price, Jim Haughland, Jim Fleecs, Amy Ballagh, and Lemoyne Dailey (hereafter "Landowners") – we are submitting this response to Nebraska Public Power District's ("NPPD") February 14, 2018 White Paper on Cumulative Impacts and Indirect Effects ("White Paper"). The NPPD White Paper was prepared in response to the Landowners' comments on the Incidental Take Permit ("ITP") Application, Draft Habitat Conservation Plan ("DHCP"), Draft Environmental Impact Statement ("DEIS"), Draft Migratory Bird Conservation Plan ("DMBCP") and Draft Restoration Management Plan ("DRMP") for the R-Project Transmission Line in north-central Nebraska (the "R-Project"). Consequently, if the Fish and Wildlife Service ("FWS" or "Service") considers the NPPD White Paper, it is incumbent on the Service to also consider the Landowners' rebuttal to NPPD's arguments.

Commenters on the Draft EIS, including Landowners and the Center for Biological Diversity, informed the FWS that the draft documents and other materials made available for comment were woefully inadequate to support the issuance of an ITP for the R-Project for several reasons, including that the DEIS failed to take the requisite "hard look" at environmental impacts as required by the National Environmental Policy Act ("NEPA"), particularly those involving indirect and cumulative effects associated with future wind energy development catalyzed by the R-Project. In response, NPPD issued the White Paper insisting that the FWS was not obligated to "include additional analysis of future wind energy projects" because such projects were not reasonably foreseeable, and the R-Project was not the "legally relevant cause" of the development. For the reasons discussed below, NPPD's analysis is seriously flawed, and fails to demonstrate that the FWS is excused from fully analyzing the indirect and cumulative impacts of the wind development that *will result* from the construction of the R-Project. To the contrary, if the FWS issues an ITP based upon the DEIS as written, it will be doing so in clear violation of federal environmental law.

A. The Indirect and Cumulative Impacts from Wind Power Development are "Reasonably Foreseeable" and Must be Analyzed in an EIS.

NPPD's argument for why the cumulative and indirect impacts[1] of wind power development need not be included in the Environmental Impact Statement ("EIS") for the R-

[1] Cumulative impacts are those impacts that "result[] from the incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions regardless of

Project hinges on its assertion that such projects and their impacts are not "reasonably foreseeable."[2] *See* NPPD White Paper at 5-6, 8. As NPPD acknowledges, to be considered "reasonably foreseeable," an impact must be "'sufficiently likely to occur that a person of ordinary prudence would take it into account.'" NPPD White Paper at 2 (quoting *Ark. Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 431 F.3d 1096, 1102 (8th Cir. 2005)). While we generally agree with NPPD's characterization of the legal standard, NPPD's application of those principles to the R-Project is fatally flawed and contravenes the very purpose of NEPA to take a "hard look" at all adverse impacts flowing from, and associated with, a federally authorized action.

As an initial matter, it is axiomatic that a "person of ordinary prudence" would take the impacts from future wind generation into account when considering the effects of a transmission line *expressly intended* to stimulate the development of wind resources in the area. *See City of Davis v. Coleman*, 521 F.2d 661, 675 (9th Cir. 1975) (holding that where the "raison d' etre" for the project is to promote development, the agency cannot "reasonably conclude" that such effects do not merit in-depth analysis in an EIS); *see also Friends of the Earth, Inc. v. U.S. Army Corps of Eng'rs*, 109 F. Supp. 2d 30, 41 (D.D.C. 2000) ("Since the economic development of these areas is an announced goal and anticipated consequence of the casino projects, the Corps cannot claim that the prospect of secondary development is 'highly speculative.'"). The DEIS made concrete and definite statements regarding the R-Project's contribution to future wind development, which amounted to far more than mere "general statement[s] regarding a desire for increased" wind development, *see Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 898, 1001 (9th Cir. 2013) (holding that the impacts of future chromium mining were not "reasonably foreseeable" because there was "no reliable study or projection of future mining"). It specifically provided that the R-Project is expressly intended to catalyze wind energy development. *See* DEIS at 1-7 (identifying one of the central purposes of the R-Project as "provid[ing] opportunities for development of renewable energy projects, including wind power, in Nebraska"). Further, the DEIS *quantified* the R-Project's contribution to the reduction in the curtailment of wind energy development. *See* DEIS 1-11 (predicting that the R-Project will "reduce th[e] curtailment" in wind energy development in Nebraska from 15% to 3% or less). Therefore, the FWS cannot fairly dismiss future wind development and its associated impacts as "mere speculation." *See TOMAC v. Norton*, 240 F. Supp. 2d 45, 52 (D.D.C. 2003) (explaining that an agency's own projections of growth cannot be dismissed as speculative).

---

what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Indirect impacts are those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b).

[2] The cumulative impacts section of NPPD's White Paper focuses exclusively on the question of "reasonable foreseeability." *See* NPPD White Paper at 1-5. In the indirect impacts discussion, NPPD notes that "the 'reasonably foreseeable' inquiry discussed . . . in the context of cumulative impacts applies with equal force to indirect impacts." *Id.* at 6. NPPD asserts that "[f]or the reasons stated . . . in the cumulative impact analysis section, the impacts of future wind development, other than the Thunderhead Wind Energy Project, are not reasonably foreseeable and thus should not be considered indirect impacts of the R-Project." *Id.* at 8. Therefore, we also address reasonable foreseeability as it applies to both cumulative and indirect impacts.

Moreover, the impacts of wind development relate to the same environmental concerns regarding the R-Project itself, i.e., impacts to endangered species, migratory birds, and cultural resources, and consequently, are highly relevant to the FWS's decision regarding NPPD's proposal. *See Sierra Club v. U.S. Dep't of Energy ("Dep't of Energy")*, 867 F.3d 189, 198 (D.C. Cir. 2017) (citing *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004)) (providing that reasonable foreseeability requires consideration of the "usefulness of any new potential information to the decisionmaking process"). Additionally, the impacts that the R-Project and the wind development it spurs will have on listed species and migratory birds are the *primary consequences* of concern to the public and the agency when rendering a decision regarding listed species under the Endangered Species Act ("ESA"). *Cf. Ark. Wildlife Fed'n*, 431 F.3d at 1102 ("'[R]easonable foreseeability' does not include 'highly speculative harms' that 'distort[] the decisionmaking process' by emphasizing consequences beyond those of 'greatest concern to the public and of greatest relevance to the agency's decision.'"). Thus, the risks to those species—and to their environment—from the placement of wind farms within the Central Flyway must be analyzed in conjunction with the risks posed by the R-Project itself.

NPPD nevertheless argues that such development does not need to be analyzed in the R-Project's EIS because particular wind development projects are "not reasonably foreseeable until the developer has signed a generator interconnection agreement." NPPD White Paper at 6. According to NPPD, "[b]y that stage, while the future wind project still has considerable uncertainty, there are likely sufficient details for the project to be included in a meaningful way in a cumulative impact analysis." *Id.* Given the multi-step process for developing wind projects, NPPD asserts that "[e]ven when a wind developer has indicated that it intends to pursue a wind energy project in a general location, but such project is still in its infancy in the development process, it is not 'sufficiently likely to occur that a person of ordinary prudence would take it into account' due to the numerous contingencies between initial intent and actual operations." *Id.*; *see also id.* (asserting that "[a]ny attempt to analyze impacts at a local level inevitably would be 'more misleading than informative'").

This self-serving rationale for avoiding any hard look at impacts associated with the industrial wind power projects that the R-project is *intended* to facilitate is legally groundless. There is simply no sound legal basis for employing the signing of an interconnection agreement as the bright line for when foreseeable effects must be considered as part of the NEPA process. Rather, that litmus test appears to have been manufactured by NPPD solely for the purpose of *avoiding* the need to take a hard look at all of the adverse impacts associated with its project at a stage when those impacts must be taken into account in making an informed decision on the issuance of a federal permit.

NEPA's "hard look" requirement demands that the FWS engage in a meaningful discussion of the reasonably foreseeable future actions and their impacts even if all of the details of a particular project are not fully planned. *See N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1078 (9th Cir. 2011) ("[P]rojects need not be finalized before they are reasonably foreseeable."); *Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 937 F. Supp. 2d 1140, 1157 (N.D. Cal. 2013) (finding that the agency failed to evaluate the reasonably foreseeable impacts of an oil and gas leasing sale because although "the exact scope and extent of drilling that will involve fracking is unknown . . . 'the basic thrust' of NEPA is to require that agencies

consider the range of possible environmental effects before resources are committed and the effects are fully known"). The legally relevant inquiry is not whether an action is *certain* to occur, but whether it is "*sufficiently likely* to occur that a person of ordinary prudence would take it into account." *Ark. Wildlife Fed'n*, 431 F.3d at 1102 (emphasis added). Where the *express purpose* of the R-Project is to catalyze wind energy development, and particularly where the project's expected contribution to reducing the "curtailment" in that development *has been quantified*, *see* DEIS 1-11 (predicting that the R-Project will "reduce th[e] curtailment" in wind energy development in Nebraska from 15% to 3% or less), the FWS cannot reasonably say that the effects of that development are so uncertain or unlikely to occur that a person of ordinary prudence would not take them into account when reaching a decision.

Indeed, just as the construction of a highway must take into account the additional housing and commercial development impacts likely to ensue from the highway regardless of whether all of the details of the ensuing developments have been set in stone, FWS cannot avoid a hard look at the effects of associated wind power generation that the FWS *knows* to be part and parcel of NPPD's transmission line. *See, e.g.*, *Mid-States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003) (noting that an effect is "reasonably foreseeable" when it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision"); *N. Plains Res. Council*, 668 F.3d at 1078-79 (holding that reasonable projections of future development are not speculative and must be included in an impacts analysis, even if specific projects have not yet not been approved); *Highway J Citizens Grp. v. U.S. Dep't of Transp.*, 656 F. Supp. 2d 868, 887 (E.D. Wis. 2009) (holding that where construction of a highway will contribute to or quicken the pace of commercial development in an area, those effects are "reasonably foreseeable" and the agency must examine the impacts); *TOMAC v. Norton*, 240 F. Supp. 2d 45, 52 (D.D.C. 2003) (explaining that an agency's own projections of growth cannot be dismissed as speculative). The FWS's avoidance of a robust cumulative and indirect effects analysis on the sole ground that the details of an individual project are not yet finalized is tantamount to the agency deliberately sticking its head in the sand—the opposite of the "hard look" mandated by NEPA.[3]

Significantly, neither NPPD nor the FWS has coherently explained why a signed interconnection agreement is the dispositive factor for determining whether wind power expansion is "reasonably foreseeable" or merely "speculative." *See Sierra Club v. FERC ("Se. Market")*, 867 F.3d 1357, 1374 (D.C. Cir. 2017) (rejecting FERC's discussion of cumulative and indirect impacts where FERC failed to explain why it could not engage in "reasonable forecasting" to estimate the downstream greenhouse gas emissions that would indirectly result from its authorization of three pipelines, and have cumulative impacts on the region). In its response to commenters, NPPD offered the conclusory and vague assertion that until that point in the development process, there are too many "contingencies between initial intent and actual

[3] Particularly with regard to the indirect effects analysis, NEPA regulations and case law make crystal-clear that the *entire point* of the evaluation is to ensure that a hard look is taken at impacts that may not be encompassed within the immediate project footprint itself (such as a highway) but *will* nonetheless predictably emanate from it (such as third party development resulting from construction of a highway).

operations." NPPD White Paper at 6. However, once again, "projects need not be finalized before they are reasonably foreseeable." *N. Plains Res. Council*, 668 F.3d at 1078; *cf. Se. Market*, 867 F.3d at 1374 ("[T]he existence of permit requirements overseen by another federal agency or state permitting authority cannot substitute for a proper NEPA analysis."). While the development of any one particular wind *project* may be uncertain—just as the development of any one parcel of land as a result of a highway expansion or new exist ramp from a highway might be uncertain—the R-Project's contribution to wind power development in the area—*and the nature of that development's impacts on the area's wildlife and other resources*—are not only reasonably foreseeable, but they are almost certain to occur and are the very purpose of the project for which federal authorization is sought.[4] Consequently, although the precise extent of the impacts is uncertain, the FWS "may not simply ignore the effect[s]" of such development on the surrounding ecosystem. *See Mid-States Coal. for Progress*, 345 F.3d at 549 (holding that the agency's obligation to assess the indirect impacts of a proposed coal rail line required an analysis of the impacts to air quality, as it was reasonably foreseeable that the increased availability of coal would drive the construction of additional power plants). Thus, the significant expansion of wind power turbines resulting from the R-Project is "reasonably foreseeable" within the meaning of the CEQ regulations—indeed, it is the *intended result*—irrespective of whether an interconnection agreement has yet been signed for a particular project.

---

[4] The close relationship between the R-Project and the wind power development that it is intended to induce and facilitate also distinguish the R-Project from the projects that were the subjects of the cases relied upon by NPPD in its White Paper. For example, in *Gulf Restoration Network v. U.S. Department of Transportation*, 452 F.3d 362 (5th Cir. 2006), the Fifth Circuit upheld the Secretary of Transportation's decision to exclude from its cumulative impacts analysis for a deepwater port facility three other deepwater port proposals for which applications had been filed, but draft EISs had not yet been published, because such projects were not "reasonably foreseeable" due to the multiple contingencies that could occur between the filing of an application under the Deepwater Port Act and the publication of a draft EIS. *Id.* at 369-71. Likewise, in *Airport Impact Relief, Inc. v. Wykle*, 192 F.3d 197 (1st Cir. 1999), the First Circuit upheld the FHWA's determination that the potential future expansion of an airport was not reasonably foreseeable and did not merit discussion in the cumulative impacts analysis for a highway project "designed to ameliorate traffic congestion through downtown Boston and the two tunnels connecting downtown Boston with East Boston and Logan Airport." *Id.* at 200, 206. However, neither of those projects had the *express purpose* of bringing about the actions that the agencies determined were not "reasonably foreseeable." The deepwater port at issue in *Gulf Restoration Network* was not in any way connected to the three proposed facilities, *see* 452 F.3d at 369-70, nor was the highway project at issue in *Airport Impact Relief, Inc.* "part of a 'chain of . . . actions' that . . . will eventually lead to airport expansion," 192 F.3d at 205-06. In contrast, the R-Project is expressly intended to trigger the development of wind energy in the area. The construction of the transmission line is intimately connected to the construction of wind facilities, and is "part of a 'chain of . . . actions' that . . . will eventually lead" to the placement of additional wind turbines in essential migratory bird habitat. *See id.* It therefore defies logic as well as the law to insist that actions taken to undertake such development – and the associated impacts – are not "reasonably foreseeable."

Moreover, it is well established that "'reasonable forecasting' is implicit in NEPA and that it is the responsibility of federal agencies to predict the environmental effects of proposed actions *before they are fully known*." Council on Envtl. Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* 19 (1997); *see also Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1310 (D.C. Cir. 2014) ("[R]easonable forecasting is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry." (internal quotation and citation omitted)). Indeed, NEPA's regulations specifically "provide for including those uncertainties in the environmental impact assessment *where the foreseeable future action is not planned in sufficient detail to permit complete analysis*." Council on Envtl. Quality, *supra* at 19-20 (quoting 40 C.F.R. § 1502.22 (providing that where uncertainties exist, agencies must evaluate the impacts from such actions "based upon theoretical approaches or research methods generally accepted in the scientific community")). The D.C. Circuit recently reaffirmed an agency's obligation to "make educated assumptions about an uncertain future," even where variables—"including the operating decisions of individual plants and the demand for electricity in the region"—are uncertain. *Se. Market*, 867 F.3d at 1374. Contrary to NPPD's insistence, the FWS cannot lawfully circumvent conducting a meaningful analysis of the anticipated adverse effects associated with facilitating wind power development in endangered species and essential migratory bird habitat simply because it would require some degree of forecasting or modeling to predict "where future wind projects may be developed, how many turbines they would include, what other infrastructure they would entail, and when they would be in service." NPPD White Paper at 6.

This is especially true where information that would allow for a meaningful discussion of the nature of the adverse impacts from wind development *undoubtedly exists*. NPPD contends that the FWS cannot "narrow[] down the likely locations for future wind projects" connected to the R-Project due to Nebraska's "considerable wind resources across most of the state." NPPD White Paper at 6. However, the DEIS acknowledged that the R-Project is expressly intended to stimulate wind power development *within the vicinity of the transmission line*.[5] *See* DEIS at 1-10

[5] For this reason, the principal case NPPD relies upon, *Sierra Club v. U.S. Department of Energy*, 867 F.3d 189 (D.C. Cir. 2017), is inapposite. There, the D.C. Circuit found that the Department had examined the adverse impacts from increased natural gas production as a result of its authorization of liquefied natural gas ("LNG") exports generally, and had reasonably explained that it could not predict the impacts from such production at the local level due to the complex and unpredictable factors that drove local responses to national fluctuations in the gas market. *Id.* at 198-99. Because "nearly all of the environmental issues presented by unconventional gas production are local in nature," the Department concluded that without knowing where *in the entire nation* the production would occur, "the corresponding environmental impacts [were] not reasonably foreseeable under NEPA." *Id.* at 199. In contrast, here, the R-Project is expressly intended to catalyze wind development *in the area*. *See* DEIS at 1-10 ("The R-Project would allow for significant new generation *in this area*."). Indeed, the DEIS admits that the R-Project is being built to "provide transmission access to renewable energy resources (i.e., wind projects) in an area of Nebraska with wind resources." *Id.* at 1-8 to 1-9. In fact, several potential locations for those developments *are already identified* in publicly

("The R-Project would allow for significant new generation [of wind power] *in this area*.") (emphasis added). Additionally, maps submitted to the FWS—and available through public records maintained by the County Registers of the counties surrounding the R-Project—identify the areas where wind power development connected to the R-Project is slated to occur.[6] *See* Attach. A (letter and maps submitted to the FWS). Given this information, the FWS cannot reasonably find that predicting the impacts from wind power development amounts to "foresee[ing] the unforeseeable," *Del. Riverkeeper Network*, 753 F.3d at 1310, nor can it conclude that it has "no information as to the scope or location of any future projects," *Jones*, 741 F.3d at 1001 (citing *N. Plains Res. Council*, 668 F.3d at 1079) (recognizing that where there are reliable projections of future growth, the agency must consider the impacts as "reasonably foreseeable"). To the contrary, it is reasonably foreseeable—indeed, it is almost certainly true—that the R-Project will, as intended, "allow for significant new [wind power] generation *in this area*." Yet, neither NPPD, nor the FWS has offered any explanation for why the FWS could not use this information and other "theoretical approaches or research methods generally accepted in the scientific community" to "estimate the locale" of wind power development and analyze the adverse environmental effects associated with such development.[7] *See Dep't of Energy*, 867 F.3d

---

available documents. Given these important distinctions, it is apparent that NPPD's reliance on this case is misplaced.

[6] For example, public records maintained by the Cherry Country Registrar indicate that at least forty-seven landowners are "participants" in Cherry County Wind, LLC ("CCW"), a private wind development enterprise. CCW's website claims that over 450,000 acres of land are enrolled, nearly all of which are within the ranges of both the whooping crane and the American Burying Beetle. *See* Cherry Cty. Wind, LLC, *History of Cherry County Wind*, http://www.cherrycountywind.com/history/ (Attach B). These maps show the location and amount of private and public acreage committed to wind developers as "invested lands." Moreover, *seven years* ago, in 2011, NPPD participated in a series of meetings with CCW. Attach. B (noting that CCW officers met with NPPD representatives to discuss how the group could "help facilitate transmission lines in Cherry County to export [wind] energy produced by the area"). Thereafter, CCW began to recruit landowners into the Cherry County Wind Energy Association, a group formed to represent member landowners in negotiations with wind developers. *Id.* Significantly, CCW explicitly relied upon the availability of, and the ability to link wind projects to, the R-Project when courting landowners and other investors. *Id.* (recruiting potential members based on the construction of the R-Project, and promising to "represent member landowners in negotiations with potential developers who can be difficult to deal with"). Cherry County Commissioners have also recently rushed to promulgate regulations related to wind energy. *See* Attach. A (detailing same). Given this newly uncovered context, it is especially anomalous for NPPD to contend that it is somehow premature for the FWS to examine the impacts of wind power development concurrently with those of the construction of the R-Project.

[7] Significantly, several efforts to map wind energy potential in Nebraska have produced maps depicting the average annual wind speed throughout Nebraska at heights of 30, 50, 70, and 100 m above ground (i.e., the average heights of wind turbine towers). *See, e.g.*, AWS Truewind, *Wind Energy Resource Maps of Nebraska* (2005), *available at* http://www.neo.ne.gov/renew/041229_1127/Nebraska_Wind_Mapping_Final_Report.pdf (final report), http://www.neo.ne.

at 198 (upholding the Department's conclusion that the local impacts of export-induced gas production were not reasonably foreseeable where the Department offered a reasoned explanation for why it would be far too speculative to use an economic model to estimate localized impacts). Even more troubling, the R-Project's DEIS failed to mention the impacts from wind power development at all in the discussion of indirect impacts to *any* resource, and gave such impacts only cursory mention in the discussion of potential cumulative effects. This cannot pass muster under pertinent NEPA precedents.

Finally, NPPD's assertion that the FWS cannot possibly foresee the adverse impacts of wind development that will result from the construction of the R-Project is belied by industry practice and ignores NEPA's demand that agencies fulfill their duties "to the fullest extent possible." *Del. Riverkeeper Network*, 753 F.3d at 1310 (quoting *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)). While it is a truism that "the statute does not demand forecasting that is 'not meaningfully possible,'" White Paper at 6, that is surely not the case here, where the project is *expressly intended* to spur the development of wind power in the surrounding area. Indeed, EISs for similar transmission line projects demonstrate that it is feasible to have a meaningful, qualitative discussion regarding the impacts of wind power development on the region *without* knowing all specific details of individual projects.[8] Instead, the impacts from wind power development catalyzed by those projects were

---

gov/renew/wind.htm (maps) (Attach. C). Such efforts have also generated maps illustrating general wind resource potential for 110-meter and 140 meter wind towers. *See* Office of Energy Efficiency & Renewable Energy, Dep't of Energy, *Wind Energy in Nebraska*, https://windexchange.energy.gov/states/ne (last visited May 22, 2018) (Attach. D). Moreover, a study commissioned by the Nebraska Power Review Board estimated the new wind capacity that would be added by transmission projects, including the R-Project. *See* Judy Chang et al., The Brattle Grp., *Nebraska Renewable Energy Export (LB1115) Study* (2014) (Attach. E). These data can be—*and are*—used to reasonably forecast the indirect and cumulative effects of wind development from projects that are intended to catalyze such development. *See, e.g.*, U.S. Dep't of Energy, *Plains & Eastern Clean Line Transmission Project: Environmental Impact Statement* S-ii (2015) (Attach. F) (using wind resource data to estimate the radius within which wind power projects connected to a transmission line constructed to stimulate the development of wind energy would be located).

[8] Other transmission projects that were similarly expressly built to facilitate wind power development demonstrate that such reasonable forecasting is possible, meaningful, and reasonable. For example, the Clean Line Energy Partners LLC ("Clean Line Energy") developed a proposed transmission line that was also expressly intended to facilitate wind power development. *See* Attach. F. Based on "preliminary studies of engineering constraints and wind resource data, industry knowledge, and economic feasibility," the EIS for the project estimated that wind power facilities that would interconnect with the proposed transmission line would be located within a forty mile from the project." *Id.* at S-49 to -50. Based on the transmission capacity of the proposed line, the EIS further estimated the "actual wind farm build-out." *Id.* at 2-47. The EIS stated that the agency could not know the exact location of wind power facilities that would be connected to the Project. *Id.* However, it acknowledged that it was "reasonably foreseeable that future wind farms would be located in a reasonable proximity to the Project's

forecast based upon "engineering constraints and wind resource data, industry knowledge, and economic feasibility." *See* U.S. Dep't of Energy, *Plains & Eastern Clean Line Transmission Project: Environmental Impact Statement* S-49 to -50 (2015) (describing model used to project future wind energy development) (Attach. F). Thus, contrary to NPPD's assertions, it is not only "meaningfully possible," *Del. Riverkeeper Network*, 753 F.3d at 1310, but demonstrably feasible to estimate the general radius within which wind power facilities will likely be located, the carrying capacity of the transmission line, and the wind farm "build out" required to meet that capacity. Furthermore, courts have found that where "reliable stud[ies] or projections of future" activities exist, agencies must address such activities and their impacts as reasonably foreseeable. *See Jones*, 741 F.3d at 1001 (citing *N. Plains Res. Council*, 668 F.3d at 1079) (noting that where reliable studies and projections of future activities exist, the impacts are "reasonably foreseeable"). Such "reasonable forecasting" based on data and industry practice would add essential depth to a discussion regarding reasonably foreseeable impacts. *See Mid-States Coal. for Progress*, 345 F.3d at 549 (concluding that where the adverse effects from the readily foreseeable increase in coal sales were certain to occur and those effects could be meaningfully forecast, they were not speculative and should have been analyzed in an EIS).

In sum, the FWS may not "shirk its responsibilities under NEPA by labeling any and all discussion" of these environmental effects as "crystal ball inquiry." *Del. Riverkeeper Network*, 753 F.3d at 1310. The indirect and cumulative impacts that will result from the construction of the R-Project are unquestionably "reasonably foreseeable." Especially given NPPD's longstanding involvement with local wind energy associations, it is disingenuous for NPPD to suggest otherwise. Moreover, methods and models exist to reasonably forecast the impacts of wind development connected to the R-Project. Therefore, the FWS is obligated to examine the impacts of the very development that its action is intended to catalyze.

B. The Indirect Impacts from Wind Energy Development are Sufficiently Causally Related to the R-Project to Require Analysis in an EIS.

NEPA obligates federal agencies to take a "hard look" at the environmental consequences of its actions. *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983). As part of this review, the agency must examine the indirect effects of a proposed project. 40 C.F.R. § 1508.8. "Indirect effects" are those that are "later in time or farther removed in distance," yet "reasonably foreseeable," *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 764 (2004), and include those "growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems," 40 C.F.R. § 1508.8(b).

Oklahoma converter station and in areas with high wind resource potential and suitable land use(s)." *Id.* Moreover, the EIS discussed the impacts of the *potential* wind energy developments that although not yet identified, would likely "result after the Project is constructed." *See, e.g., id.* at 3.3-25; 3.14-64 to 3.14-68. Thus, *even though* no wind energy facilities were proposed at the time the project's EIS was finalized, it still endeavored to analyze the foreseeable impacts on resources occurring within a reasonably forecast radius. There is therefore no merit to NPPD's assertions that such an analysis is impossible or too speculative to be useful.

1. *The FWS Must Examine the Indirect Impacts of Future Wind Development Because there is a "Reasonably Close Causal Relationship" Between the Environmental Effects of Increased Wind Energy Facilities and the Construction of the R-Project.*

NPPD acknowledges that NEPA's obligation to consider indirect effects is triggered when there is a "'reasonably close causal relationship between the environmental effect and the alleged cause,' which is analogous to 'the familiar doctrine of proximate cause from tort law.'" NPPD White Paper at 6-7 (quoting *Dep't of Energy*, 867 F.3d at 198); *see also Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 769 (2004) ("NEPA requires a 'reasonably close causal relationship' between the environmental effect and the alleged cause," akin to the "familiar doctrine of *proximate* cause from tort law."). That is precisely the situation here.

There can be no legitimate dispute that, not only will the R-project be a "but for" cause of wind power development in the area—since industrial wind turbines obviously will not be built without a means of transmitting the power produced, and the R-project is designed to be *the* means for such transmission—but there is also a "reasonably close causal relationship," i.e., a "proximate cause" between the R-Project and the development of wind power. As a factual matter, the DEIS, once again, acknowledged that the R-Project is expressly intended to spur the development of wind energy in the region. *See* DEIS at 1-8 to 1-9 ("[T]he R-Project is intended to . . . provide transmission access to renewable energy resources (i.e., wind projects) in an area of Nebraska with wind resources."); *id.* at 1-10 ("The R-Project would allow for significant new generation *in this area*."). Indeed, the DEIS admits that without the R-Project, wind energy development in the region would be constricted. Thus, the construction of the R-Project is "an event that would itself contribute to growth in the region," and the FWS must therefore take a "hard look" at the effects of such development. *See Highway J Citizens Grp.*, 656 F. Supp. 2d at 887 (holding that where proposed projects will contribute to or quicken the pace of development, agencies must examine the effects of that growth).

The underlying policies and legislative intent of NEPA lend additional support to the position that the R-Project is the "legally relevant cause" of future wind projects in the area. *See Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 744 n.7 (1983) (directing courts to "look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not"). Under the "rule of reason," it is entirely reasonable (and hence legally required) for the FWS to assess the impacts from wind power development because the construction of the R-Project is "functionally inseparable" from the construction of wind facilities, which may not occur without FWS's approval of a Section 10 permit for the R-Project. *See Sierra Club v. Mainella*, 459 F.Supp.2d 76, 105 (D.D.C.2006) (holding that agencies must examine the indirect impacts of their actions where the impacts are "functionally inseparable" from activities for which the agency is granting the permit because they "may not take place" without the agency's approval of the permit). Additionally, such information is surely "useful" to the decisionmaking process insofar as it bears directly on the criteria that the FWS must apply in deciding whether to issue a permit. *See id.* at 105 (citing *Pub. Citizen*, 541 U.S. at 767-68). Finally, by omitting any discussion of the anticipated indirect adverse effects associated with facilitating additional industrial wind turbines in essential migratory bird habitat, the indirect effects analysis both excludes key features that must be considered under NEPA, *see* 40 C.F.R. §

1508.8(b), and deprives the public of the opportunity to assess the complete environmental picture, in contravention of NEPA's "twin aims" of ensuring that agencies "consider every significant aspect of the environmental impact of a proposed action" and "inform the public that it has indeed considered environmental concerns in its decisionmaking process." *Baltimore Gas & Elec. Co.*, 462 U.S. at 97 (internal quotation omitted). Therefore, under these circumstances, NEPA plainly requires the FWS to examine the impacts of future wind development that is causally related to the R-project.

Contrary to NPPD's suggestion, the fact that wind power projects could conceivably be built—in some manner, at some time—even if the R-Project is not constructed surely does not break the chain of proximate causation. If it did, then federal agencies would *never* engage in an indirect effects analysis (or, for that matter, any NEPA analysis at all), because it is *always* theoretically conceivable that impacts resulting from an agency action *could* at some time in the future result from some other hypothesized action that may or may not ever materialize. Obviously, that is, and cannot be, the pertinent legal test for whether and how NEPA analysis must be conducted for the concrete action that *is* being considered. Rather, once again, "indirect effects" that must be considered are those that "*are caused by the action*" and are "reasonably foreseeable," and include "growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."[9] 40 C.F.R. § 1508.8(b). An assessment of a proposed project's "growth-inducing" potential necessarily includes those "impacts expected due to other construction and development within the project area *likely to result*" from the proposed project. *N.C. All. for Transp. Reform*, 151 F. Supp. 2d at 696 (emphasis added).

Moreover, an "EIS cannot simply assume that development will occur at the same pace" regardless of whether the project is built. *Highway J Citizens Grp.*, 656 F. Supp. 2d at 887-88; *see also Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124, 1136-37 (9th Cir. 2011) (finding that the agency failed to examine the growth inducing effects of the construction of a new runway when it offered only conclusory assertions that the runway would not increase demand). This is especially true here, where the DEIS admitted that development of wind power would in fact be curtailed without the R-Project. *See* DEIS 1-11. Therefore, the FWS may not avoid taking a "hard look" at the wind power growth-inducing effects that *will* flow from its proposed action of

---

[9] Courts have routinely enforced this obligation against agencies. *See, e.g.*, *City of Davis*, 521 F.2d at 675 (holding that agency violated NEPA when it failed to examine the growth inducing effects of an interchange project where "the growth-inducing effects of the . . . project *are its raison d' etre*" (emphasis added)); *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 867–70 (9th Cir.2005) (holding that an agency violated NEPA by failing to account for the environmental effects of the additional tanker traffic that would be caused by a proposed dock expansion); *Highway J Citizens Grp.*, 656 F. Supp. 2d at 887-88 (holding that the agency's failure to examine the growth-inducing effects of a highway expansion on development violated NEPA); *Friends of the Earth, Inc.*, 109 F. Supp. 2d at 41 (holding that the Corps violated NEPA where it failed to examine the reasonably foreseeable growth inducing effects of casino project where economic development of areas was "an announced goal and anticipated consequence" of the project).

authorizing a transmission line designed to contribute to the expansion of wind power projects in the region. *See Fla. Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 401 F. Supp. 2d 1298, 1326 (S.D. Fla. 2005) (holding that the agency may not exclude the growth-inducing effects of the proposed project from its environmental analysis where it "is aware that future development may occur [and] that the proposed project may entice further development").

2. *The FWS May Not Refuse to Examine the Indirect Impacts of Future Wind Development Where the Agency May Rely on the Adverse Effects of Such Development to Deny the Permit.*

NPPD also attempts to escape the inevitable conclusion that the FWS must examine the impacts of wind power development with a convoluted argument that the FWS is not the "legally relevant cause" of future wind projects. NPPD White Paper at 9. In making this assertion, NPPD contends that under Section 10 of the ESA, the FWS "must issue an incidental take permit if the applicant satisfies the issuance criteria," *id.* (citing 16 U.S.C. § 1539(a)(2)(B)), and further, that "[t]hose issuance criteria do not include *cumulative* impacts of future development." *Id.* (emphasis added). NPPD conspicuously does not assert that *indirect* effects of future wind projects associated with the R-project do not fall within the Section 10 "issuance criteria" and any such argument would be impossible to harmonize with the precedent cited by NPPD itself as well as the plain terms of the Section 10 criteria.[10]

[10] Although it is crystal-clear that the indirect effects of the R-project on listed species is a sufficient basis to reject NPPD's effort to immunize foreseeable wind power development from the FWS's NEPA review, NPPD's assertion that the FWS may not consider the cumulative impacts of future development when reviewing an ITP application also misreads the Service's ESA obligations. The issuance of an ITP is a federal action that must comply with the Section 7(a)(2), which requires each federal agency, including FWS, to ensure that any action authorized or carried out by the agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2). Because an ITP allows an otherwise unlawful take of listed species, FWS must engage in formal, internal consultation when considering an ITP application. *Id.;* 50 C.F.R. § 402.14; *see also* Fish & Wildlife Serv. & Nat'l Marine Fisheries Serv., *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* 3-27 to 3-28 (2016) ("HCP Handbook"). By its plain language, the regulations governing formal consultation require that the FWS consider the direct and indirect effects of the action along with the "*cumulative effects*" of the action, defined to include "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." 50 C.F.R. §§ 402.02, 402.14(g)(3). In turn, the "action area" comprises "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." *Id.* § 402.02. Thus, Section 7 of the ESA plainly requires the FWS to consider whether the R-Project, in conjunction with cumulative impacts on protected species in the action, will jeopardize any listed species. *See* HCP Handbook at 12-6 (explaining that if the take authorized by an ITP, along with direct, indirect, and cumulative impacts, would jeopardize the existence of any listed species, the FWS cannot issue the ITP).

NPPD relies on *Sierra Club v. FERC ("Se. Market")*, 867 F.3d 1357 (D.C. Cir. 2017), NPPD White Paper at 9, for the proposition that an agency has no obligation to consider environmental information where it is "forbidden to rely on the effects of [the activity] *as a justification for* denying" a permit. *Id.* at 1373. NPPD insists that the FWS's "limited authority" under Section 10 "is akin to FERC's limited authority in the [liquefied natural gas ("LNG")] terminal cases, where future natural gas production was not an indirect effect of FERC's proposed action regarding the terminal modifications, since the impacts of that production could not influence FERC's decision." NPPD White Paper at 9. It concludes that "future power projects are not an indirect effect of [the FWS's] proposed action regarding the take permit application because the impacts of such development cannot influence [the FWS's] decision regarding the [ITP]." *Id.*

In *Southeast Market*, the DC Circuit held that FERC had to consider the indirect effects of the increased greenhouse gas emissions that would result from its authorization of three natural gas pipeline projects. *See* 867 F.3d at 1374. The court distinguished the case from its earlier ruling in *Sierra Club v. FERC (Freeport)*, 827 F.3d 36 (D.C. Cir. 2016), where it held that FERC's decision to issue an upgrade license for a liquefied natural gas terminal did not require an analysis of the indirect effects of exporting natural gas. *Id.* at 47. Comparing the two cases, the *Southeast Market* court noted that FERC's authority to issue an upgrade license to an LNG facility was derived from a narrow delegation from the Department of Energy that limited the grounds on which FERC could base its decision. 867 F.3d at 1373. FERC's authority was limited to authorizing the siting, construction, and operation of the Freeport facility; it had no authority to "rely on the effects of gas exports as a justification for denying an upgrade license." *Id.* In contrast, when evaluating applications to construct and operate interstate pipelines, FERC had broad *statutory* authority to consider various criteria, including balancing "the public benefits against the adverse effects of the project." *Id.* Thus, the question of which impacts FERC was obligated to consider turned not on "What activities does FERC regulate?" but on the question, "What factors can FERC consider when regulating in its proper sphere?" *Id.* Applying these principles to the R-Project, the FWS must examine the indirect effects of wind power development provided that the agency has the authority to rely on those effects as a basis for denying an application for an ITP.

Section 10 of the ESA specifies that the FWS may, in limited circumstances, issue an ITP for an activity that would otherwise constitute an unlawful taking if the taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B). An applicant for an ITP must submit an HCP that describes:

> (i) The *impact which will likely result from such taking*; (ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; (iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and (iv) *such other measures that the Secretary may require as being necessary or appropriate for purposes of the* [HCP].

Id. § 1539(a)(2)(A) (emphasis added). The Service "shall issue the permit" if it receives "assurances" that the conservation plan will be implemented and if it makes the following five findings:

> (i) the taking will be incidental;
> (ii) the applicant *will, to the maximum extent practicable, minimize and mitigate the impacts of such taking*;
> (iii) the applicant will ensure that adequate funding for the plan will be provided;
> (iv) *the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild*; and
> (v) *the measures, if any, [otherwise required by the Secretary] will be met.*

16 U.S.C. § 1539(a)(2)(B) (emphasis added) . Further, the ESA provides that the Service may require "such other assurances as [the Secretary] may require that the [conservation] plan will be implemented," and may impose "such terms and conditions as the Secretary deems necessary or appropriate to carry out the purposes of this paragraph." *Id.*

These ITP application and issuance criteria most assuredly *do* encompass the R-project's indirect effects. First, in evaluating the "impact that will likely result from such taking" and whether the applicant "will, to the maximum extent practicable, minimize and mitigate the impacts of such taking," the FWS is obligated to consider the *entirety* of the "taking" of listed species that will result from issuance of the ITP. Second, the issuance criterion that the ITP cannot "appreciably reduce the likelihood of survival and recovery of the species in the wild," 16 U.S.C. § 1539(a)(2)(B), mirrors the definition of "jeopardy" under the Section 7 regulations, which define "jeopardize the continued existence of" as "to engage in an action that reasonably would be expected, directly *or indirectly*, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 CFR § 402.02 (emphasis added). Congress was explicit about this link, stating in the Conference Report on the 1982 ESA amendments that the FWS will determine whether or not to grant a permit, "in part, by using the same standard as found in Section 7(a)(2) of the ESA, as defined by the [FWS's] regulations." H.R. Conf. Rep. No. 97-835 at 30. Therefore, the FWS *must* examine the indirect impacts—defined as "those that are caused by the proposed action and are later in time, but still are reasonably certain to occur," 50 C.F.R. § 402.02—of its action prior to issuing a Section 10 permit.

Courts have therefore made clear that "indirect effects" under the ESA encompass "the total impact of the [project] on the [listed species]," which includes the impacts from future private development that is linked to the action at issue and "reasonably certain to occur." *See Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359, 373-74 (5th Cir. 1976) (finding that "indirect effects" under the ESA included the impacts from the increased residential and commercial development reasonably certain to occur as a result of the construction of a highway); *see also Nat'l Wildlife Fed'n v. FEMA*, 345 F. Supp. 2d 1151, 1176 (W.D. Wash. 2004) (finding that FEMA was obligated to analyze the indirect impacts from the increased development that was reasonably certain to occur as a result of its action on listed salmon species). Moreover, "the fact that the private development . . . does not result from direct federal action does not lessen the [agency's] duty" to consider the effects of such development. *Coleman*, 529 F.2d at 374. As

extensively discussed above, the construction of the R-Project will almost certainly (and is intended to) result in the development of industrial wind power facilities in the same vicinity and affecting the same species as the R-project. Such development is therefore an "indirect effect" of the R-Project. If the FWS determines that the indirect effects of future development on listed species would "reduce the likelihood of survival and recovery" of a listed species, 16 U.S.C. § 1539(a)(2)(B), then the Section 10 issuance criteria are not satisfied, and the agency may not legally issue an ITP. Thus, contrary to NPPD's assertion, the impacts from wind energy development *can*—and indeed, must—"influence [the FWS's] decision regarding the permit" and hence must be analyzed as part of the FWS's NEPA process, as well as in the agency's ESA Sections 7 and 10 analyses.[11] NPPD White Paper at 9. Because the FWS could deny a permit on the ground that the proposed transmission line's direct *and* indirect effects "would be too harmful to the environment, the agency is the 'legally relevant cause' of the direct and indirect environmental effects of [the project] it approves," and it must take a "hard look" at these indirect effects in its environmental analysis. *Se. Market*, 867 F.3d at 1374.

Conclusion

For the foregoing reasons, it would be unlawful for the FWS to issue an ITP for the R-Project *without* fully evaluating the cumulative and indirect impacts of future wind development in the vicinity of the project.

[11] It must also be emphasized that NPPD's assertion to the contrary is antithetical to the very purpose of the ESA. By insisting that the FWS avoid taking indirect adverse effects into account when issuing an ITP, NPPD would have the FWS turn a blind eye to actions with reasonably foreseeable impacts that would jeopardize the continued existence of listed species. Such a result would render the ESA essentially meaningless, and is contrary to the statutory and regulatory language, as well as the overriding purpose of the ESA.

Meyer Glitzenstein & Eubanks LLP

4115 Wisconsin Avenue, N.W., Suite 210
Washington, D.C. 20016
Telephone (202) 588-5206
Fax (202) 588-5049
lmink@meyerglitz.com

2601 S. Lemay Ave., #7-240
Fort Collins, CO 80525
Telephone (970) 703-6060
Fax (202) 588-5049
beubanks@meyerglitz.com

May 23, 2018

Response of Nebraska Landowners to Nebraska Public Power District's White Paper on Cumulative Impacts and Indirect Effects

On behalf of a number of directly affected and interested landowners – Hanging H Real Estate Co. LLC, Bob Price, Jim Haughland, Jim Fleecs, Amy Ballagh, and Lemoyne Dailey (hereafter "Landowners") – we are submitting this response to Nebraska Public Power District's ("NPPD") February 14, 2018 White Paper on Cumulative Impacts and Indirect Effects ("White Paper"). The NPPD White Paper was prepared in response to the Landowners' comments on the Incidental Take Permit ("ITP") Application, Draft Habitat Conservation Plan ("DHCP"), Draft Environmental Impact Statement ("DEIS"), Draft Migratory Bird Conservation Plan ("DMBCP") and Draft Restoration Management Plan ("DRMP") for the R-Project Transmission Line in north-central Nebraska (the "R-Project"). Consequently, if the Fish and Wildlife Service ("FWS" or "Service") considers the NPPD White Paper, it is incumbent on the Service to also consider the Landowners' rebuttal to NPPD's arguments.

Commenters on the Draft EIS, including Landowners and the Center for Biological Diversity, informed the FWS that the draft documents and other materials made available for comment were woefully inadequate to support the issuance of an ITP for the R-Project for several reasons, including that the DEIS failed to take the requisite "hard look" at environmental impacts as required by the National Environmental Policy Act ("NEPA"), particularly those involving indirect and cumulative effects associated with future wind energy development catalyzed by the R-Project. In response, NPPD issued the White Paper insisting that the FWS was not obligated to "include additional analysis of future wind energy projects" because such projects were not reasonably foreseeable, and the R-Project was not the "legally relevant cause" of the development. For the reasons discussed below, NPPD's analysis is seriously flawed, and fails to demonstrate that the FWS is excused from fully analyzing the indirect and cumulative impacts of the wind development that *will result* from the construction of the R-Project. To the contrary, if the FWS issues an ITP based upon the DEIS as written, it will be doing so in clear violation of federal environmental law.

A. The Indirect and Cumulative Impacts from Wind Power Development are "Reasonably Foreseeable" and Must be Analyzed in an EIS.

NPPD's argument for why the cumulative and indirect impacts[1] of wind power development need not be included in the Environmental Impact Statement ("EIS") for the R-

[1] Cumulative impacts are those impacts that "result[] from the incremental impact[s] of the action when added to other past, present, and reasonably foreseeable future actions regardless of

Project hinges on its assertion that such projects and their impacts are not "reasonably foreseeable."[2] *See* NPPD White Paper at 5-6, 8. As NPPD acknowledges, to be considered "reasonably foreseeable," an impact must be "'sufficiently likely to occur that a person of ordinary prudence would take it into account.'" NPPD White Paper at 2 (quoting *Ark. Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 431 F.3d 1096, 1102 (8th Cir. 2005)). While we generally agree with NPPD's characterization of the legal standard, NPPD's application of those principles to the R-Project is fatally flawed and contravenes the very purpose of NEPA to take a "hard look" at all adverse impacts flowing from, and associated with, a federally authorized action.

As an initial matter, it is axiomatic that a "person of ordinary prudence" would take the impacts from future wind generation into account when considering the effects of a transmission line *expressly intended* to stimulate the development of wind resources in the area. *See City of Davis v. Coleman*, 521 F.2d 661, 675 (9th Cir. 1975) (holding that where the "raison d' etre" for the project is to promote development, the agency cannot "reasonably conclude" that such effects do not merit in-depth analysis in an EIS); *see also Friends of the Earth, Inc. v. U.S. Army Corps of Eng'rs*, 109 F. Supp. 2d 30, 41 (D.D.C. 2000) ("Since the economic development of these areas is an announced goal and anticipated consequence of the casino projects, the Corps cannot claim that the prospect of secondary development is 'highly speculative.'"). The DEIS made concrete and definite statements regarding the R-Project's contribution to future wind development, which amounted to far more than mere "general statement[s] regarding a desire for increased" wind development, *see Jones v. Nat'l Marine Fisheries Serv.*, 741 F.3d 898, 1001 (9th Cir. 2013) (holding that the impacts of future chromium mining were not "reasonably foreseeable" because there was "no reliable study or projection of future mining"). It specifically provided that the R-Project is expressly intended to catalyze wind energy development. *See* DEIS at 1-7 (identifying one of the central purposes of the R-Project as "provid[ing] opportunities for development of renewable energy projects, including wind power, in Nebraska"). Further, the DEIS *quantified* the R-Project's contribution to the reduction in the curtailment of wind energy development. *See* DEIS 1-11 (predicting that the R-Project will "reduce th[e] curtailment" in wind energy development in Nebraska from 15% to 3% or less). Therefore, the FWS cannot fairly dismiss future wind development and its associated impacts as "mere speculation." *See TOMAC v. Norton*, 240 F. Supp. 2d 45, 52 (D.D.C. 2003) (explaining that an agency's own projections of growth cannot be dismissed as speculative).

---

what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Indirect impacts are those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b).

[2] The cumulative impacts section of NPPD's White Paper focuses exclusively on the question of "reasonable foreseeability." *See* NPPD White Paper at 1-5. In the indirect impacts discussion, NPPD notes that "the 'reasonably foreseeable' inquiry discussed . . . in the context of cumulative impacts applies with equal force to indirect impacts." *Id.* at 6. NPPD asserts that "[f]or the reasons stated . . . in the cumulative impact analysis section, the impacts of future wind development, other than the Thunderhead Wind Energy Project, are not reasonably foreseeable and thus should not be considered indirect impacts of the R-Project." *Id.* at 8. Therefore, we also address reasonable foreseeability as it applies to both cumulative and indirect impacts.

Moreover, the impacts of wind development relate to the same environmental concerns regarding the R-Project itself, i.e., impacts to endangered species, migratory birds, and cultural resources, and consequently, are highly relevant to the FWS's decision regarding NPPD's proposal. *See Sierra Club v. U.S. Dep't of Energy ("Dep't of Energy")*, 867 F.3d 189, 198 (D.C. Cir. 2017) (citing *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004)) (providing that reasonable foreseeability requires consideration of the "usefulness of any new potential information to the decisionmaking process"). Additionally, the impacts that the R-Project and the wind development it spurs will have on listed species and migratory birds are the *primary consequences* of concern to the public and the agency when rendering a decision regarding listed species under the Endangered Species Act ("ESA"). *Cf. Ark. Wildlife Fed'n*, 431 F.3d at 1102 ("'[R]easonable foreseeability' does not include 'highly speculative harms' that 'distort[] the decisionmaking process' by emphasizing consequences beyond those of 'greatest concern to the public and of greatest relevance to the agency's decision.'"). Thus, the risks to those species—and to their environment—from the placement of wind farms within the Central Flyway must be analyzed in conjunction with the risks posed by the R-Project itself.

NPPD nevertheless argues that such development does not need to be analyzed in the R-Project's EIS because particular wind development projects are "not reasonably foreseeable until the developer has signed a generator interconnection agreement." NPPD White Paper at 6. According to NPPD, "[b]y that stage, while the future wind project still has considerable uncertainty, there are likely sufficient details for the project to be included in a meaningful way in a cumulative impact analysis." *Id.* Given the multi-step process for developing wind projects, NPPD asserts that "[e]ven when a wind developer has indicated that it intends to pursue a wind energy project in a general location, but such project is still in its infancy in the development process, it is not 'sufficiently likely to occur that a person of ordinary prudence would take it into account' due to the numerous contingencies between initial intent and actual operations." *Id.*; *see also id*. (asserting that "[a]ny attempt to analyze impacts at a local level inevitably would be 'more misleading than informative'").

This self-serving rationale for avoiding any hard look at impacts associated with the industrial wind power projects that the R-project is *intended* to facilitate is legally groundless. There is simply no sound legal basis for employing the signing of an interconnection agreement as the bright line for when foreseeable effects must be considered as part of the NEPA process. Rather, that litmus test appears to have been manufactured by NPPD solely for the purpose of *avoiding* the need to take a hard look at all of the adverse impacts associated with its project at a stage when those impacts must be taken into account in making an informed decision on the issuance of a federal permit.

NEPA's "hard look" requirement demands that the FWS engage in a meaningful discussion of the reasonably foreseeable future actions and their impacts even if all of the details of a particular project are not fully planned. *See N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1078 (9th Cir. 2011) ("[P]rojects need not be finalized before they are reasonably foreseeable."); *Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 937 F. Supp. 2d 1140, 1157 (N.D. Cal. 2013) (finding that the agency failed to evaluate the reasonably foreseeable impacts of an oil and gas leasing sale because although "the exact scope and extent of drilling that will involve fracking is unknown . . . 'the basic thrust' of NEPA is to require that agencies

consider the range of possible environmental effects before resources are committed and the effects are fully known"). The legally relevant inquiry is not whether an action is *certain* to occur, but whether it is "*sufficiently likely* to occur that a person of ordinary prudence would take it into account." *Ark. Wildlife Fed'n*, 431 F.3d at 1102 (emphasis added). Where the *express purpose* of the R-Project is to catalyze wind energy development, and particularly where the project's expected contribution to reducing the "curtailment" in that development *has been quantified*, *see* DEIS 1-11 (predicting that the R-Project will "reduce th[e] curtailment" in wind energy development in Nebraska from 15% to 3% or less), the FWS cannot reasonably say that the effects of that development are so uncertain or unlikely to occur that a person of ordinary prudence would not take them into account when reaching a decision.

Indeed, just as the construction of a highway must take into account the additional housing and commercial development impacts likely to ensue from the highway regardless of whether all of the details of the ensuing developments have been set in stone, FWS cannot avoid a hard look at the effects of associated wind power generation that the FWS *knows* to be part and parcel of NPPD's transmission line. *See, e.g.*, *Mid-States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003) (noting that an effect is "reasonably foreseeable" when it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision"); *N. Plains Res. Council*, 668 F.3d at 1078-79 (holding that reasonable projections of future development are not speculative and must be included in an impacts analysis, even if specific projects have not yet not been approved); *Highway J Citizens Grp. v. U.S. Dep't of Transp.*, 656 F. Supp. 2d 868, 887 (E.D. Wis. 2009) (holding that where construction of a highway will contribute to or quicken the pace of commercial development in an area, those effects are "reasonably foreseeable" and the agency must examine the impacts); *TOMAC v. Norton*, 240 F. Supp. 2d 45, 52 (D.D.C. 2003) (explaining that an agency's own projections of growth cannot be dismissed as speculative). The FWS's avoidance of a robust cumulative and indirect effects analysis on the sole ground that the details of an individual project are not yet finalized is tantamount to the agency deliberately sticking its head in the sand—the opposite of the "hard look" mandated by NEPA.[3]

Significantly, neither NPPD nor the FWS has coherently explained why a signed interconnection agreement is the dispositive factor for determining whether wind power expansion is "reasonably foreseeable" or merely "speculative." *See Sierra Club v. FERC ("Se. Market")*, 867 F.3d 1357, 1374 (D.C. Cir. 2017) (rejecting FERC's discussion of cumulative and indirect impacts where FERC failed to explain why it could not engage in "reasonable forecasting" to estimate the downstream greenhouse gas emissions that would indirectly result from its authorization of three pipelines, and have cumulative impacts on the region). In its response to commenters, NPPD offered the conclusory and vague assertion that until that point in the development process, there are too many "contingencies between initial intent and actual

[3] Particularly with regard to the indirect effects analysis, NEPA regulations and case law make crystal-clear that the *entire point* of the evaluation is to ensure that a hard look is taken at impacts that may not be encompassed within the immediate project footprint itself (such as a highway) but *will* nonetheless predictably emanate from it (such as third party development resulting from construction of a highway).

operations." NPPD White Paper at 6. However, once again, "projects need not be finalized before they are reasonably foreseeable." *N. Plains Res. Council*, 668 F.3d at 1078; *cf. Se. Market*, 867 F.3d at 1374 ("[T]he existence of permit requirements overseen by another federal agency or state permitting authority cannot substitute for a proper NEPA analysis."). While the development of any one particular wind *project* may be uncertain—just as the development of any one parcel of land as a result of a highway expansion or new exist ramp from a highway might be uncertain—the R-Project's contribution to wind power development in the area—*and the nature of that development's impacts on the area's wildlife and other resources*—are not only reasonably foreseeable, but they are almost certain to occur and are the very purpose of the project for which federal authorization is sought.[4] Consequently, although the precise extent of the impacts is uncertain, the FWS "may not simply ignore the effect[s]" of such development on the surrounding ecosystem. *See Mid-States Coal. for Progress*, 345 F.3d at 549 (holding that the agency's obligation to assess the indirect impacts of a proposed coal rail line required an analysis of the impacts to air quality, as it was reasonably foreseeable that the increased availability of coal would drive the construction of additional power plants). Thus, the significant expansion of wind power turbines resulting from the R-Project is "reasonably foreseeable" within the meaning of the CEQ regulations—indeed, it is the *intended result*—irrespective of whether an interconnection agreement has yet been signed for a particular project.

---

[4] The close relationship between the R-Project and the wind power development that it is intended to induce and facilitate also distinguish the R-Project from the projects that were the subjects of the cases relied upon by NPPD in its White Paper. For example, in *Gulf Restoration Network v. U.S. Department of Transportation*, 452 F.3d 362 (5th Cir. 2006), the Fifth Circuit upheld the Secretary of Transportation's decision to exclude from its cumulative impacts analysis for a deepwater port facility three other deepwater port proposals for which applications had been filed, but draft EISs had not yet been published, because such projects were not "reasonably foreseeable" due to the multiple contingencies that could occur between the filing of an application under the Deepwater Port Act and the publication of a draft EIS. *Id.* at 369-71. Likewise, in *Airport Impact Relief, Inc. v. Wykle*, 192 F.3d 197 (1st Cir. 1999), the First Circuit upheld the FHWA's determination that the potential future expansion of an airport was not reasonably foreseeable and did not merit discussion in the cumulative impacts analysis for a highway project "designed to ameliorate traffic congestion through downtown Boston and the two tunnels connecting downtown Boston with East Boston and Logan Airport." *Id.* at 200, 206. However, neither of those projects had the *express purpose* of bringing about the actions that the agencies determined were not "reasonably foreseeable." The deepwater port at issue in *Gulf Restoration Network* was not in any way connected to the three proposed facilities, *see* 452 F.3d at 369-70, nor was the highway project at issue in *Airport Impact Relief, Inc.* "part of a 'chain of . . . actions' that . . . will eventually lead to airport expansion," 192 F.3d at 205-06. In contrast, the R-Project is expressly intended to trigger the development of wind energy in the area. The construction of the transmission line is intimately connected to the construction of wind facilities, and is "part of a 'chain of . . . actions' that . . . will eventually lead" to the placement of additional wind turbines in essential migratory bird habitat. *See id.* It therefore defies logic as well as the law to insist that actions taken to undertake such development – and the associated impacts – are not "reasonably foreseeable."

Moreover, it is well established that "'reasonable forecasting' is implicit in NEPA and that it is the responsibility of federal agencies to predict the environmental effects of proposed actions *before they are fully known*." Council on Envtl. Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* 19 (1997); *see also Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1310 (D.C. Cir. 2014) ("[R]easonable forecasting is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry." (internal quotation and citation omitted)). Indeed, NEPA's regulations specifically "provide for including those uncertainties in the environmental impact assessment *where the foreseeable future action is not planned in sufficient detail to permit complete analysis*." Council on Envtl. Quality, *supra* at 19-20 (quoting 40 C.F.R. § 1502.22 (providing that where uncertainties exist, agencies must evaluate the impacts from such actions "based upon theoretical approaches or research methods generally accepted in the scientific community")). The D.C. Circuit recently reaffirmed an agency's obligation to "make educated assumptions about an uncertain future," even where variables—"including the operating decisions of individual plants and the demand for electricity in the region"—are uncertain. *Se. Market*, 867 F.3d at 1374. Contrary to NPPD's insistence, the FWS cannot lawfully circumvent conducting a meaningful analysis of the anticipated adverse effects associated with facilitating wind power development in endangered species and essential migratory bird habitat simply because it would require some degree of forecasting or modeling to predict "where future wind projects may be developed, how many turbines they would include, what other infrastructure they would entail, and when they would be in service." NPPD White Paper at 6.

This is especially true where information that would allow for a meaningful discussion of the nature of the adverse impacts from wind development *undoubtedly exists*. NPPD contends that the FWS cannot "narrow[] down the likely locations for future wind projects" connected to the R-Project due to Nebraska's "considerable wind resources across most of the state." NPPD White Paper at 6. However, the DEIS acknowledged that the R-Project is expressly intended to stimulate wind power development *within the vicinity of the transmission line*.[5] *See* DEIS at 1-10

[5] For this reason, the principal case NPPD relies upon, *Sierra Club v. U.S. Department of Energy*, 867 F.3d 189 (D.C. Cir. 2017), is inapposite. There, the D.C. Circuit found that the Department had examined the adverse impacts from increased natural gas production as a result of its authorization of liquefied natural gas ("LNG") exports generally, and had reasonably explained that it could not predict the impacts from such production at the local level due to the complex and unpredictable factors that drove local responses to national fluctuations in the gas market. *Id.* at 198-99. Because "nearly all of the environmental issues presented by unconventional gas production are local in nature," the Department concluded that without knowing where *in the entire nation* the production would occur, "the corresponding environmental impacts [were] not reasonably foreseeable under NEPA." *Id.* at 199. In contrast, here, the R-Project is expressly intended to catalyze wind development *in the area*. *See* DEIS at 1-10 ("The R-Project would allow for significant new generation *in this area*."). Indeed, the DEIS admits that the R-Project is being built to "provide transmission access to renewable energy resources (i.e., wind projects) in an area of Nebraska with wind resources." *Id.* at 1-8 to 1-9. In fact, several potential locations for those developments *are already identified* in publicly

("The R-Project would allow for significant new generation [of wind power] *in this area*.") (emphasis added). Additionally, maps submitted to the FWS—and available through public records maintained by the County Registers of the counties surrounding the R-Project—identify the areas where wind power development connected to the R-Project is slated to occur.[6] *See* Attach. A (letter and maps submitted to the FWS). Given this information, the FWS cannot reasonably find that predicting the impacts from wind power development amounts to "foresee[ing] the unforeseeable," *Del. Riverkeeper Network*, 753 F.3d at 1310, nor can it conclude that it has "no information as to the scope or location of any future projects," *Jones*, 741 F.3d at 1001 (citing *N. Plains Res. Council*, 668 F.3d at 1079) (recognizing that where there are reliable projections of future growth, the agency must consider the impacts as "reasonably foreseeable"). To the contrary, it is reasonably foreseeable—indeed, it is almost certainly true—that the R-Project will, as intended, "allow for significant new [wind power] generation *in this area*." Yet, neither NPPD, nor the FWS has offered any explanation for why the FWS could not use this information and other "theoretical approaches or research methods generally accepted in the scientific community" to "estimate the locale" of wind power development and analyze the adverse environmental effects associated with such development.[7] *See Dep't of Energy*, 867 F.3d

---

available documents. Given these important distinctions, it is apparent that NPPD's reliance on this case is misplaced.

[6] For example, public records maintained by the Cherry Country Registrar indicate that at least forty-seven landowners are "participants" in Cherry County Wind, LLC ("CCW"), a private wind development enterprise. CCW's website claims that over 450,000 acres of land are enrolled, nearly all of which are within the ranges of both the whooping crane and the American Burying Beetle. *See* Cherry Cty. Wind, LLC, *History of Cherry County Wind*, http://www.cherrycountywind.com/history/ (Attach B). These maps show the location and amount of private and public acreage committed to wind developers as "invested lands." Moreover, *seven years* ago, in 2011, NPPD participated in a series of meetings with CCW. Attach. B (noting that CCW officers met with NPPD representatives to discuss how the group could "help facilitate transmission lines in Cherry County to export [wind] energy produced by the area"). Thereafter, CCW began to recruit landowners into the Cherry County Wind Energy Association, a group formed to represent member landowners in negotiations with wind developers. *Id.* Significantly, CCW explicitly relied upon the availability of, and the ability to link wind projects to, the R-Project when courting landowners and other investors. *Id.* (recruiting potential members based on the construction of the R-Project, and promising to "represent member landowners in negotiations with potential developers who can be difficult to deal with"). Cherry County Commissioners have also recently rushed to promulgate regulations related to wind energy. *See* Attach. A (detailing same). Given this newly uncovered context, it is especially anomalous for NPPD to contend that it is somehow premature for the FWS to examine the impacts of wind power development concurrently with those of the construction of the R-Project.

[7] Significantly, several efforts to map wind energy potential in Nebraska have produced maps depicting the average annual wind speed throughout Nebraska at heights of 30, 50, 70, and 100 m above ground (i.e., the average heights of wind turbine towers). *See, e.g.*, AWS Truewind, *Wind Energy Resource Maps of Nebraska* (2005), *available at* http://www.neo.ne.gov/renew/041229_1127/Nebraska_Wind_Mapping_Final_Report.pdf (final report), http://www.neo.ne.

at 198 (upholding the Department's conclusion that the local impacts of export-induced gas production were not reasonably foreseeable where the Department offered a reasoned explanation for why it would be far too speculative to use an economic model to estimate localized impacts). Even more troubling, the R-Project's DEIS failed to mention the impacts from wind power development at all in the discussion of indirect impacts to *any* resource, and gave such impacts only cursory mention in the discussion of potential cumulative effects. This cannot pass muster under pertinent NEPA precedents.

Finally, NPPD's assertion that the FWS cannot possibly foresee the adverse impacts of wind development that will result from the construction of the R-Project is belied by industry practice and ignores NEPA's demand that agencies fulfill their duties "to the fullest extent possible." *Del. Riverkeeper Network*, 753 F.3d at 1310 (quoting *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)). While it is a truism that "the statute does not demand forecasting that is 'not meaningfully possible,'" White Paper at 6, that is surely not the case here, where the project is *expressly intended* to spur the development of wind power in the surrounding area. Indeed, EISs for similar transmission line projects demonstrate that it is feasible to have a meaningful, qualitative discussion regarding the impacts of wind power development on the region *without* knowing all specific details of individual projects.[8] Instead, the impacts from wind power development catalyzed by those projects were

---

gov/renew/wind.htm (maps) (Attach. C). Such efforts have also generated maps illustrating general wind resource potential for 110-meter and 140 meter wind towers. *See* Office of Energy Efficiency & Renewable Energy, Dep't of Energy, *Wind Energy in Nebraska*, https://windexchange.energy.gov/states/ne (last visited May 22, 2018) (Attach. D). Moreover, a study commissioned by the Nebraska Power Review Board estimated the new wind capacity that would be added by transmission projects, including the R-Project. *See* Judy Chang et al., The Brattle Grp., *Nebraska Renewable Energy Export (LB1115) Study* (2014) (Attach. E). These data can be—*and are*—used to reasonably forecast the indirect and cumulative effects of wind development from projects that are intended to catalyze such development. *See, e.g.*, U.S. Dep't of Energy, *Plains & Eastern Clean Line Transmission Project: Environmental Impact Statement* S-ii (2015) (Attach. F) (using wind resource data to estimate the radius within which wind power projects connected to a transmission line constructed to stimulate the development of wind energy would be located).

[8] Other transmission projects that were similarly expressly built to facilitate wind power development demonstrate that such reasonable forecasting is possible, meaningful, and reasonable. For example, the Clean Line Energy Partners LLC ("Clean Line Energy") developed a proposed transmission line that was also expressly intended to facilitate wind power development. *See* Attach. F. Based on "preliminary studies of engineering constraints and wind resource data, industry knowledge, and economic feasibility," the EIS for the project estimated that wind power facilities that would interconnect with the proposed transmission line would be located within a forty mile from the project." *Id.* at S-49 to -50. Based on the transmission capacity of the proposed line, the EIS further estimated the "actual wind farm build-out." *Id.* at 2-47. The EIS stated that the agency could not know the exact location of wind power facilities that would be connected to the Project. *Id.* However, it acknowledged that it was "reasonably foreseeable that future wind farms would be located in a reasonable proximity to the Project's

forecast based upon "engineering constraints and wind resource data, industry knowledge, and economic feasibility." *See* U.S. Dep't of Energy, *Plains & Eastern Clean Line Transmission Project: Environmental Impact Statement* S-49 to -50 (2015) (describing model used to project future wind energy development) (Attach. F). Thus, contrary to NPPD's assertions, it is not only "meaningfully possible," *Del. Riverkeeper Network*, 753 F.3d at 1310, but demonstrably feasible to estimate the general radius within which wind power facilities will likely be located, the carrying capacity of the transmission line, and the wind farm "build out" required to meet that capacity. Furthermore, courts have found that where "reliable stud[ies] or projections of future" activities exist, agencies must address such activities and their impacts as reasonably foreseeable. *See Jones*, 741 F.3d at 1001 (citing *N. Plains Res. Council*, 668 F.3d at 1079) (noting that where reliable studies and projections of future activities exist, the impacts are "reasonably foreseeable"). Such "reasonable forecasting" based on data and industry practice would add essential depth to a discussion regarding reasonably foreseeable impacts. *See Mid-States Coal. for Progress*, 345 F.3d at 549 (concluding that where the adverse effects from the readily foreseeable increase in coal sales were certain to occur and those effects could be meaningfully forecast, they were not speculative and should have been analyzed in an EIS).

In sum, the FWS may not "shirk its responsibilities under NEPA by labeling any and all discussion" of these environmental effects as "crystal ball inquiry." *Del. Riverkeeper Network*, 753 F.3d at 1310. The indirect and cumulative impacts that will result from the construction of the R-Project are unquestionably "reasonably foreseeable." Especially given NPPD's longstanding involvement with local wind energy associations, it is disingenuous for NPPD to suggest otherwise. Moreover, methods and models exist to reasonably forecast the impacts of wind development connected to the R-Project. Therefore, the FWS is obligated to examine the impacts of the very development that its action is intended to catalyze.

B. The Indirect Impacts from Wind Energy Development are Sufficiently Causally Related to the R-Project to Require Analysis in an EIS.

NEPA obligates federal agencies to take a "hard look" at the environmental consequences of its actions. *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983). As part of this review, the agency must examine the indirect effects of a proposed project. 40 C.F.R. § 1508.8. "Indirect effects" are those that are "later in time or farther removed in distance," yet "reasonably foreseeable," *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 764 (2004), and include those "growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems," 40 C.F.R. § 1508.8(b).

Oklahoma converter station and in areas with high wind resource potential and suitable land use(s)." *Id.* Moreover, the EIS discussed the impacts of the *potential* wind energy developments that although not yet identified, would likely "result after the Project is constructed." *See, e.g.*, *id.* at 3.3-25; 3.14-64 to 3.14-68. Thus, *even though* no wind energy facilities were proposed at the time the project's EIS was finalized, it still endeavored to analyze the foreseeable impacts on resources occurring within a reasonably forecast radius. There is therefore no merit to NPPD's assertions that such an analysis is impossible or too speculative to be useful.

1. *The FWS Must Examine the Indirect Impacts of Future Wind Development Because there is a "Reasonably Close Causal Relationship" Between the Environmental Effects of Increased Wind Energy Facilities and the Construction of the R-Project.*

NPPD acknowledges that NEPA's obligation to consider indirect effects is triggered when there is a "'reasonably close causal relationship between the environmental effect and the alleged cause,' which is analogous to 'the familiar doctrine of proximate cause from tort law.'" NPPD White Paper at 6-7 (quoting *Dep't of Energy*, 867 F.3d at 198); *see also Dep't of Transp. v. Pub. Citizen,* 541 U.S. 752, 769 (2004) ("NEPA requires a 'reasonably close causal relationship' between the environmental effect and the alleged cause," akin to the "familiar doctrine of *proximate* cause from tort law."). That is precisely the situation here.

There can be no legitimate dispute that, not only will the R-project be a "but for" cause of wind power development in the area—since industrial wind turbines obviously will not be built without a means of transmitting the power produced, and the R-project is designed to be *the* means for such transmission—but there is also a "reasonably close causal relationship," i.e., a "proximate cause" between the R-Project and the development of wind power. As a factual matter, the DEIS, once again, acknowledged that the R-Project is expressly intended to spur the development of wind energy in the region. *See* DEIS at 1-8 to 1-9 ("[T]he R-Project is intended to . . . provide transmission access to renewable energy resources (i.e., wind projects) in an area of Nebraska with wind resources."); *id.* at 1-10 ("The R-Project would allow for significant new generation *in this area*."). Indeed, the DEIS admits that without the R-Project, wind energy development in the region would be constricted. Thus, the construction of the R-Project is "an event that would itself contribute to growth in the region," and the FWS must therefore take a "hard look" at the effects of such development. *See Highway J Citizens Grp.*, 656 F. Supp. 2d at 887 (holding that where proposed projects will contribute to or quicken the pace of development, agencies must examine the effects of that growth).

The underlying policies and legislative intent of NEPA lend additional support to the position that the R-Project is the "legally relevant cause" of future wind projects in the area. *See Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 744 n.7 (1983) (directing courts to "look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not"). Under the "rule of reason," it is entirely reasonable (and hence legally required) for the FWS to assess the impacts from wind power development because the construction of the R-Project is "functionally inseparable" from the construction of wind facilities, which may not occur without FWS's approval of a Section 10 permit for the R-Project. *See Sierra Club v. Mainella*, 459 F.Supp.2d 76, 105 (D.D.C.2006) (holding that agencies must examine the indirect impacts of their actions where the impacts are "functionally inseparable" from activities for which the agency is granting the permit because they "may not take place" without the agency's approval of the permit). Additionally, such information is surely "useful" to the decisionmaking process insofar as it bears directly on the criteria that the FWS must apply in deciding whether to issue a permit. *See id.* at 105 (citing *Pub. Citizen*, 541 U.S. at 767-68). Finally, by omitting any discussion of the anticipated indirect adverse effects associated with facilitating additional industrial wind turbines in essential migratory bird habitat, the indirect effects analysis both excludes key features that must be considered under NEPA, *see* 40 C.F.R. §

1508.8(b), and deprives the public of the opportunity to assess the complete environmental picture, in contravention of NEPA's "twin aims" of ensuring that agencies "consider every significant aspect of the environmental impact of a proposed action" and "inform the public that it has indeed considered environmental concerns in its decisionmaking process." *Baltimore Gas & Elec. Co.*, 462 U.S. at 97 (internal quotation omitted). Therefore, under these circumstances, NEPA plainly requires the FWS to examine the impacts of future wind development that is causally related to the R-project.

Contrary to NPPD's suggestion, the fact that wind power projects could conceivably be built—in some manner, at some time—even if the R-Project is not constructed surely does not break the chain of proximate causation. If it did, then federal agencies would *never* engage in an indirect effects analysis (or, for that matter, any NEPA analysis at all), because it is *always* theoretically conceivable that impacts resulting from an agency action *could* at some time in the future result from some other hypothesized action that may or may not ever materialize. Obviously, that is, and cannot be, the pertinent legal test for whether and how NEPA analysis must be conducted for the concrete action that *is* being considered. Rather, once again, "indirect effects" that must be considered are those that "*are caused by the action*" and are "reasonably foreseeable," and include "growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."[9] 40 C.F.R. § 1508.8(b). An assessment of a proposed project's "growth-inducing" potential necessarily includes those "impacts expected due to other construction and development within the project area *likely to result*" from the proposed project. *N.C. All. for Transp. Reform*, 151 F. Supp. 2d at 696 (emphasis added).

Moreover, an "EIS cannot simply assume that development will occur at the same pace" regardless of whether the project is built. *Highway J Citizens Grp.*, 656 F. Supp. 2d at 887-88; *see also Barnes v. U.S. Dep't of Transp.*, 655 F.3d 1124, 1136-37 (9th Cir. 2011) (finding that the agency failed to examine the growth inducing effects of the construction of a new runway when it offered only conclusory assertions that the runway would not increase demand). This is especially true here, where the DEIS admitted that development of wind power would in fact be curtailed without the R-Project. *See* DEIS 1-11. Therefore, the FWS may not avoid taking a "hard look" at the wind power growth-inducing effects that *will* flow from its proposed action of

---

[9] Courts have routinely enforced this obligation against agencies. *See, e.g.*, *City of Davis*, 521 F.2d at 675 (holding that agency violated NEPA when it failed to examine the growth inducing effects of an interchange project where "the growth-inducing effects of the . . . project *are its raison d' etre*" (emphasis added)); *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 867–70 (9th Cir.2005) (holding that an agency violated NEPA by failing to account for the environmental effects of the additional tanker traffic that would be caused by a proposed dock expansion); *Highway J Citizens Grp.*, 656 F. Supp. 2d at 887-88 (holding that the agency's failure to examine the growth-inducing effects of a highway expansion on development violated NEPA); *Friends of the Earth, Inc.*, 109 F. Supp. 2d at 41 (holding that the Corps violated NEPA where it failed to examine the reasonably foreseeable growth inducing effects of casino project where economic development of areas was "an announced goal and anticipated consequence" of the project).

authorizing a transmission line designed to contribute to the expansion of wind power projects in the region. *See Fla. Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 401 F. Supp. 2d 1298, 1326 (S.D. Fla. 2005) (holding that the agency may not exclude the growth-inducing effects of the proposed project from its environmental analysis where it "is aware that future development may occur [and] that the proposed project may entice further development").

2. *The FWS May Not Refuse to Examine the Indirect Impacts of Future Wind Development Where the Agency May Rely on the Adverse Effects of Such Development to Deny the Permit.*

NPPD also attempts to escape the inevitable conclusion that the FWS must examine the impacts of wind power development with a convoluted argument that the FWS is not the "legally relevant cause" of future wind projects. NPPD White Paper at 9. In making this assertion, NPPD contends that under Section 10 of the ESA, the FWS "must issue an incidental take permit if the applicant satisfies the issuance criteria," *id.* (citing 16 U.S.C. § 1539(a)(2)(B)), and further, that "[t]hose issuance criteria do not include *cumulative* impacts of future development." *Id.* (emphasis added). NPPD conspicuously does not assert that *indirect* effects of future wind projects associated with the R-project do not fall within the Section 10 "issuance criteria" and any such argument would be impossible to harmonize with the precedent cited by NPPD itself as well as the plain terms of the Section 10 criteria.[10]

---

[10] Although it is crystal-clear that the indirect effects of the R-project on listed species is a sufficient basis to reject NPPD's effort to immunize foreseeable wind power development from the FWS's NEPA review, NPPD's assertion that the FWS may not consider the cumulative impacts of future development when reviewing an ITP application also misreads the Service's ESA obligations. The issuance of an ITP is a federal action that must comply with the Section 7(a)(2), which requires each federal agency, including FWS, to ensure that any action authorized or carried out by the agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2). Because an ITP allows an otherwise unlawful take of listed species, FWS must engage in formal, internal consultation when considering an ITP application. *Id.;* 50 C.F.R. § 402.14; *see also* Fish & Wildlife Serv. & Nat'l Marine Fisheries Serv., *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* 3-27 to 3-28 (2016) ("HCP Handbook"). By its plain language, the regulations governing formal consultation require that the FWS consider the direct and indirect effects of the action along with the "*cumulative effects*" of the action, defined to include "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." 50 C.F.R. §§ 402.02, 402.14(g)(3). In turn, the "action area" comprises "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." *Id.* § 402.02. Thus, Section 7 of the ESA plainly requires the FWS to consider whether the R-Project, in conjunction with cumulative impacts on protected species in the action, will jeopardize any listed species. *See* HCP Handbook at 12-6 (explaining that if the take authorized by an ITP, along with direct, indirect, and cumulative impacts, would jeopardize the existence of any listed species, the FWS cannot issue the ITP).

NPPD relies on *Sierra Club v. FERC ("Se. Market")*, 867 F.3d 1357 (D.C. Cir. 2017), NPPD White Paper at 9, for the proposition that an agency has no obligation to consider environmental information where it is "forbidden to rely on the effects of [the activity] *as a justification for* denying" a permit. *Id.* at 1373. NPPD insists that the FWS's "limited authority" under Section 10 "is akin to FERC's limited authority in the [liquefied natural gas ("LNG")] terminal cases, where future natural gas production was not an indirect effect of FERC's proposed action regarding the terminal modifications, since the impacts of that production could not influence FERC's decision." NPPD White Paper at 9. It concludes that "future power projects are not an indirect effect of [the FWS's] proposed action regarding the take permit application because the impacts of such development cannot influence [the FWS's] decision regarding the [ITP]." *Id.*

In *Southeast Market*, the DC Circuit held that FERC had to consider the indirect effects of the increased greenhouse gas emissions that would result from its authorization of three natural gas pipeline projects. *See* 867 F.3d at 1374. The court distinguished the case from its earlier ruling in *Sierra Club v. FERC (Freeport)*, 827 F.3d 36 (D.C. Cir. 2016), where it held that FERC's decision to issue an upgrade license for a liquefied natural gas terminal did not require an analysis of the indirect effects of exporting natural gas. *Id.* at 47. Comparing the two cases, the *Southeast Market* court noted that FERC's authority to issue an upgrade license to an LNG facility was derived from a narrow delegation from the Department of Energy that limited the grounds on which FERC could base its decision. 867 F.3d at 1373. FERC's authority was limited to authorizing the siting, construction, and operation of the Freeport facility; it had no authority to "rely on the effects of gas exports as a justification for denying an upgrade license." *Id.* In contrast, when evaluating applications to construct and operate interstate pipelines, FERC had broad *statutory* authority to consider various criteria, including balancing "the public benefits against the adverse effects of the project." *Id.* Thus, the question of which impacts FERC was obligated to consider turned not on "What activities does FERC regulate?" but on the question, "What factors can FERC consider when regulating in its proper sphere?" *Id.* Applying these principles to the R-Project, the FWS must examine the indirect effects of wind power development provided that the agency has the authority to rely on those effects as a basis for denying an application for an ITP.

Section 10 of the ESA specifies that the FWS may, in limited circumstances, issue an ITP for an activity that would otherwise constitute an unlawful taking if the taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B). An applicant for an ITP must submit an HCP that describes:

> (i) The *impact which will likely result from such taking*; (ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; (iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and (iv) *such other measures that the Secretary may require as being necessary or appropriate for purposes of the* [HCP].

Id. § 1539(a)(2)(A) (emphasis added). The Service "shall issue the permit" if it receives "assurances" that the conservation plan will be implemented and if it makes the following five findings:

> (i) the taking will be incidental;
> (ii) the applicant *will, to the maximum extent practicable, minimize and mitigate the impacts of such taking*;
> (iii) the applicant will ensure that adequate funding for the plan will be provided;
> (iv) *the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild*; and
> (v) *the measures, if any, [otherwise required by the Secretary] will be met.*

16 U.S.C. § 1539(a)(2)(B) (emphasis added) . Further, the ESA provides that the Service may require "such other assurances as [the Secretary] may require that the [conservation] plan will be implemented," and may impose "such terms and conditions as the Secretary deems necessary or appropriate to carry out the purposes of this paragraph." *Id.*

These ITP application and issuance criteria most assuredly *do* encompass the R-project's indirect effects. First, in evaluating the "impact that will likely result from such taking" and whether the applicant "will, to the maximum extent practicable, minimize and mitigate the impacts of such taking," the FWS is obligated to consider the *entirety* of the "taking" of listed species that will result from issuance of the ITP. Second, the issuance criterion that the ITP cannot "appreciably reduce the likelihood of survival and recovery of the species in the wild," 16 U.S.C. § 1539(a)(2)(B), mirrors the definition of "jeopardy" under the Section 7 regulations, which define "jeopardize the continued existence of" as "to engage in an action that reasonably would be expected, directly *or indirectly*, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 CFR § 402.02 (emphasis added). Congress was explicit about this link, stating in the Conference Report on the 1982 ESA amendments that the FWS will determine whether or not to grant a permit, "in part, by using the same standard as found in Section 7(a)(2) of the ESA, as defined by the [FWS's] regulations." H.R. Conf. Rep. No. 97-835 at 30. Therefore, the FWS *must* examine the indirect impacts—defined as "those that are caused by the proposed action and are later in time, but still are reasonably certain to occur," 50 C.F.R. § 402.02—of its action prior to issuing a Section 10 permit.

Courts have therefore made clear that "indirect effects" under the ESA encompass "the total impact of the [project] on the [listed species]," which includes the impacts from future private development that is linked to the action at issue and "reasonably certain to occur." *See Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359, 373-74 (5th Cir. 1976) (finding that "indirect effects" under the ESA included the impacts from the increased residential and commercial development reasonably certain to occur as a result of the construction of a highway); *see also Nat'l Wildlife Fed'n v. FEMA*, 345 F. Supp. 2d 1151, 1176 (W.D. Wash. 2004) (finding that FEMA was obligated to analyze the indirect impacts from the increased development that was reasonably certain to occur as a result of its action on listed salmon species). Moreover, "the fact that the private development . . . does not result from direct federal action does not lessen the [agency's] duty" to consider the effects of such development. *Coleman*, 529 F.2d at 374. As

extensively discussed above, the construction of the R-Project will almost certainly (and is intended to) result in the development of industrial wind power facilities in the same vicinity and affecting the same species as the R-project. Such development is therefore an "indirect effect" of the R-Project. If the FWS determines that the indirect effects of future development on listed species would "reduce the likelihood of survival and recovery" of a listed species, 16 U.S.C. § 1539(a)(2)(B), then the Section 10 issuance criteria are not satisfied, and the agency may not legally issue an ITP. Thus, contrary to NPPD's assertion, the impacts from wind energy development *can*—and indeed, must—"influence [the FWS's] decision regarding the permit" and hence must be analyzed as part of the FWS's NEPA process, as well as in the agency's ESA Sections 7 and 10 analyses.[11] NPPD White Paper at 9. Because the FWS could deny a permit on the ground that the proposed transmission line's direct *and* indirect effects "would be too harmful to the environment, the agency is the 'legally relevant cause' of the direct and indirect environmental effects of [the project] it approves," and it must take a "hard look" at these indirect effects in its environmental analysis. *Se. Market*, 867 F.3d at 1374.

Conclusion

For the foregoing reasons, it would be unlawful for the FWS to issue an ITP for the R-Project *without* fully evaluating the cumulative and indirect impacts of future wind development in the vicinity of the project.

[11] It must also be emphasized that NPPD's assertion to the contrary is antithetical to the very purpose of the ESA. By insisting that the FWS avoid taking indirect adverse effects into account when issuing an ITP, NPPD would have the FWS turn a blind eye to actions with reasonably foreseeable impacts that would jeopardize the continued existence of listed species. Such a result would render the ESA essentially meaningless, and is contrary to the statutory and regulatory language, as well as the overriding purpose of the ESA.

March 22, 2018

Eliza Hines, Supervisor
United States Fish and Wildlife Service
9325 South Alda Road
Wood River, Nebraska 68883

RE: DEIS, NPPD 'R'-Project, (May 2017)

Dear Ms. Hines:

I respectfully request that the Draft Environmental Impact Statement dated May 2017 (DEIS) regarding Nebraska Public Power District's (NPPD) 'R'-Project be revised in light of recent information that had not been made available to the United States Fish and Wildlife Service at the time of that assessment. Public records in the Cherry County Courthouse list 47 landowners as participants in Cherry County Wind, LLC (CCW), a private wind development enterprise (Attachment#1), the land holdings of which are shaded on the sectional map of Cherry County (Attachment #2). It is likely that this list and map are incomplete because CCW's website claims an enrollment of 70, not just 47, families; the extent of its subscribed lands is thus indeterminate but likely well over the 450,000 acres claimed. For example, the Nebraska Board of Educational Lands and Funds (BELF) shows 26,491 enrolled acres, whereas it actually controls between 167,000 and 181,000 acres in Cherry County, some or all of which could eventually be added to subsequent wind development. In any case, the implications are obvious as related to the impacts and consequences of this intended extension of the 'R'-Project to essentially involve and impact almost all of Cherry County, which had not been revealed and therefore was not included in the DEIS analysis which had essentially confined/limited its analyses to the projected footprint of the transmission line *per se*.

Cherry County Wind's development is directly linked to the expected availability of the 'R'-Project, a relationship portrayed in a series of its meetings beginning with NPPD's Chief Executive Officer (2/8/11) and running through a combined meeting with the Southwest Power Pool (8/9/11), all detailed on http://www.cherrycountywind.com/history/ . In the meeting of 4/22/11 (Attachment #3), NPPD set out four requirements – one being connectivity to a transmission line -- whereupon the ensuing enlistment of landowner-participants relied upon confidence in the availability of and linkage to the 'R'-Project to a degree that enrollees have purportedly responded to several capital calls/cash infusions to CCW or one of its associated companies, *e.g.,* Bluestem Sandhills, LLC, (BSH) which does development for CCW, or to its partners Bluestem Energy Solutions or Sandhills Wind Energy. Of NPPD's other requirements, two are not in evidence, namely "environmental aspects and community support": it was perhaps hoped that the May 2017 DEIS might have sufficed to satisfy environmental concerns, and that the Cherry County Commission might act however necessary to satisfy the appearance of community support.

Although a relationship between CCW and the 'R'- Project preceded the DEIS, it was not factored therein. By linking a potentially enormous wind project over extremely fragile terrain into that transmission line – thus becoming a direct and functional extension beyond its initially analyzed connectivity -- creates a distortion of cumulative impacts upon natural and human environments far beyond what had been initially assessed. As evidenced by this map, the cumulative impacts upon Cherry County's flora and fauna in general, and endangered species in particular, will likely be enormous and is reasonably foreseeable. The construction, operations, and eventual decommissioning of turbines and supportive infrastructure

Attach. A

will impose a complex network of connecting facilities and vehicular expeditions upon extremely fragile, sensitive, porous, sandy soils throughout a region with shallow water tables that interconnect to the Ogallala aquifer. This expanded footprint was not known and therefore not contemplated in the DEIS, thus justifying reassessment of cumulative impacts before issuance of any incidental 'take' permits.

When Cherry County's zoning regulations were initially codified a decade ago, the then-chairman of the 'planning and zoning committee' also headed a wind development enterprise; yet scant attention was given to criteria for wind energy implementation because an imposition of today's turbines upon the Sand Hills was unimaginable: no one then believed that the sanctity of this special place would ever be besmirched, that the generational land stewards would never allow such a travesty. Recently, however, CCW and its developer BSH applied for a conditional use permit (BSH Kilgore), which triggered review by the 'planning and zoning committee'; and after extensive, contentious public hearings, that committee's recommended amendments to the initial (insufficiently vetted) zoning criteria were rejected on February 7, 2018 by Cherry County's Commissioners (all three of whom have a personal and/or a first-degree family member(s) with direct investments, and none recused themselves). This was the first time that any recommendation by the 'planning and zoning committee' had ever been rejected. On February 27th, 2018, and again on March 13, a request by concerned citizens for a public referendum to gauge the community's support for wind turbines (an essential requirement, according to NPPD) was also rejected by these Commissioners. This background is furnished simply to point out that in a rush to begin wind farm development (federal tax benefits expire in 2019), input to regulations *is not being allowed* to address critical features such as height; density; spacing; setbacks; corridors for viewsheds, wildlife, or prior interests of value; provisions for remediation and decommissioning; or for community support, the absence of which ablates local safeguards which, in turn, begs that the DEIS now exercise *reasonable foresight* in evaluating newly evident and potentially extensive *cumulative impacts*. Each category listed in Table 4-1 of the DEIS (Summary of the Cumulative Effects of the Project) requires that an analysis of the cumulative effects be revised with full awareness that local regulations are not likely to call for meaningful restrictions, thus enabling unforeseen or extreme impacts.

Understanding that even a single 400-foot turbine can affect the viewshed and skyline of more than 2,500 square miles, it is probable – as evidenced by the attached map -- that no place in Cherry County's 6,000 square miles will be unaffected. Destruction of the presently unfettered skyline/horizon and night sky (the major "dark region" east of the Rocky Mountains) will have deleterious effects on well-established revenue-generating recreational endeavors that are dependent upon aesthetics – canoeing, hiking, star-gazing, hunting, fishing, golfing – which provide much-needed economic diversity. Of immediate impact, lifelong alliances are now shattered, and the community is bitterly divided between those who seek to exploit the 'R'-Project and those dedicated to preserving the essence of this fragile place. Most of the latter live here for the very reasons that have earned the Nebraska Sand Hills a place in the registry of "*Natural National Landmarks*". Also included in that registry is the Valentine National Wildlife Refuge, the leadership of which has never been informed of intended wind development by CCW, another example of the furtive manner of this development. Nonetheless, the potentially massive imposition of turbines is a direct response to the 'R'-Project's availability, and absence of a competent assessment of cumulative impacts causes local discussions to be subjective, not objective, which heightens the conflict and blocks cohesion. Reassessment is necessary because we are no longer talking only about an endangered beetle but, moreover, about the potential destruction of an entire unique ecosystem and its human culture.

The National Environmental Policy Act requires agencies to evaluate the direct, indirect, and cumulative impacts of a proposed action [40 C.F.R.₴1508.25(c)]. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" [40 C.F.R. ₴1508.7]. The Department of the Interior's regulations define *reasonably foreseeable future actions* to include those federal and non-federal activities not yet undertaken but sufficiently likely to occur that a responsible official of ordinary prudence would take such activities into account in reaching a decision. These federal and non-federal activities that must be taken into account in the analysis of impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative [43 C.F.R.₴46.30].

From the above, it is evident that criteria have been met to completely re-evaluate what are reasonably foreseeable cumulative impacts. For example, funding has been initiated (multiple capital calls); existing decisions are evidenced by the 147 unit project at Thedford and BSH Kilgore; CCW has been incorporated and developed subsidiary corporate relationships. Hurriedly implementing the *'R'-Project and the wind farms that are poised to follow* in a region vaunted for its fragility, sensitivity, and uniqueness -- in the present absence of proper studies -- is made even more egregious when NPPD's longest serving director has stated: ***"the utility has enough power to supply its needs without adding additional renewable resources."*** No less notable are categorical rejections of wind turbines by Interior Secretary Zinke and President Trump. The fact that irreparable harm will be done to a planetary treasure at a time when there is no perceived need, when the technology's sustainability and value have been linked almost solely to tax benefits (Warren Buffet), is reprehensible. Risking these iconic Sand Hills forever for the fleeting financial benefit of a few (who mainly live elsewhere) speaks for itself.

Your consideration of revising the DEIS and its conclusions is appreciated.

Cleve Trimble MD, FACS

Highway 97 South
Valentine, Nebraska 69201-0427

402-376-1330

Attachments: 1. List of participants in private wind farm venture

2. Map of Cherry County with participant's parcels shaded
3. Minutes, Cherry County Wind, LLC April 2011

Cherry County Wind Energy

Friday, 22 April 2011 05:58

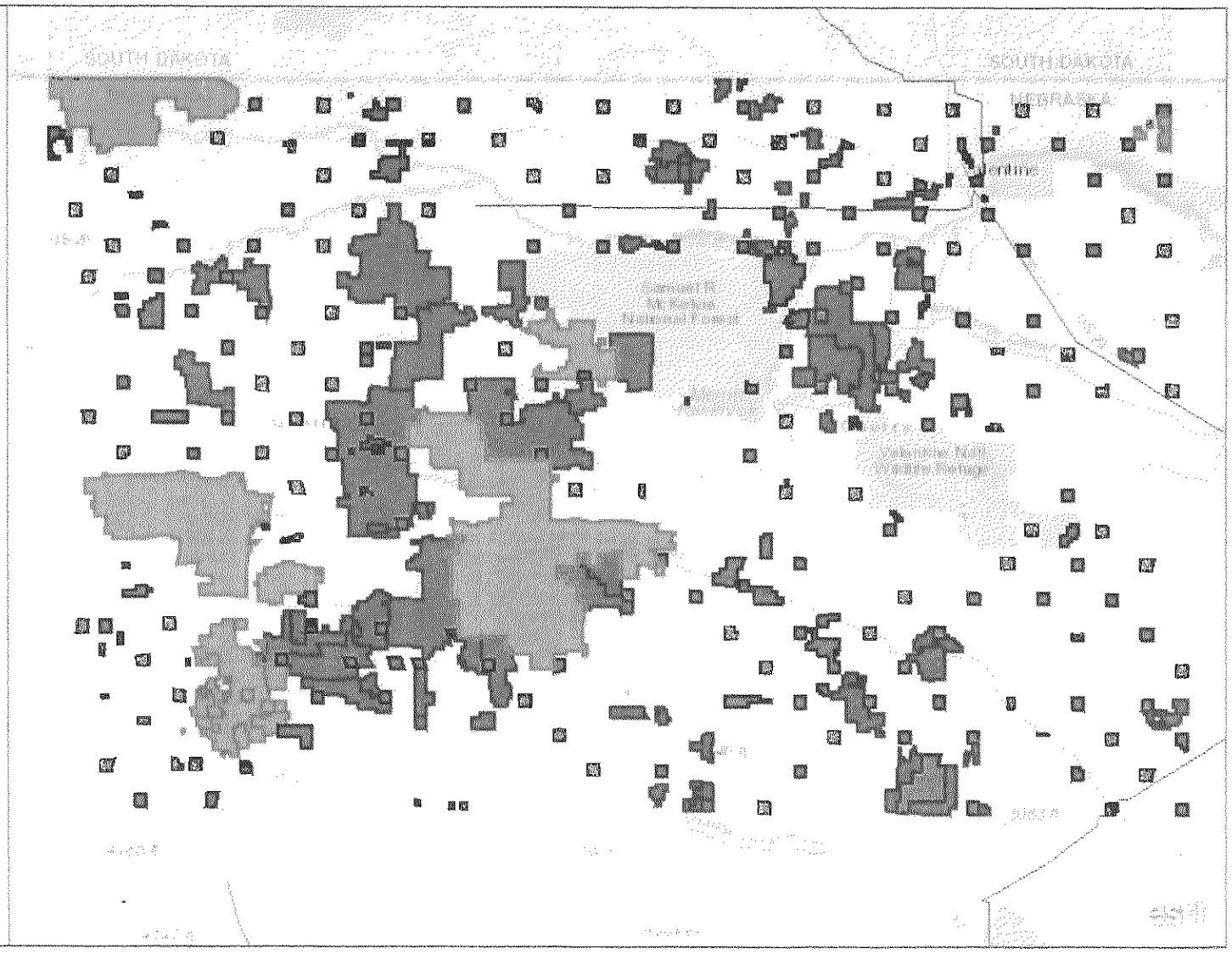
The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met with three representatives of Nebraska Public Power District on Wednesday to discuss wind energy development in Cherry County. John O'Connor and Dave Rich from NPPD were the main presenters and covered opportunities and challenges in the development of wind power in Nebraska and more specifically in Cherry County. NPPD has a goal of 10% renewable energy by the year 2020. Currently only 2% of energy comes from wind power in Nebraska. Mr. O'Connor sated that there are basically four areas to explore: prove the wind potential is there, transmission lines for export of power, environmental aspects and community support. The local committee will continue to approach this endeavor as a long term project which could have multiple benefits to the community.

Cherry County Wind, LLC lands have been designated to Bluestem Energy, LLC.

rry County Wind, LLC Investor Lands

tric Power
nsmission Lines

Map Legend	Cherry County Wind, LLC Investor Map
Ownership Color	Landowner
	Cherry County Wind, LLC Investor
	Non – Investor Proponent and/or Lobbyist for Cherry County Wind, LLC
	State of Nebraska Owned Lands



of State and Privately Invested Lands in Cherry County Wind, LLC. Map Produced by T.D. Rath.

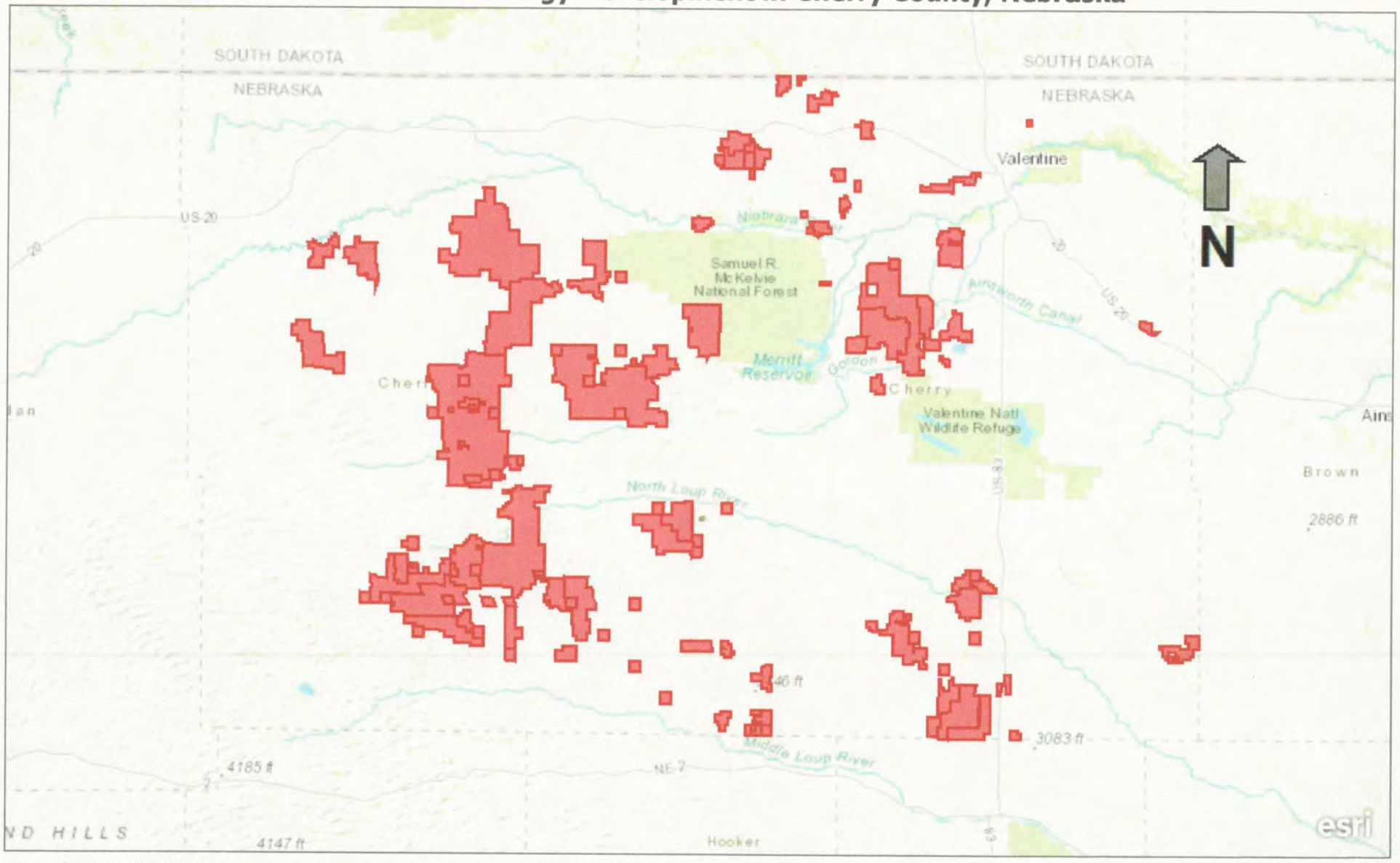
Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

Cherry County Wind LLC Agreements as Filed in Cherry County Legal Documents				
Entity Name	Indicated Address	Entity Acreage (1	Acreage Source	Agreement File Date
Abbott Cattle Company (Christopher J. Abbott)	Gordon	48676	(B	Dec 2015
Taylor G. and Kerri Adamson	Bluejacket, OK	1240	(B	Nov 2017
Todd M. Adamson	Cody	2706	(A	Nov 2017
Jeanne K. Ang and Wayne R. Wright	Spring Grove, IL	1431	(C	Nov 2017
William D. Barner and Donalee A. Barner	Mullen	1104	(C	Nov 2017
Board of Educational Lands and Funds	Lincoln	26491	(C	Dec 2015
Bow & Arrow, LLC	Auburn, AL	20224	(C	Nov 2017
Broken Box Company (Rex Adamson)	Cody	37002	(B	Dec 2015
Glen Coble and Sons, Inc. (Matt G. Coble)	Mullen	19922	(A	Dec 2015
Don Cox Ranch Company	Mullen	6167	(B	Dec 2015
Donald B. and Deborah S. Cox	Mullen	640	(B	Dec 2015
Curtis Ranch, Inc. (Marie Wiese)	Whitman	6120	(B	Nov 2017
Donald D. and Jolene M. Grunhaupt	Crookston	760	(B	Dec 2015
Reed Hamilton Ranch, Inc. (David W. Hamilton)	Thedford	5733	(B	Dec 2015
Henderson Land and Livestock Company (Michael Henderson)	Whitman	11372	(B	Dec 2015
Casey L. Henderson	Hyannis	640	(B	Dec 2015
Elmus M. and Tonya J. Henderson	Whitman	7142	(A	Dec 2015
Larry and Carolynn T. Henderson	Whitman	15698	(B	Dec 2015
Mark and Janelle Johnson	Kilgore	615 (2	(C	Dec 2015
Krajeski and Johnson, Inc. (John Johnson)	Cody	2598	(B	Dec 2015
Krajeski and Johnson, Inc.	Cody	2440	(B	Nov 2017
Robert B. Lord; Robert B. and Donna Mae Lord	Lamar, CO	9001	(C	Nov 2017
Robert B. Lord, Wendy Fritzler and Phy Lord	Lamar, CO	2454	(C	Nov 2017
Dean R. and Jennifer A. Marsh	Kearney	1259	(C	Nov 2017
Robert J. Marsh; Robert J. and Peggy L. Marsh	Mullen	1393	(C	Nov 2017
Wade W. Marsh and Kelly M. Marsh	Minden	320	(C	Nov 2017
Lyn J. (DeNaeyer) Messersmith	Alliance	8080	(A	Dec 2015
Matthew A. Miles and Carmen V. Miles	Brownlee	1465	(B	Nov 2017
North LLC (Marian L. Nutter)	Thedford	4683	(C	Dec 2015
Daniel W. and Shirley E. Osborn	Mullen	2836	(C	Nov 2017
Michael Don Peterson and Tammy J. Peterson	Kilgore	399	(C	Nov 2017
Ivan R. and Phyllis M. Phillips	Whitman	1829	(B	Dec 2015
Lyle D. and Twila F. Phillips	Mullen	1888	(C	Nov 2017
John N. and Patsy L. Phipps	Whitman	1680	(B	Dec 2015
Duane R. and Carolyn J. Porath	Valentine	631	(A	Dec 2015
Powderhorn Ranch, Inc. (William W. Fischer)	Nenzel	12281	(A	Dec 2015
Ridenour Land and Cattle, Ltd. (Larry Ridenour)	Mullen	7493	(C	Nov 2017
Rocking J Taylor Company (Taylor Adamson)	Cody	3712	(C	Dec 2015
Rocking J Todd Company (Todd Adamson)	Cody	16140	(B	Dec 2015
S.K.K.B. Carpenter Ranch, LLC (Larry Ridenour)	Mullen	5560	(C	Nov 2017
Fink-Sheer Inc. (Kevin Sheer)	Elsmere	2989	(C	Nov 2017

Nancy and Robert Sinnett	Valentine	2684	(C	Dec 2015
South LLC (Marian L. Nutter)	Thedford	2863	(B	Dec 2015
Sunny Slope Ranch, Inc. (Adam Fischer)	Valentine	9730	(B	Dec 2015
Three Bar Cattle Company (John W. Ravenscroft)	Nenzel	26694	(C	Nov 2017
James L. and Michalene R. Van Winkle	Wood Lake	657	(A	Dec 2015
Yeager Ranch Land, Inc. (Rex Adamson)	Cody	4121	(B	Dec 2015

(1 Acreage totals have been rounded to the nearest whole number
(A – total given with document
(B – summation of parcel acres given with document
(C – parcel acreage as derived from county GIS and other assessor records
(2 Acreage total 615 with 2015 agreement and 447 acres in 2017 amended document

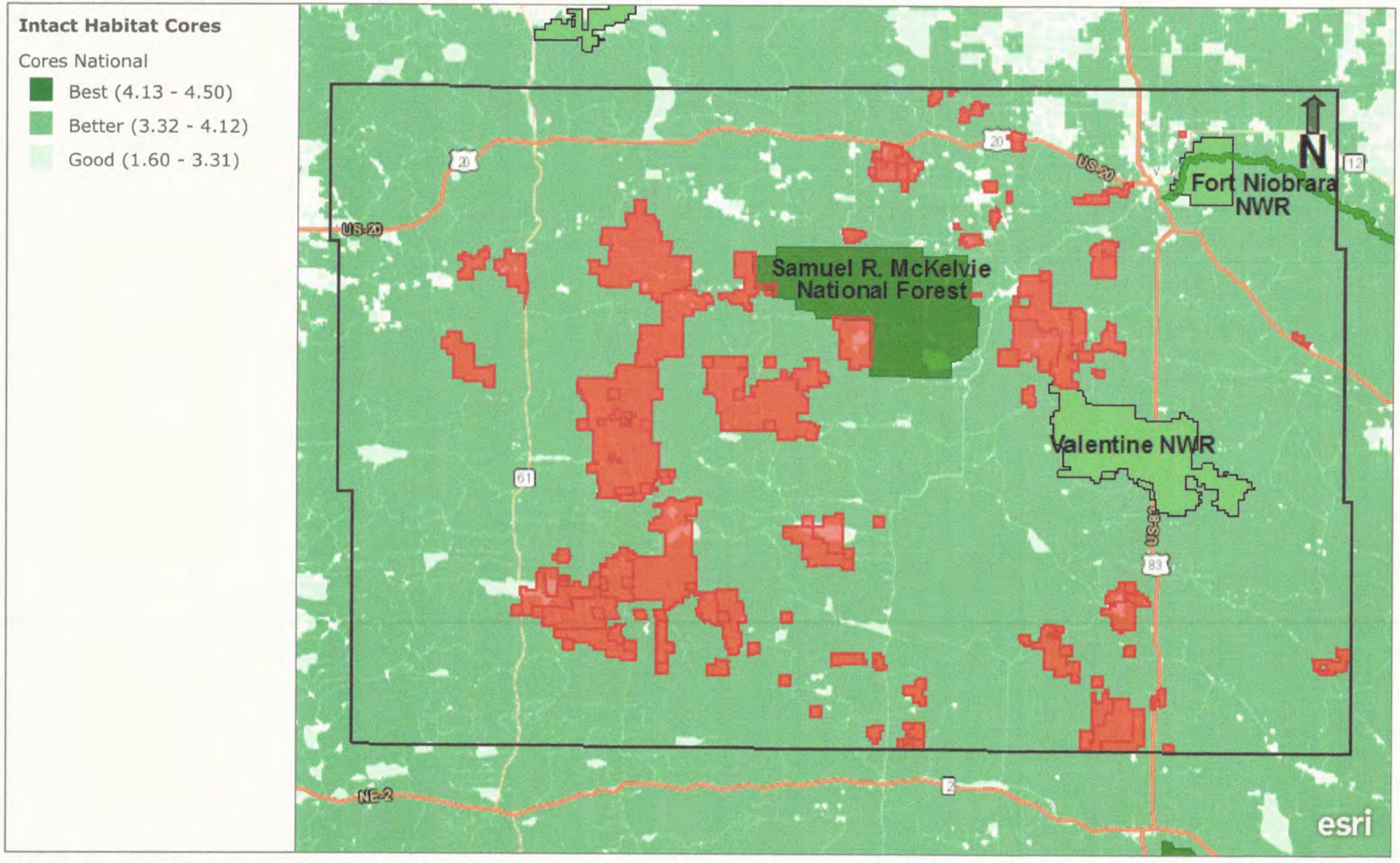
Invested Lands for Industrial Wind Energy Development in Cherry County, Nebraska



Map of State and Privately Invested Lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Information acquired from the Cherry County Register of Deeds and GIS. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Copyright:© 2013 National Geographic Society, i-cubed | Esri | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

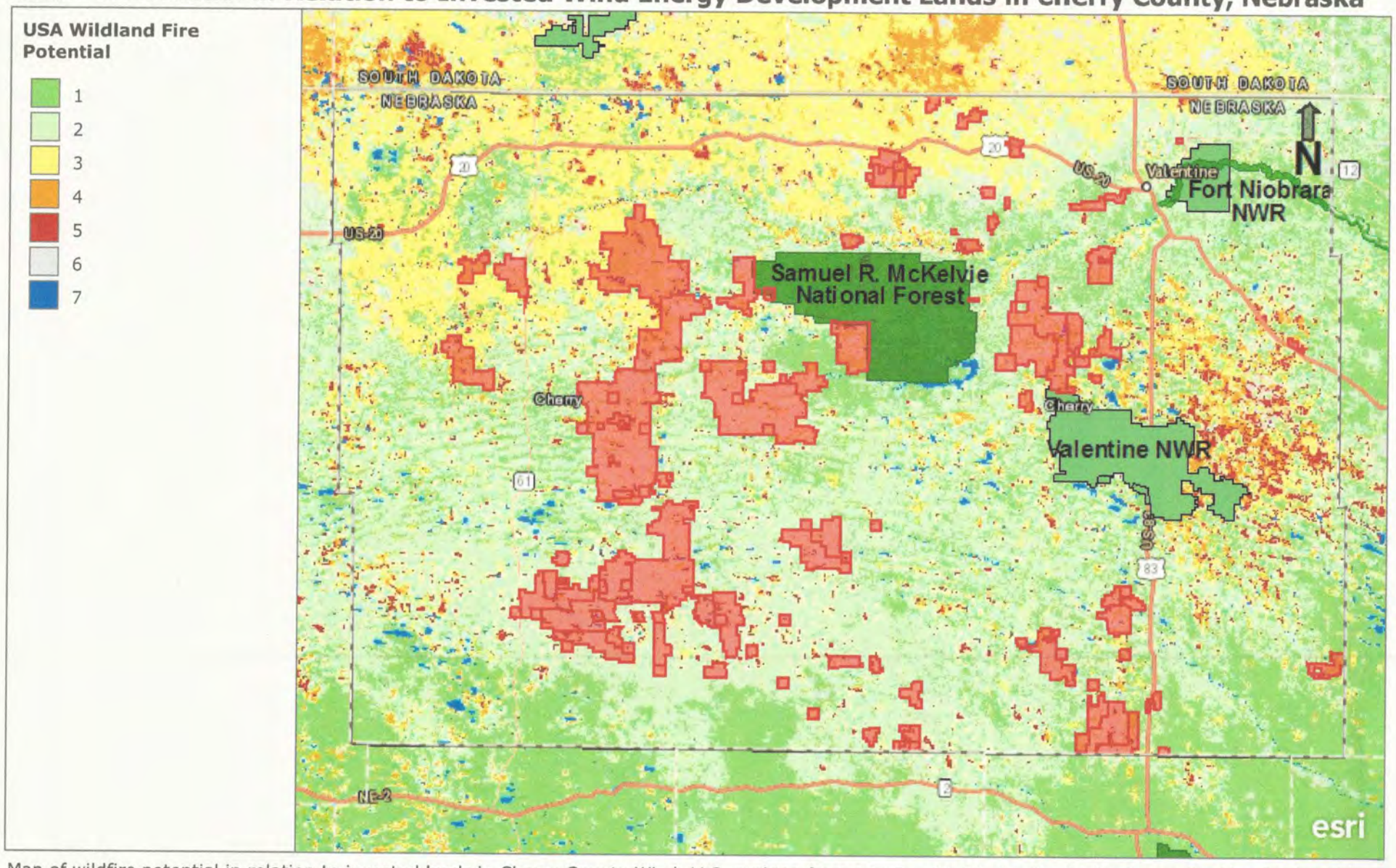
Intact Habitat Cores in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of intact habitat cores, or minimally disturbed natural areas, in relation to invested lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI),

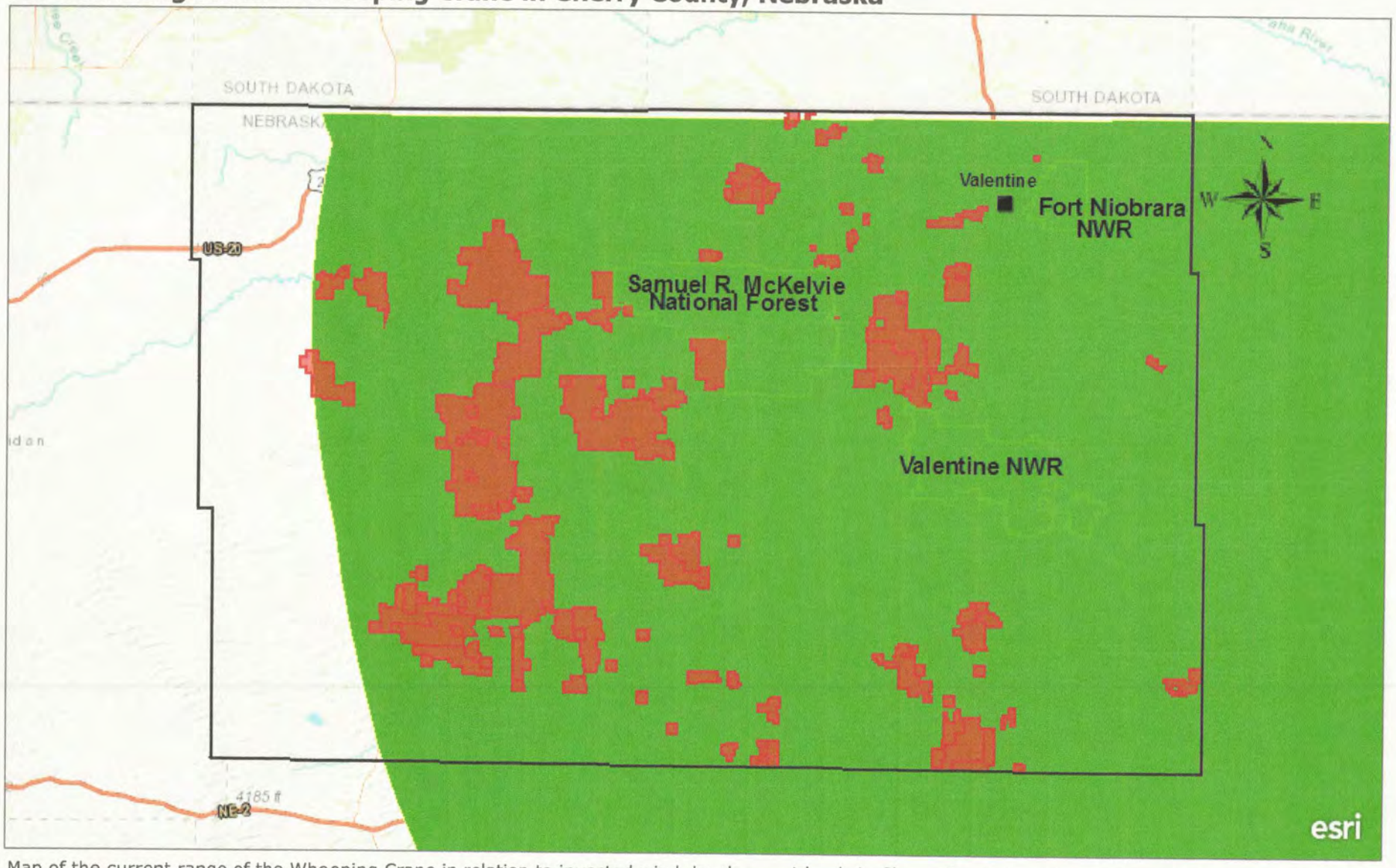
Wildfire Potential in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of wildfire potential in relation to invested lands in Cherry County Wind, LLC, ranking from 1 to 5, with 5 being the highest severity. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Esri, HERE, Garmin | Earthstar Geographics

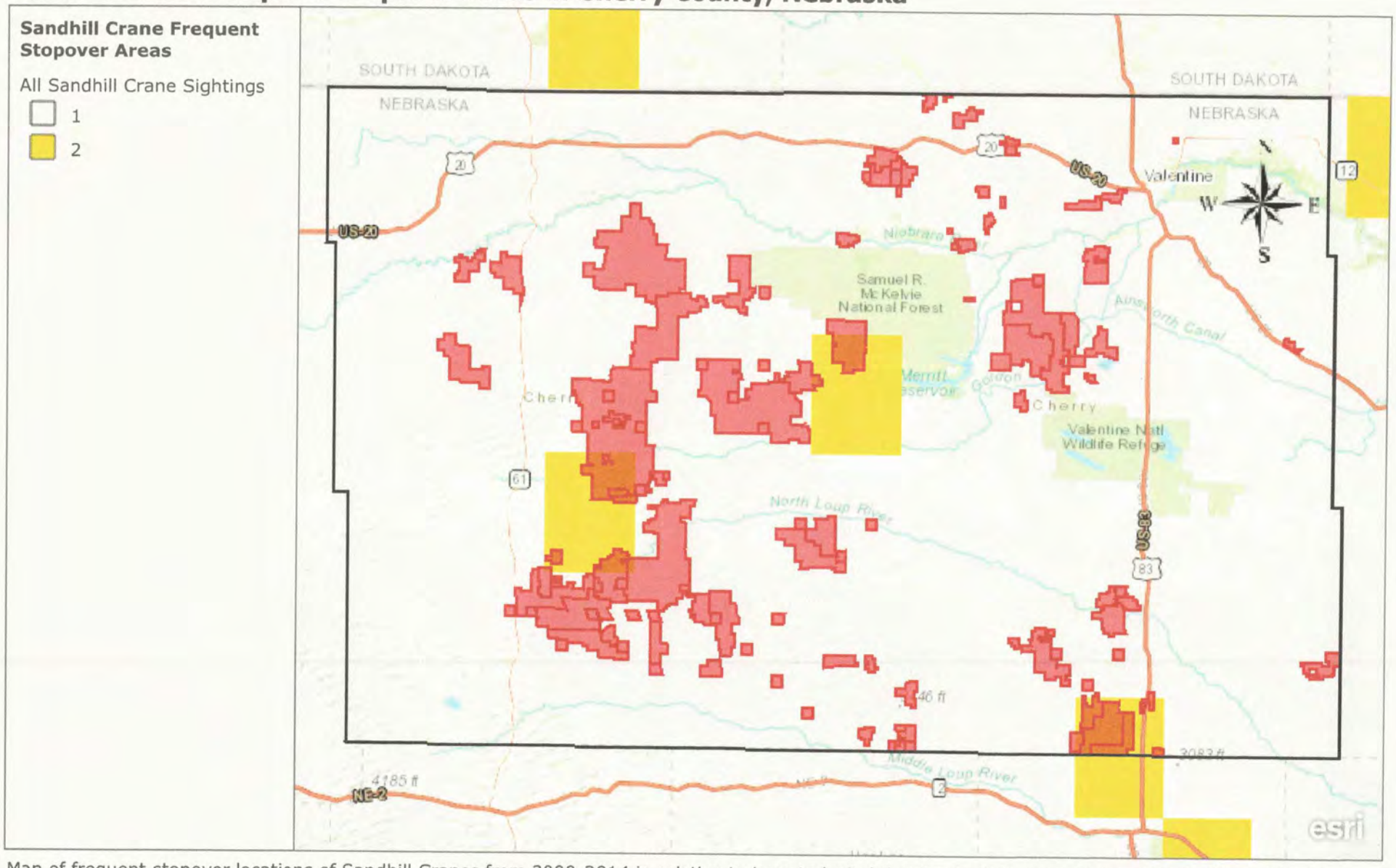
Current Range of the Whooping Crane in Cherry County, Nebraska



Map of the current range of the Whooping Crane in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright: © 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

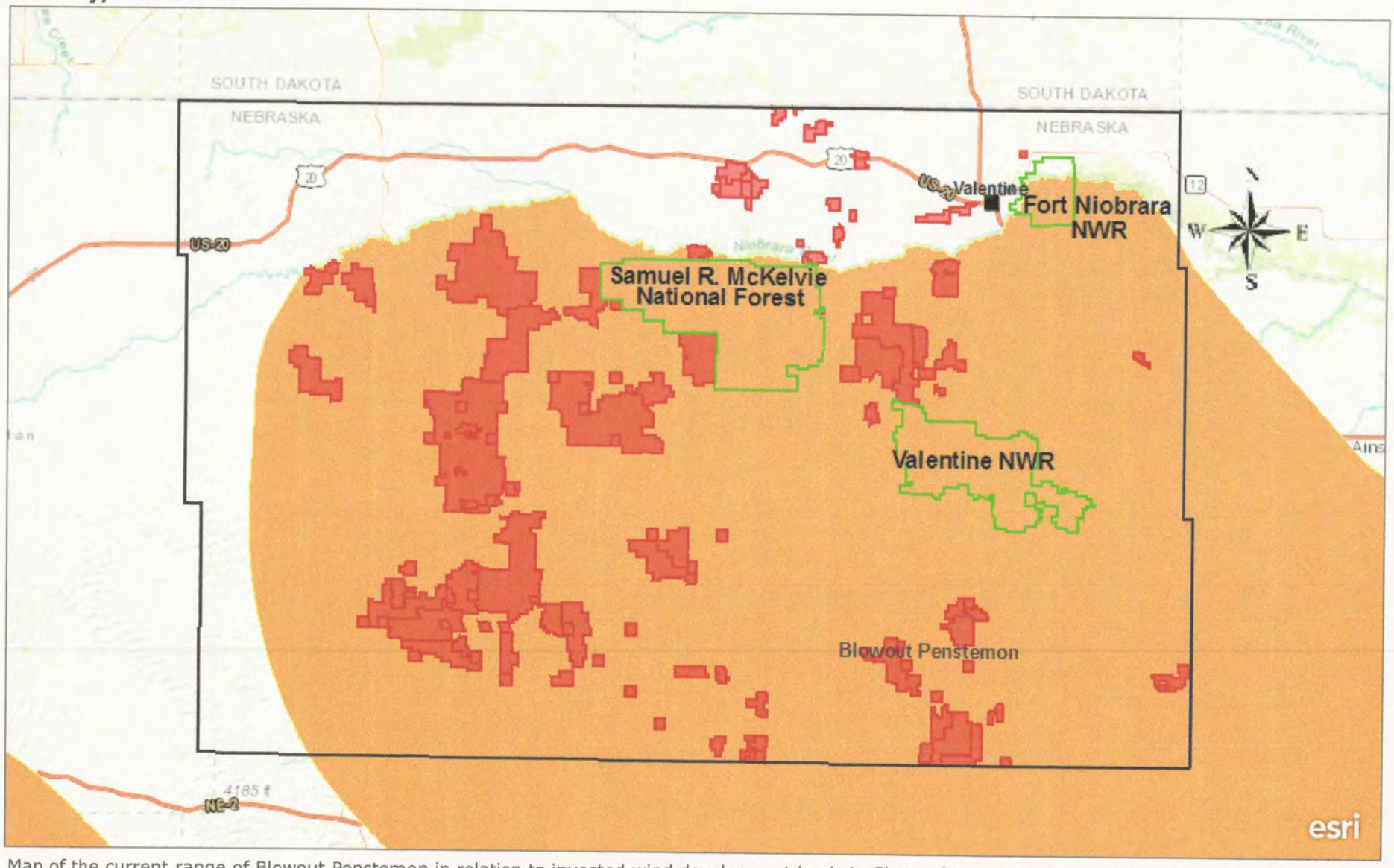
Sandhill Crane Frequent Stopover Areas in Cherry County, Nebraska



Map of frequent stopover locations of Sandhill Cranes from 2000-2014 in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE

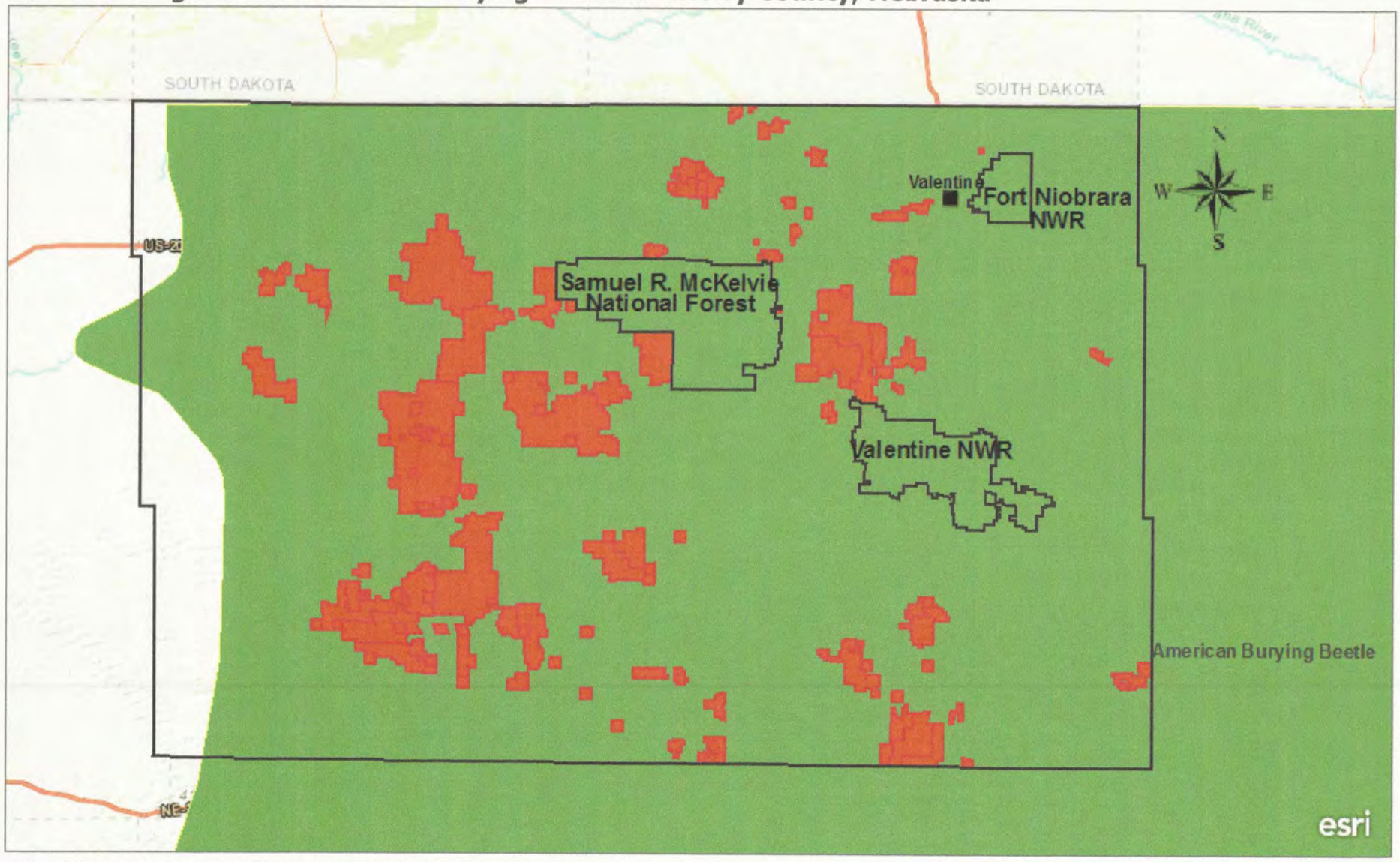
Current Range of Blowout Penstemon in Relation to Invested Wind Energy Development Lands in Cherry County, Nebraska



Map of the current range of Blowout Penstemon in relation to invested wind development lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Current Range of the American Burying Beetle in Cherry County, Nebraska

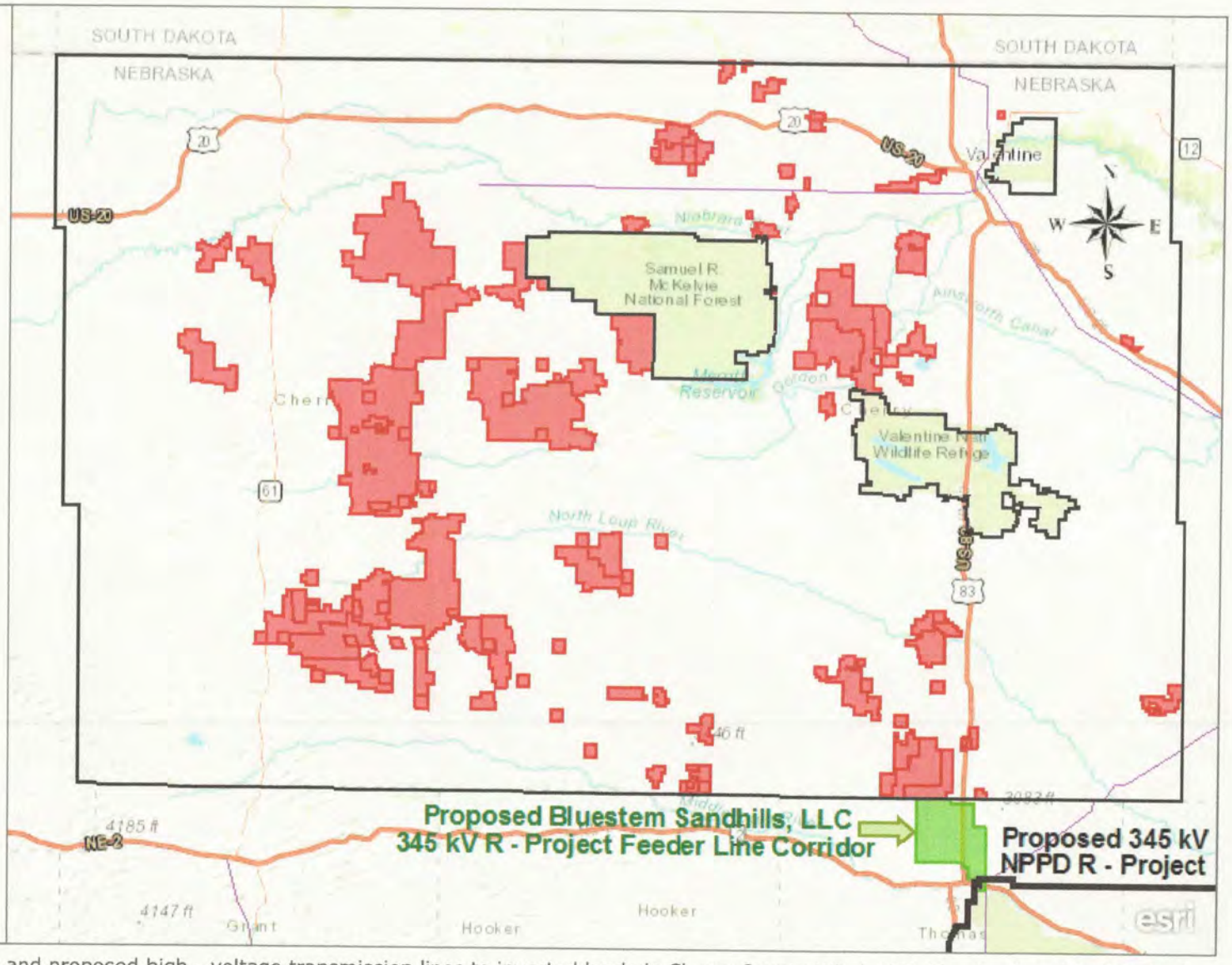


Map of the current range of the American Burying Beetle in relation to invested wind energy development lands in Cherry County, Nebraska. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Copyright:© 2013 National Geographic Society, i-cubed | Esri | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Proximity of High - Voltage Transmission Lines to Invested Lands for Wind Development in Cherry County, Nebraska

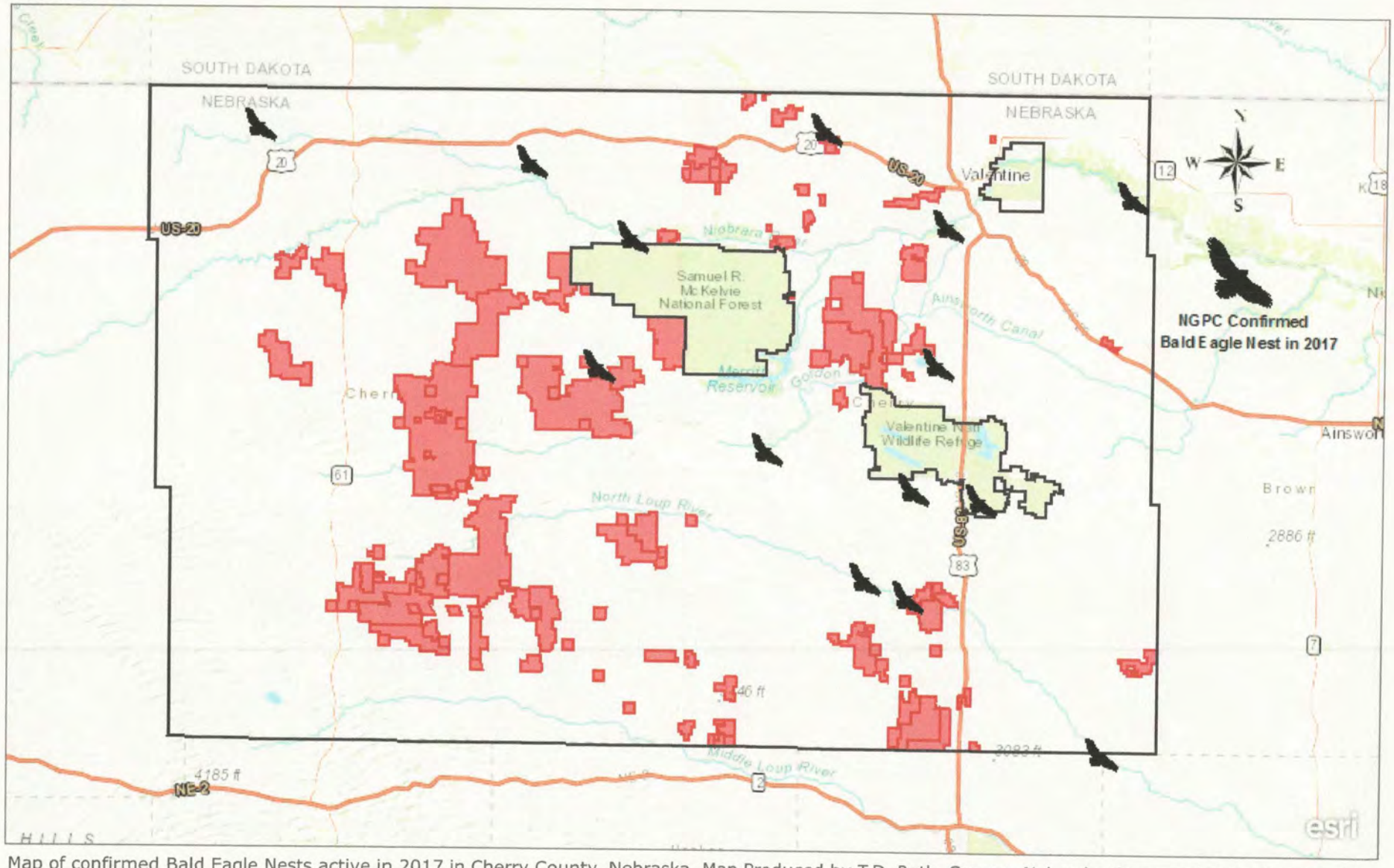
Electric Power Transmission Lines



Map of the proximity of existing and proposed high - voltage transmission lines to invested lands in Cherry County Wind, LLC. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530. | Esri | Copyright:© 2013 National Geographic Society, i-cubed | Green Infrastructure Center Inc., Esri | Esri, APL, NetworkX, Betweenness Centrality, BC | Source: USFWS | Source: Fire Modeling Institute (FMI), USDA Forest Service, Esri | Source: USDA NRCS, Esri | International Crane Foundation | Esri, HERE | Source: USGS, EPA, Horizon Systems, Esri | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

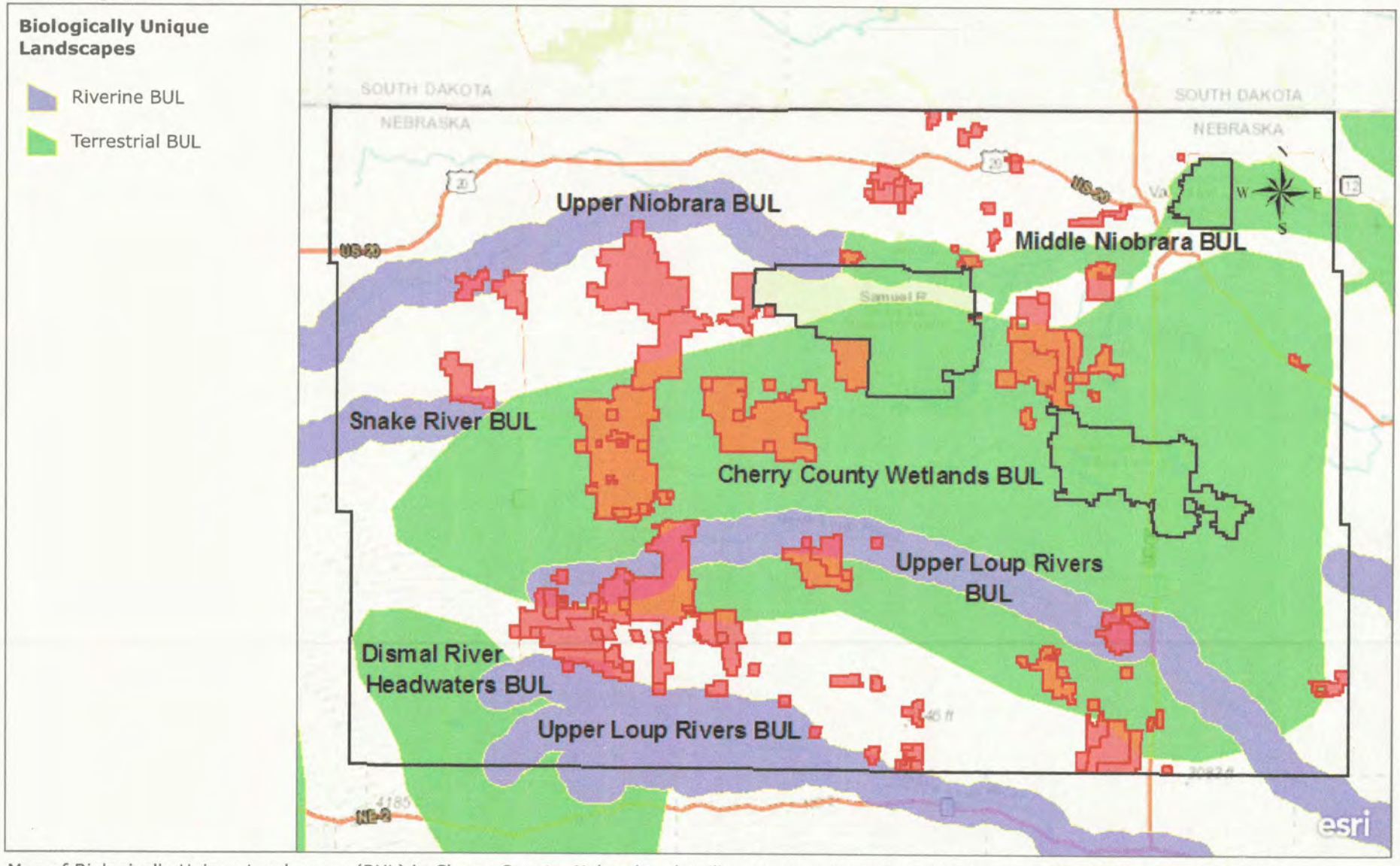
Confirmed Bald Eagle Nests in Relation to Invested Wind Development Lands in Cherry County, Nebraska



Map of confirmed Bald Eagle Nests active in 2017 in Cherry County, Nebraska. Map Produced by T.D. Rath. Source: Nebraska Game and Parks Commission. Reproduction of this map is prohibited without written consent of T.D. Rath.

Source: USDA NRCS, Esri | Source: USGS, EPA, Horizon Systems, Esri | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP) | Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

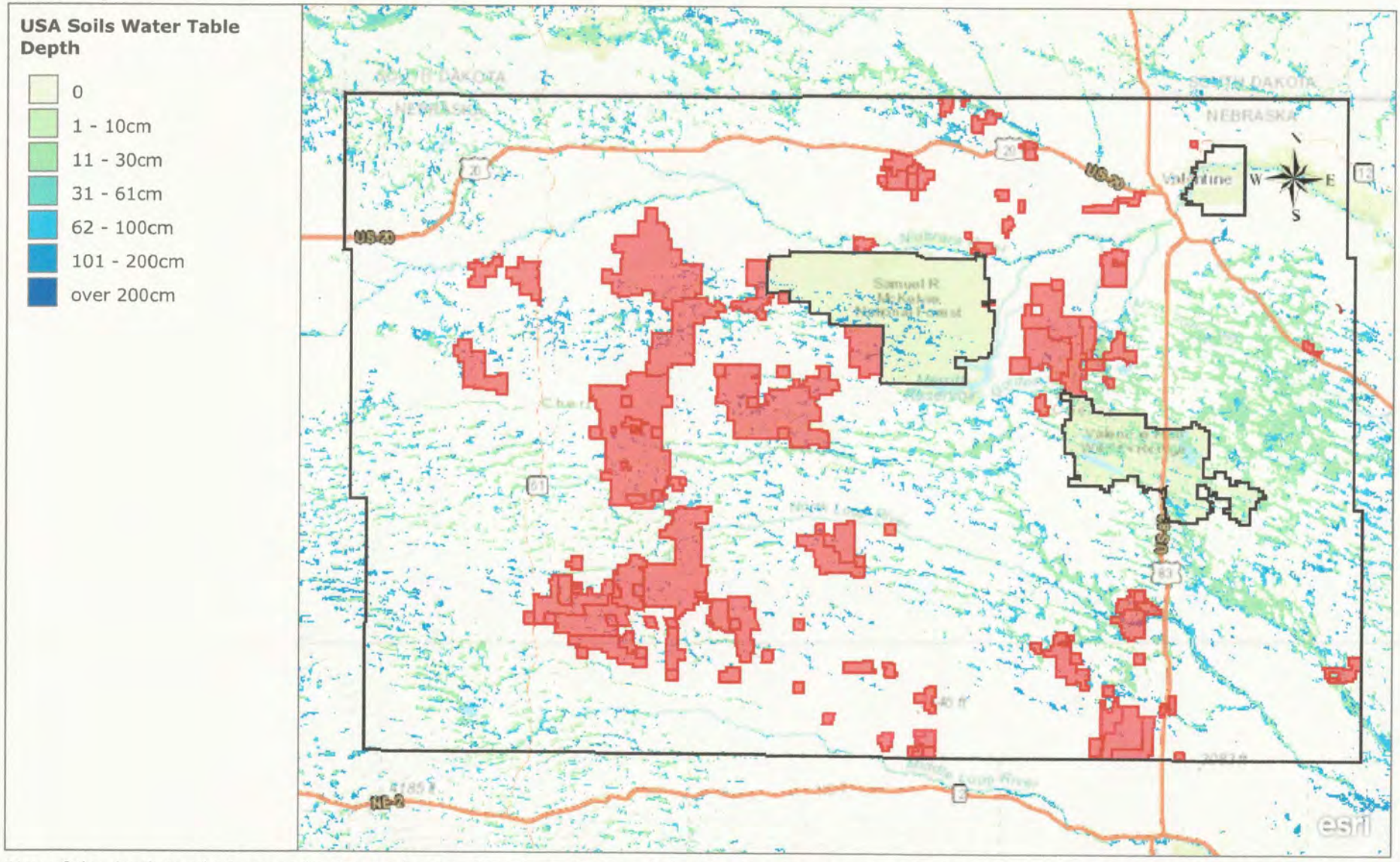
Biologically Unique Landscapes of Cherry County, Nebraska in Relation to Invested Wind Energy Development Lands



Map of Biologically Unique Landscapes (BUL) in Cherry County, Nebraska, detailing conservation priority landscapes. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

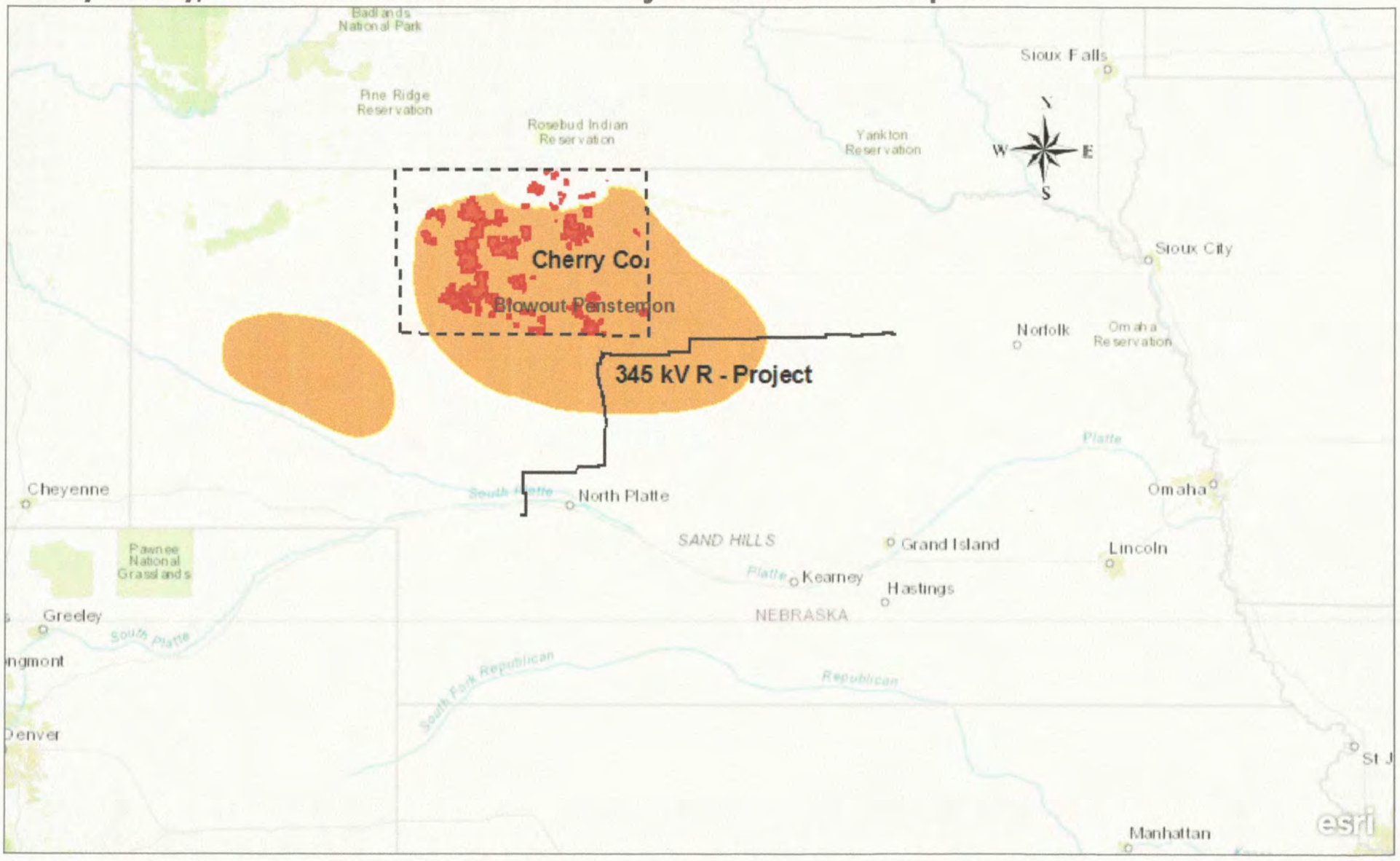
Water Table Depth in Cherry County, Nebraska in Relation to Invested Lands for Wind Energy Development



Map of the depth to which groundwater can be found in Cherry County, Nebraska. Map Produced by T.D. Rath. Source: Soil Survey Geographic Database (SSURGO). Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS | Source: USDA NRCS, Esri | Esri, HERE

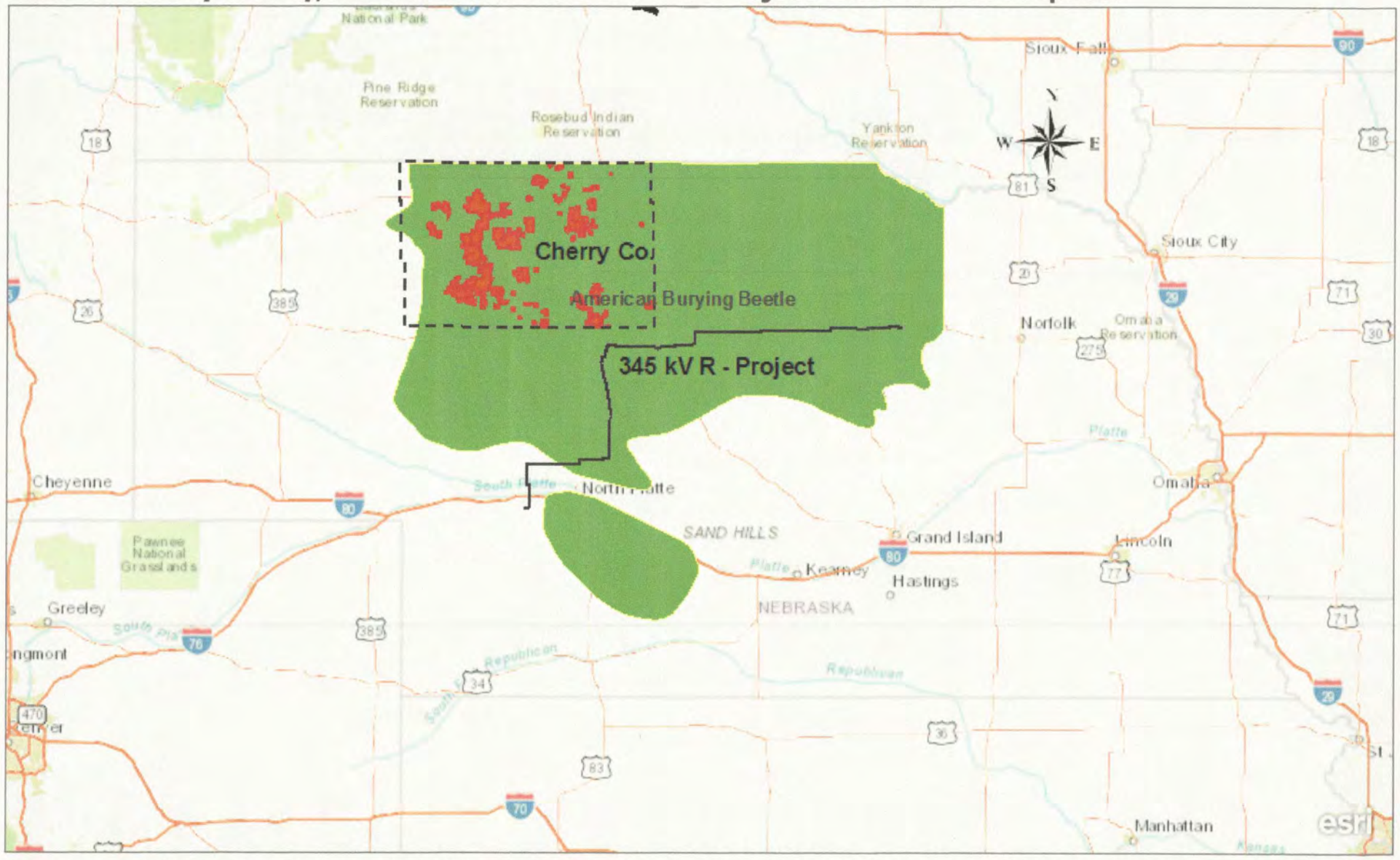
Current Range of Blowout Penstemon in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the Blowout Penstemon in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

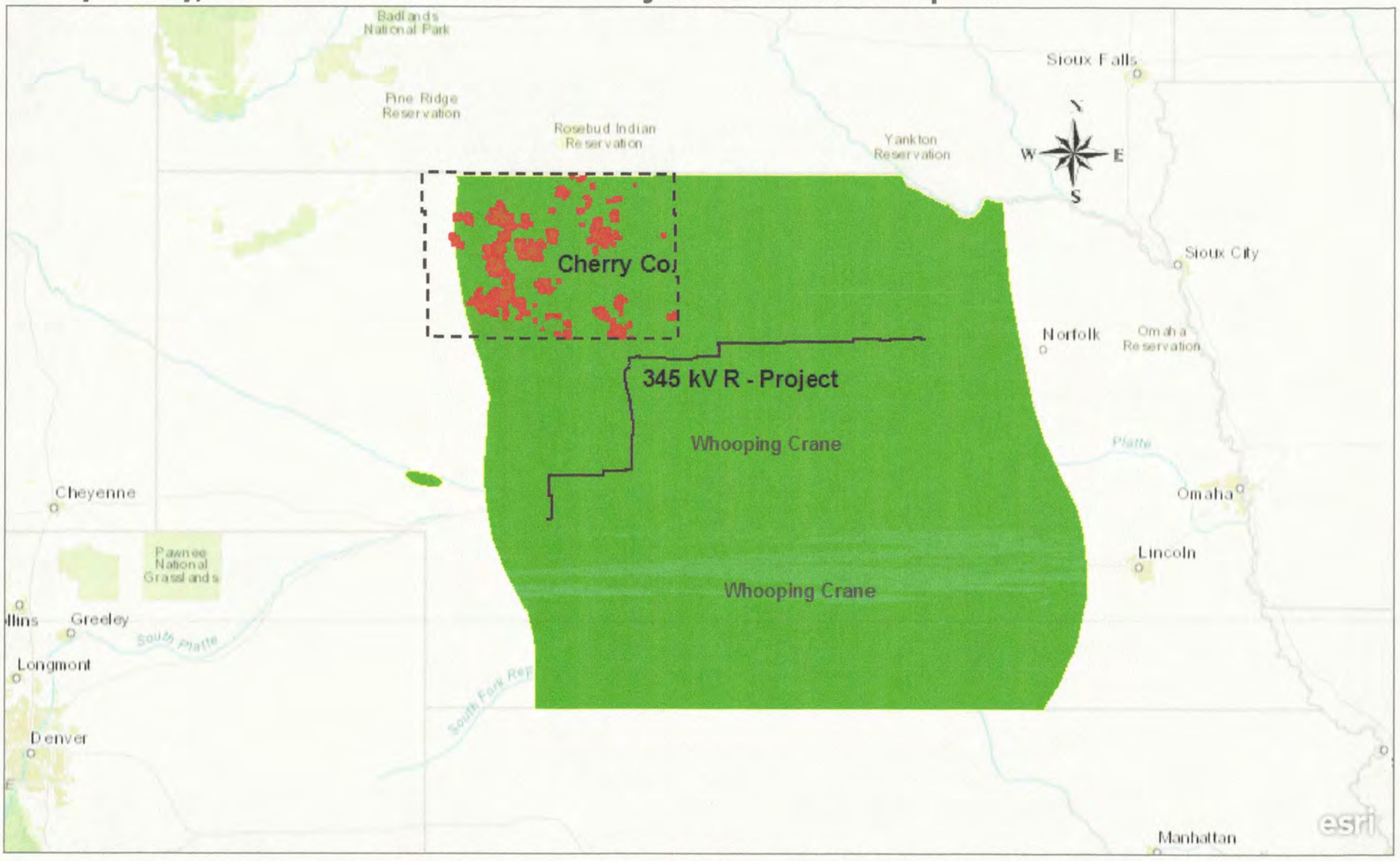
Current Range of the American Burying Beetle in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the American Burying Beetle in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Esri, HERE | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

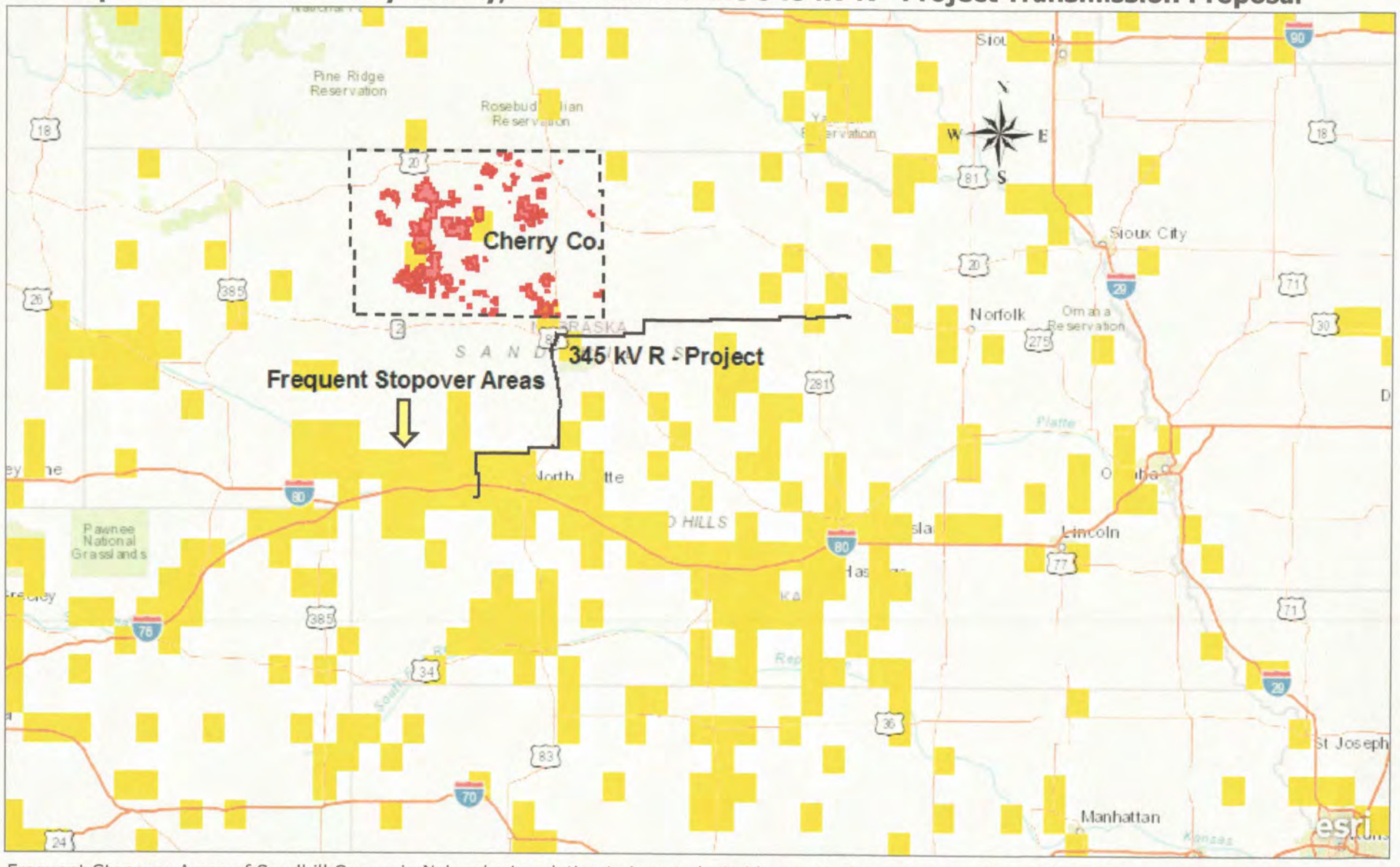
Current Range of the Whooping Crane in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Current range of the Whooping Crane in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Nebraska Game & Parks Commission - Natural Heritage Program (NNHP)

Sandhill Crane Frequent Stopover Areas from 2000 - 2014 in Nebraska in Relation to Invested Wind Development Lands in Cherry County, Nebraska and the 345 kV R - Project Transmission Proposal



Frequent Stopover Areas of Sandhill Cranes in Nebraska in relation to invested wind leases in Cherry County, NE and the proposed R-Project. Map Produced by T.D. Rath. Reproduction of this map is prohibited without written consent of T.D. Rath.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | International Crane Foundation | Esri, HERE

History of Cherry County Wind

In January of 2010 the Cherry County Board of Commissioners appointed three individuals to research and discuss the potential impacts and opportunities of wind energy development in Cherry County. By year's end this committee grew to nine members. The committee determined that there was significant interest in landowner-directed local development and Cherry County Wind Energy Association was formed in early 2011.

To ensure the fullest participation, multiple forms of outreach were undertaken:

- Letters of invitation were sent to all Cherry County landowners with more than 100 acres.
- Two Board Members of the Association spoke on several radio appearances.
- Public informational meetings were held in Thedford, Mullen, Nenzel, and Valentine.

In 2012 the Association moved to form Cherry County Wind, LLC to develop wind energy projects on member lands, with the top priority of preserving the environmental health of the region and maximizing the benefits to the broader community. Members include 70 landowners representing close to 450,000 acres.

Cherry County Wind Begins

News Stories Chronicling the Founding of Cherry County Wind

Attach. B

COUNTY WIND COMMITTEE MEETS

Tuesday, 14 December 2010 08:43

The Cherry County Wind Committee metMonday evening at the Cherry County Court House. The group is in its infancy and continues to explore topics such as transmission lines, wind associations, legal issuesand other topics. One of the main topics of discussion has been making sure that wind energy is beneficial for everyone in Cherry County with possible reduction of total reliance on property taxes. Committee President George Johnson reported on the Nebraska Wind Energy Conference he attended last month in Kearney. Johnson reported that there were several good presentations and lots of excitement about wind energy potential in Nebraska. Cherry County has long been recognized for energy development potential. The next meeting of the Cherry County Wind Committee will be January 10th.

CHERRY COUNTY COMMISSIONERS MEET

Wednesday, 08 December 2010 10:50

The Cherry County Board of Commissioners met in regular session on November 30th. Tim Gentile, Bryan Herrick and Gary Weaver provided an update on the Justice Center construction. They discussed some additional cameras, floor finishing and timelines for moving the dispatch equipment and the Sheriff's office. It was the consensus of the Board to allow Chairman Van Winkle to sign the formalized change request orders that were approved at a previous meeting.

Commissioner Jerry Adamson moved to enter into a lease agreement with a purchase option through Union Bank and Trust for a 2006 Caterpillar loader with the trade-in of a 1985 Cat loader and a 48 month financing

arrangement. Motion carried.

Gary Weaver presented some information from CBM Managed Services proposing to contract for food service operations for the Justice Center. It was the consensus of the Board to research the matter further before making a decision.

The Board discussed the need for a site where the County could store and mix oil millings.

Commissioner Jerry Adamson moved to authorize Chairman of the Board Van Winkle to work with the County Attorney to negotiate terms and enter into an agreement on behalf of the Cherry County Board to acquire approximately 6.7 acres of land near Valentine to be used by the County Road Department

The Board further discussed the Rockford Bridge and the possibility of making some improvements to the roads in the area. No formal Board action was required at this time.

County Attorney Eric Scott, Rusty Osburn and Gary Weaver discussed the concept of a County Corrections Board. Commissioner Van Winkle moved to create the Cherry County Board of Corrections pursuant to Nebraska Revised Statute with the Board to become effective January 1, 2011. Motion carried.

Commissioner Jerry Adamson moved to accept the written resignation submitted by Jack Ravenscroft from the office of Cherry County Zoning Administrator, effective Dec. 1, 2010.

The Board discussed the membership of the newly formed wind committee. Commissioner Jerry Adamson moved to appoint Matt Coble, George Johnson, Todd Adamson, Adam Fischer, Mike Burge and Gary Garvin to the Cherry County Wind Advisory Committee

CHERRY COUNTY WIND ENERGY

Tuesday, 08 February 2011 06:24

The Cherry County Wind Energy Committee met with NPPD Chief Operating Officer Pat Pope and other NPPD representatives Monday night to discuss the potential for wind energy in the county. The committee has been directed by the Cherry County Commissioners to help research and direct potential wind energy development. At last nights meeting, Mr. Pope gave the committee direction on working with the Southwest Power Pool to help facilitate transmission lines in Cherry County to export energy produced by the area. It could be 5 to 7 years before proposed lines are actually constructed. NPPD has a goal of 10% of energy generated being from renewable sources by the year 2020.

Cherry County Wind Energy

Friday, 22 April 2011 05:58

The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met with three representatives of Nebraska Public Power District on Wednesday to discuss wind energy development in Cherry County. John O'Connor and Dave Rich from NPPD were the main presenters and covered opportunities and challenges in the development of wind power in Nebraska and more specifically in Cherry County. NPPD has a goal of 10% renewable energy by the year 2020. Currently only 2% of energy comes from wind power in Nebraska. Mr. O'Connor sated that there are basically four areas to explore: prove the wind potential is there, transmission lines for export of power, environmental aspects and community support. The local committee will continue to approach this endeavor as a long term project which could have multiple benefits to the community.

Wind Energy in Cherry County

Tuesday, 09 August 2011 05:09

The Cherry County Wind Energy Committee, appointed by the Cherry County Commissioners, met last evening for a regular meeting. The group continues to work on the two main areas of concern which include transmission lines and landowner association. In order for wind energy to work in Cherry County the Southwest Power Pool has to agree to move a proposed transmission line north so electricity can be transmitted out of the county to other parts of the country that need it. It is also important for landowners to work together in dealing with potential wind energy developers to ensure that they get the best deal for their wind. At the direction of the County Commissioners, the group will continue to toward positive development of wind energy in Cherry County.

WIND ENERGY IN CHERRY COUNTY

Tuesday, 15 November 2011 06:57

Cherry County Landowners should have received a letter in the mail introducing the Cherry County Wind Energy Association and announcing a couple of upcoming informational meetings.

The Wind Energy Association is a non-profit organization dedicated to promoting wind energy development in Cherry County. The Association is the result of a directive of the Cherry County Commissioners that led to the formation of a Wind Advisory Committee in March of 2010. Informational meetings will be held in Valentine on November 21, 5:00 CT, at the Niobrara Lodge, and in Mullen on November 22, 5:00 MT at the Bullseye. Landowners interested in learning about: prospects for wind

energy development, new transmission line development, environmental issues, plans to maintain local control, and who will benefit, are encouraged to attend.

The Association members are actively planning a large wind energy development in Cherry County. The Board of Directors of the Association intends that the wind energy development directly benefit all Association landowner members. Association membership will be available for a limited time. If you are unable to attend either of the meetings, contact one of the Board members for more information or Chairman George Johnson 402-823-4067. Other board members include:

Matt Coble, Gary Garvin, Todd Adamson, John Hansen, Mark Adamson, Mike Burge, Tom Cooper, Adam Fischer.

WIND ENERGY ASSOCIATION ACCEPTING SIGN UPS

Wednesday, 14 December 2011 11:53

The Cherry County Wind Energy Association is continuing to accept sign up forms for acres in the new landowner association. The deadline to submit acres is Thursday, December 15th. At this time the board needs a commitment of the number of acres only, and not the legal description. There is a $100 fee that goes along with becoming a member of the association which will be used to offset initial costs of the landowner association. If you need more information contact a board member including; George Johnson, Todd Adamson, Matt Coble, Tom Cooper, Mark Adamson or Mike Burge. Sign up forms can be mailed or dropped off to those board members.

THEDFORD WIND ENERGY MEETING

Tuesday, 06 December 2011 08:00

About 35 area landowners and interested people attended the informational meeting last evening in Thedford, to hear about a plan for wind energy development in Cherry County. The Cherry County Wind Energy Association hosted the meeting. At this time the association in a non-profit organization with a goal of distributing information about a potential large wind development project for Cherry County and signing up landowners who are interested in being part of the association. The Southwest Power Pool will decide in January if they will build a 345 kilo-volt transmission line through Cherry County in the next ten years. If this line is approved for construction, it will open the doors for a very large wind development in the county and the landowners association would evolve into a for profit organization. The Wind Association would represent member landowners in negotiations with potential developers who can be difficult to deal with. Because of the approach the local association will take to negotiations, profits could be higher for local property owners. December is the deadline to return forms to pledge acres for the association. For more information contact one of the committee members, Matt Coble, Todd Adamson, Gary Garvin, Tom Cooper, Todd Adamson, George Johnson, Mark Adamson, Adam Fischer or Mike Burge.

FIRST WIND ENERGY ASSOCIATION MEETING HELD

Tuesday, 22 November 2011 06:26

About 70 area landowners and interested people attended the informational meeting last evening to hear about a plan for wind energy development in Cherry County. The Cherry County Wind Energy Association hosted the meeting at the Niobrara

Lodge in Valentine and will host another meeting tonight in Mullen at 5 Pm Mountain time. At this time the association in a non-profit organization with a goal of distributing information about a potential large wind development project for Cherry County and signing up landowners who are interested in being part of the association. The Southwest Power Pool will decide in January if they will build a 345 kilo-volt transmission line through Cherry County in the next ten years. If this line is approved for construction, it will open the doors for a very large wind development in the county and the landowners association would evolve into a for profit organization. The Wind Association would represent member landowners in negotiations with potential developers who can be difficult to deal with. Because of the approach the local association will take to negotiations, profits could be higher for local property owners. The informational meeting tonight in Mullen will be held at the Bullseye at 5 PM local time.

Cherry County's first wind turbine will be erected west of Valentine this week. The turbine will supply the City of Valentine with 1.85 megawatts of electricity when it goes online in the very near future. The city signed a long term contract to purchase the power in an effort to reduce the peak electric rates paid to NPPD during the winter heating season. This peak rate determines the overall kilowatt per hour rate paid by utility customers all year long. The goal is to reduce the overall rate per kilowatt for residents served by city power. The turbine will be erected on private land approximately 3 miles west of Valentine and south of Highway 20. The project is located on lands enrolled in the Cherry County Wind Energy Association which formed out of a directive from the Cherry County Commissioners to direct the development of wind energy in the county in a positive manner. The association represents numerous landowners in Cherry County that are interested in wind energy development.

Wednesday, 02 July 2014 09:30

Cherry County's first wind turbine has started the erection process. The turbine will supply the City of Valentine with 1.85 megawatts of electricity when it goes online. The city signed a long term Power Purchase Agreement with Bluestem Sandhills, LLC in November. The goal is to diversify power sources and provide a long-term hedge against rising energy costs for the citizens of Valentine. The turbine will be erected on private land approximately 3 miles west of Valentine and south of Highway 20. The turbine will produce enough energy to power approximately 400 homes a year, and supply roughly 10-15% of Valentine's power. The project is located on lands enrolled in the Cherry County Wind Energy Association which formed out of a directive from the Cherry County Commissioners to direct the development of wind energy in the county in a positive manner. The association represents numerous landowners in Cherry County that are interested in wind energy development.

Friday, 05 September 2014 05:11

An official ribbon cutting ceremony for the new wind turbine west of Valentine, will take place this Wednesday, September 10 at 5:30 p.m. at the Valentine Wind Project Site, 3 miles west of Valentine. There will be a large tent for the ribbon cutting if there is inclement weather.

The public is invited to attend the ribbon cutting, which will include short remarks from the representative of the site's developer, Bluestem Sandhills, LLC. Various elected officials and representatives from the Valentine area are expected to attend the ceremony. The project was constructed in cooperation with Cherry County Wind Energy Association.

A GE wind turbine was installed this summer by Bluestem Sandhills, LLC, which owns and operates the turbine. Bluestem Sandhills, LLC, signed a power purchase agreement in January

with the City of Valentine in an effort to reduce overall electric rates for city customers. Bluestem Sandhills, LLC, is responsible for maintenance of the turbine.

Please contact Nicole McDermott at (mailto:%20%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20var%20prefix%20%3D%20'mailto:';%20var%20suffix%20%3D%20'';%20var%20attribs%20%3D%20'';%20var%20path%20%3D%20'hr'%20+%20'ef'%20+%20'%3D';%20var%20addy81936%20%3D%20'nmcdermott'%20+%20'@';%20addy81936%20%3D%20addy81936%20+%20'bstem'%20+%20'.'%20+%20'biz';%20document.write(%20'%3Ca%20'%20+%20path%20+%20'%5C''%20+%20prefix%20+%20addy81936%20+%20suffix%20+%20'%5C''%20+%20attribs%20+%20'%3E'%20);%20document.write(%20addy81936%20);%20document.write(%20'%3C%5C/a%3E'%20);%20//--%3E%20%3C/script%3E%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20document.write(%20'%3Cspan%20style%3D%5C'display:%20none;%5C'%3E'%20);%20//--%3E%20%3C/script%3EThis%20e-mail%20address%20is%20being%20protected%20from%20spambots.%20You%20need%20JavaScript%20enabled%20to%20view%20it%20%3Cscript%20language%3D'JavaScript'%20type%3D'text/javascript'%3E%20%3C!--%20document.write(%20'%3C/'%20);%20document.write(%20'span%3E'%20);%20//--%3E%20%3C/script%3E)402.637.4455 if you plan to attend.

© *Cherry County Wind, LLC* 2016

Wind Energy Resource Maps of Nebraska

Prepared for:

Nebraska State Energy Office
Suite 223, 1111 "O" Street
Lincoln, NE 68508
Attention: Jerry Loos

Prepared by:

AWS Truewind, LLC
255 Fuller Road, Suite 274
Albany, New York 12203
Telephone: (518) 437-8660
mbrower@awstruewind.com
Principal Author: Rebecca Reed
Reviewer: Michael Brower

April 20, 2005

Attach. C

TABLE OF CONTENTS

LIST OF TABLES....2

LIST OF FIGURES....3

EXECUTIVE SUMMARY....4

1. INTRODUCTION....5

2. DESCRIPTION OF THE MESOMAP SYSTEM....5

3. IMPLEMENTATION OF MESOMAP FOR THIS PROJECT....8

4. VALIDATION....9

5. WIND MAPS....12

6. GUIDELINES FOR USE OF THE MAPS....13

AWS Truewind

LIST OF TABLES

Table 1. Range of Surface Roughness Values for Leading Land Cover Types 9
Table 2. Validation.....11

AWS Truewind

LIST OF FIGURES

Figure 1. Scatter plots of predicted and measured/extrapolated mean wind speed and power in Nebraska. 12

AWS Truewind

EXECUTIVE SUMMARY

This report describes a wind-mapping project conducted by AWS Truewind for the Nebraska State Energy Office. Using the MesoMap system, AWS Truewind has produced maps of mean annual wind speed in Nebraska for heights of 30, 50, 70, and 100 m above ground, as well as a map of mean annual wind power at 50 m. AWS has also produced data files of the predicted wind speed frequency distribution and speed and energy by direction. The maps and data files are provided on a CD with the ArcReader software, which will enable users to view, print, copy, and query the maps and wind rose data.

The MesoMap system consists of an integrated set of atmospheric simulation models, databases, and computers and storage systems. At the core of MesoMap is MASS (Mesoscale Atmospheric Simulation System), a numerical weather model, which simulates the physics of the atmosphere. MASS is coupled to a simpler wind flow model, WindMap, which is used to refine the spatial resolution of MASS and account for localized effects of terrain and surface roughness. MASS simulates weather conditions over a region for 366 historical days randomly selected from a 15-year period. When the runs are finished, the results are input into WindMap. In this project, the MASS model was run on a grid spacing of 2 km and WindMap on a grid spacing of 200 m.

In collaboration with the National Renewable Energy Laboratory, AWS Truewind subsequently validated the wind maps using data from 45 stations. The data were first extrapolated to a height of 50 m. The predicted wind speeds were on average about 0.4 m/s higher than the observed/extrapolated speeds, and the root-mean-square discrepancy was 0.6 m/s, or about 8% of the average speed at all the stations. After consultation with the National Renewable Energy Laboratory, we adjusted the maps in several areas to reduce the positive bias. The estimated error margin of the final, adjusted maps is about 5%.

The wind maps indicate that the flat, open areas of the Great Plains throughout the eastern and central portion of the state experience the best wind speeds. The mean wind speed at 50 m height in most parts of this region is predicted to be 7.5 to 8.0 m/s, and the predicted mean wind power density is 300 to 500 W/m², or NREL class 3 and 4. However, there are pockets of higher wind speeds throughout the state in relatively open, elevated areas. In these areas the predicted wind speed ranges from 8.0 to 8.5 m/s, with a class 5 wind power, or 500 to 600 W/m^2. The river valleys along the Platte, Elkhorn, Republican and Mississippi Rivers are predicted to have the lowest wind resource in the state, with annual mean speeds ranging from 6.0 to7.0 m/s and wind power densities from 200 to 300 W/m², or NREL class 2. The rest of the state, including most of the Sand Hills in the northwest, has predicted mean wind speeds of 7.0 to 7.5 m/s and wind power density from 300 to 400 W/m², class 3.

1. INTRODUCTION

The Nebraska State Energy Office is interested in assessing the potential for wind energy development in Nebraska and assisting developers in finding suitable sites for wind energy projects. Conventional field techniques of wind resource assessment can be time consuming, however, and often depend heavily on local meteorological expertise as well as the availability of reliable and representative wind measurements. Conventional wind flow models, on the other hand, have often proven inaccurate in complex wind regimes, and even in moderate terrain their accuracy can decline substantially with distance from the nearest available reference mast.

Mesoscale-microscale modeling techniques offer a solution to these challenges. By combining a sophisticated numerical weather model capable of simulating large-scale wind patterns with a microscale wind flow model responsive to local terrain and surface conditions, they enable the mapping of wind resources over large regions with much greater accuracy than has been possible in the past. In addition, they do not require surface wind data to make reasonably accurate predictions. While on-site measurements are still required to confirm the predicted wind resource at any particular location, mesoscale-microscale modeling can greatly reduce the time and cost to identify and evaluate potential wind project sites.

AWS Truewind has been the world leader in the development of mesoscale-microscale mapping techniques, having introduced the MesoMap system in the late 1990s. In the past five years, MesoMap has been applied in nearly 30 countries on four continents. In North America alone, MesoMap has been used to map over 30 US states and several provinces of Canada and states of Mexico.

The objective of the current project was to use MesoMap to create high-resolution wind resource maps of Nebraska and to provide wind resource data in a format enabling users to assess potential sites in a GIS. These objectives have been met. In the following sections, we describe the MesoMap system and mapping process in detail; how MesoMap was applied in this project; the validation process and results; the final wind maps and data files; and guidelines for the use of the maps.

2. DESCRIPTION OF THE MESOMAP SYSTEM

The MesoMap system has three main components: models, databases, and computer systems. These components are described below.

2.1. Models

At the core of the MesoMap system is MASS (Mesoscale Atmospheric Simulation System), a numerical weather model that has been developed over the past 20 years by AWS's partner MESO, Inc., both as a research tool and to provide commercial weather forecasting services. MASS simulates the fundamental physics of the atmosphere including conservation of mass, momentum, and energy, as well as the moisture phases, and it contains a turbulent kinetic energy module that accounts for the effects of viscosity

and thermal stability on wind shear. As a dynamical model, MASS simulates the evolution of atmospheric conditions in time steps as short as a few seconds. This creates great computational demands, especially when running at high resolution. Hence MASS is usually coupled to a simpler but much faster program, WindMap, a mass-conserving wind flow model. Depending on the size and complexity of the region and requirements of the client, WindMap is used to improve the spatial resolution of the MASS simulations to account for the local effects of terrain and surface roughness variations.

2.2. Data Sources

The MASS model uses a variety of online, global, geophysical and meteorological databases. The main meteorological inputs are reanalysis data, rawinsonde data, and land surface measurements. The reanalysis database – the most important – is a gridded historical weather data set produced by the US National Centers for Environmental Prediction (NCEP) and National Center for Atmospheric Research (NCAR). The data provide a snapshot of atmospheric conditions around the word at all levels of the atmosphere in intervals of six hours. Along with the rawinsonde and surface data, the reanalysis data establish the initial conditions as well as updated lateral boundary conditions for the MASS runs. The MASS model itself determines the evolution of atmospheric conditions within the region based on the interactions among different elements in the atmosphere and between the atmosphere and the surface. Because the reanalysis data are on a relatively coarse, 200 km grid, MASS is run in several nested grids of successfully finer mesh size, each taking as input the output of the previous nest, until the desired grid scale is reached. This is to avoid generating noise at the boundaries that can result from large jumps in grid cell size. The outermost grid typically extends several thousand kilometers.

The main geophysical inputs are elevation, land cover, vegetation greenness (normalized differential vegetation index, or NDVI), soil moisture, and sea-surface temperatures. The global elevation data normally used by MesoMap were produced by the US Geological Survey in a gridded digital elevation model, or DEM, format from a variety of data sources.[1] The US Geological Survey, the University of Nebraska, and the European Commission's Joint Research Centre (JRC) produced the global land cover data in a cooperative project. The land cover classifications are derived from the interpretation of Advanced Very High Resolution Radiometer (AVHRR) data – the same data used to calculate the NDVI. The model translates both land cover and NDVI data into physical parameters such as surface roughness, albedo, and emissivity. The nominal spatial resolution of all of these data sets is 1 km. Thus, the standard output of the MesoMap system is a 1 km gridded wind map. However, much higher resolution maps can be produced where the necessary topographical and land cover data are available. In the United States, the resolution is typically 100 to 400 m.

[1]The US Defense Department's high-resolution Digital Terrain Elevation Data set is the principal source for the global 1 km elevation. Gaps in the DTED data set were filled mainly by an analysis of 1:1,000,000 scale elevation contours in the Digital Chart of the World (now called VMAP).

2.3. Computer and Storage Systems

The MesoMap system requires a very powerful set of computers and storage systems to produce wind resource maps at a sufficiently high spatial resolution in a reasonable amount of time. To meet this need AWS Truewind has created a distributed processing network consisting of 94 Pentium II processors and 3 terabytes of hard disk storage. Since each day simulated by a processor is entirely independent of other days, a project can be run on this system up to 94 times faster than would be possible with any single processor. To put it another way, a typical MesoMap project that would take two years to run on a single processor can be completed in just one week.

2.4. The Mapping Process

The MesoMap system creates a wind resource map in several steps. First, the MASS model simulates weather conditions over 366 days selected from a 15-year period. The days are chosen through a stratified random sampling scheme so that each month and season is represented equally in the sample; only the year is randomized. Each simulation generates wind and other weather variables (including temperature, pressure, moisture, turbulent kinetic energy, and heat flux) in three dimensions throughout the model domain, and the information is stored at hourly intervals. When the runs are finished, the results are compiled into summary data files, which are then input into the WindMap program for the final mapping stage. The two main products are usually (1) color-coded maps of mean wind speed and power density at various heights above ground and (2) data files containing wind speed and direction frequency distribution parameters. The maps and data can then be compared with land and ocean surface wind measurements, and if significant discrepancies are observed, adjustments to the wind maps can be made.

AWS Truewind

2.5. Factors Affecting Accuracy

In our experience, the most important sources of error in the wind resource estimates produced by MesoMap are the following:

- Finite grid scale of the simulations
- Errors in assumed surface properties such as roughness
- Errors in the topographical and land cover data bases

The finite grid scale of the simulations results in a smoothing of terrain features such as mountains and valleys. For example, a mountain ridge that is 2000 m above sea level may appear to the model to be only 1600 m high. Where the flow is forced over the terrain, this smoothing can result in an underestimation of the mean wind speed or power at the ridge top. Where the mountains block the flow, on the other hand, the smoothing can result in an overestimation of the resource as the model understates the blocking effect. The problem of finite grid scale can be solved by increasing the spatial resolution of the simulations, but at a cost in computer processing and storage.

Errors in the topographical and land cover data can obviously affect wind resource estimates. While elevation data are usually reliable, errors in the size and location of terrain features nonetheless occur from time to time. Errors in the land cover data are more common, usually as a result of the misclassification of aerial or satellite imagery. It has been estimated that the global 1 km land cover database used in the MASS simulations is about 70% accurate. Where possible, more accurate and higher resolution land cover databases should be used in the WindMap stage of the mapping process to correct errors introduced in the MASS simulations. In the United States, we use a 30 m gridded Landsat-derived land cover database for this purpose; a similar 250 m database, called Corine, is available for most of Western Europe.

Even if the land cover types are correctly identified, there is uncertainty in the surface properties that should be assigned to each type, and especially the vegetation height and roughness. The forest category, for example, may include many different varieties of trees with varying heights and density, leaf characteristics, and other features that affect surface roughness. Cropland may be virtually devoid of trees and buildings, or it may have many windbreaks. Uncertainties like these can be resolved only by acquiring more information about the area through aerial photography or field observation. However this is not practical when (as in this project) the area being mapped is very large.

3. IMPLEMENTATION OF MESOMAP FOR THIS PROJECT

The standard MesoMap configuration was used in this project. MASS was run on the following nested grids:

First (outer) grid level: 30 km
Second (intermediate) grid level: 8 km
Third (inner) grid level: 2 km

The usual geophysical and meteorological inputs were used. The WindMap program adjusted the wind resource estimates to reflect local topography and surface roughness changes on a grid spacing of 200 m. For the topographical data, we used the National Elevation Dataset, a digital terrain model produced on a 30 m grid by the US Geological Survey (USGS). For the land cover, we used the National Land Cover Dataset, which is derived from Landsat imagery. It was also produced by the USGS on a 30 m grid.[2] Both data sets are of very high quality.

In converting from land cover to surface roughness, the roughness length values shown in Table 1 were assumed. We believe these values to be typical of conditions in states such as Nebraska. However the actual roughness could vary a good deal within each class.

[2] Information on the National Land Cover Data set can be found at the following web address: http://landcover.usgs.gov/nationallandcover.html. Information on the National Elevation Dataset (NED) can be found at http://edcwww.cr.usgs.gov/products/elevation/ned.html.

Table 1. Range of Surface Roughness Values for Leading Land Cover Types

Description	Roughness (m)
Cropland	0.03
Grasslands/Herbaceous	0.03
Shrubland	0.05
Deciduous Forest	0.9
Evergreen and Mixed Forest	1.125
Herbaceous Wetland	0.2
Residential and Urban	0.3

The roughness is not the only surface property with a direct effect on near-surface wind speeds. Where there is dense vegetation the wind can skim along the vegetation canopy, thereby displacing the flow above the ground and reducing the speed observed at a fixed height above ground. The displacement height is defined as the height at which the wind speed becomes zero in the logarithmic shear formula. The shear formula is as follows:

$$\frac{v_2}{v_1} = \frac{\ln\left(\frac{z_2 - d}{z_0}\right)}{\ln\left(\frac{z_1 - d}{z_0}\right)}$$

Here, d is the displacement height, z_1 and z_2 are two different heights at which the speed v is measured, and z_0 is the surface roughness (generally much less than z_2 and z_1). Note that according to this formula, when $z_2 = d + z_0$, $v_2 = 0$.

The displacement height is usually estimated to be about two-thirds to three-fourths the maximum vegetation height. For this project, we assumed that the displacement height was 10 times the surface roughness length, which was in turn defined to be approximately 7.5% of the vegetation height. For deciduous forests with a roughness length of 0.9 m, this resulted in a displacement height of 9 m.

The effect of displacement height is to reduce the wind speed observed near the ground and to increase the apparent wind shear measured with respect to ground level. It can also reduce the wind speed measured in small clearings, since the ground appears to be in a "hole" at a depth d below the vegetation canopy. The impact of this hole on wind speed diminishes as the clearing becomes large enough for the flow to reach equilibrium with the new effective ground height. As a rule of thumb, the clearing width should be at least 20 times the displacement height for the effect to be negligible at the center of the clearing, but under some conditions the minimum width should be even larger.

4. VALIDATION

The wind resource maps were initially produced without any reference to surface wind measurements. AWS and NREL then validated the wind maps by comparing the

predicted speed against data from 45 stations. Consulting meteorologist Richard L. Simon contributed data and insights to the analysis. The data set included 31 airports, as well as a number of automated weather stations (RAWS), as well as nine tall towers instrumented specifically for wind resource assessment.

The validation was carried out in the following steps:

1. Station locations were verified and adjusted, if necessary, by comparing the quoted elevations and station descriptions against the elevation and land cover maps. Where there was an obvious error in position, the station was moved to the nearest point with the correct elevation and surface characteristics.

2. The observed mean speed and power were extrapolated to a common reference height of 50 m using the power law. At the tall towers, little or no extrapolation was needed. Assumed shear values ranged from 0.17 to 0.25.[3]

3. The error margin for each data point was then estimated as a function of two factors: the tower height and the number of years of measurement. The tower height enters the equation because of uncertainty in the wind shear. We assumed an error margin in the shear exponent of 0.04, reflecting significant uncertainty in the ground cover, tree height, buildings, and other factors. The number of years of data affects the uncertainty because winds recorded over a short period may not be representative of long-term conditions. A rule of thumb is that a mean speed based on one year of data will be within 10% of the true long-term mean with 90% confidence. This translates into a standard error of 6% for one year of data. We assumed that the annual mean varies randomly according to a normal distribution, and thus the error margin varies inversely with the square root of the number of years. An additional uncertainty of 3% was added to account for possible variations in the characteristics of anemometers and data loggers.

4. The various uncertainties were then combined in a least-squares sum as follows:

   $$(1)\quad e = \sqrt{0.03^2 + \left(\left(50/H\right)^{0.05} - 1\right)^2 + \left(\frac{0.06}{\sqrt{N}}\right)^2}$$

   where H is the height of the anemometer, and N the number of years of measurement. The uncertainty in power (in percentage terms) is assumed to be three times the uncertainty in speed, since the power varies as the cube of the speed.

5. Next, the predicted and measured/extrapolated speed and power were compared, and the map bias (map speed or power minus measured/extrapolated speed or power) was calculated for each point. Two stations were dropped at this point

[3] The power shear exponent is assumed to be 3(α-0.02), where α is the speed shear exponent. The reason for the reduction in effective shear, compared to assuming that the power goes strictly as the cube of the speed, is that the speed frequency distribution tends to become narrower with height above ground because the shear is often higher under light wind conditions.

because the discrepancies between model and data were so large as to suggest problems with the instrumentation or obstructions near the masts.

Table 2 summarizes the results. The key finding is that the root-mean-square (RMS) discrepancy in speed and power were 0.6 m/s (10.6% of the average observed speed) and 45 W/m^2 (19% of the average observed power), respectively. The wind power RMS discrepancy is larger than the wind speed discrepancy in percentage terms because the power varies as the cube of the speed.

Table 2. Validation

	Number of Stations	Mean Bias	RMS Discrepancy	Model Error
Speed	45	0.4 m/s (+5%)	0.6 m/s (8%)	0.4 m/s (5%)
Power	45	0 W/m^2 (0%)	60 W/m^2 (18%)	30 (9%)

The RMS discrepancy reflects errors both in the model and the data, and thus it tends to overstate the error of the maps alone. The model error is estimated by subtracting (in a least-squares sense) the standard error of the data (e_{DATA}) from the total RMS discrepancy (e_{TOTAL}):

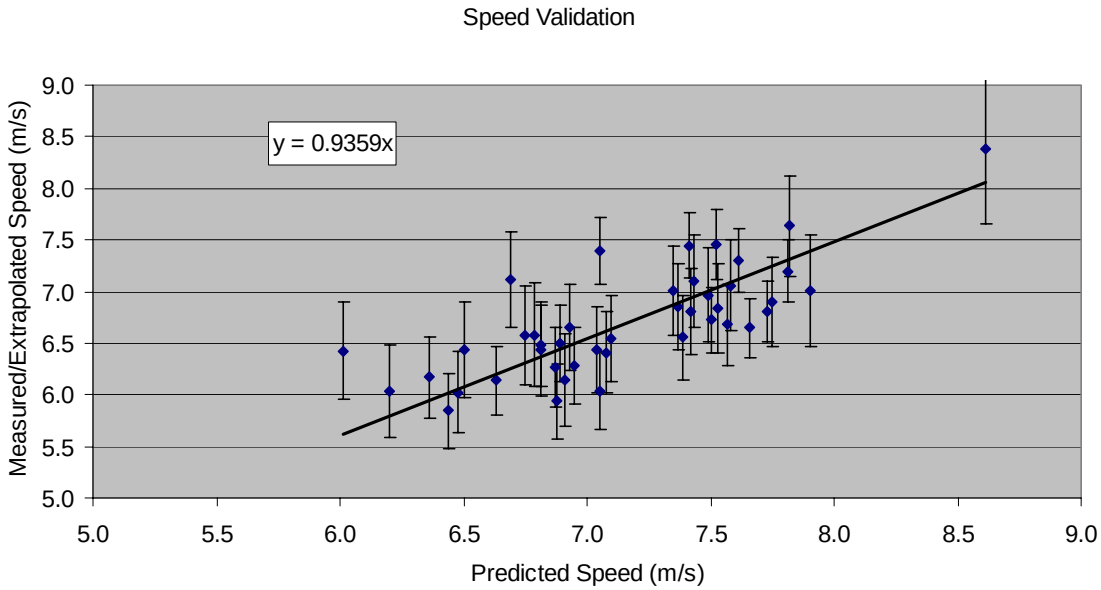
(2) $e_{MODEL} \approx \sqrt{e_{TOTAL}^2 - e_{DATA}^2}$

This equation assumes that the errors in the model and data are random, normally distributed, and independent of one another. Using this equation, the speed error for the model alone is found to be 0.4 m/s, or 5%.

The scatter plots in Figure 1 compare the predicted and measured-extrapolated wind speed and power at 50 m height. The linear trend lines, which are forced through the origin, confirm that the map speeds are about 5% higher than the observed/extrapolated speeds on average, while the map power shows much lower bias.

After reviewing the validation results, NREL recommended downward adjustments of 5% in speed and 15% in power in the eastern third of the state and similar adjustments in a few other areas where the model appeared to overestimate the wind resource.

AWS Truewind



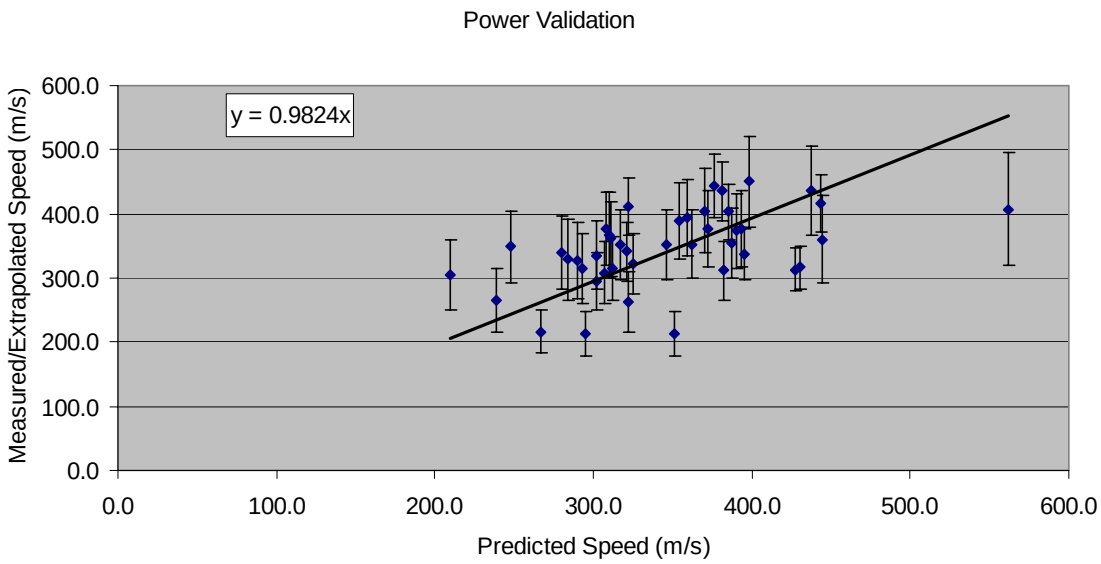


Figure 1. Scatter plots of predicted and measured wind speeds for 45 stations in Nebraska at 50 m (top), and the same for wind power (bottom). The error bars reflect period of record, tower height, and anemometer sensitivity, as described in the text. The trend lines are forced through the origin.

5. WIND MAPS

The accompanying maps, which incorporate the adjustments described in the previous section, show the predicted mean annual wind speed in Nebraska at heights of 30, 50, 70, and 100 m; a map of mean annual wind power at 50 m is also provided.

The wind maps show that the best wind resource in Nebraska is found in the open, flat areas of the Great Plains in the central and eastern half of the state. The mean wind speed at 50 m height in this region is predicted to be in the range of 7.5 to 8.0 m/s, and the mean wind power is predicted to be about 300 to 500 W/m^2, or NREL class 3 and 4. Since the land cover in the Great Plains is mostly open cropland, there is very little friction exerted on the lower atmosphere, allowing wind speeds to remain strong. In contrast, in forested areas, trees exert friction on the lower atmosphere, thereby reducing the wind speed.

All other things being equal, hilltops usually have a better resource than valleys. Pockets of increased wind speeds exist on well-exposed elevated features throughout Nebraska; wind speeds reach 8.5 m/s with a mean wind power of class 5, or 500 to 600 W/m^2. In the low-lying areas of the Nebraskan river valleys, the wind resource is generally lower. The river valleys along the Platte, Elkhorn, Republican and Mississippi Rivers are predicted to have the lowest wind resource in the state, with annual mean speeds ranging from 6.0 to7.0 m/s and wind power densities from 200 to 300 W/m^2, or NREL class 2. The rest of the state, including most of the Sand Hills in the northwest, have predicted mean wind speeds of 7.0 to 7.5 m/s and wind power density from 300 to 400 W/m^2, class 3.

It should be stressed that the mean wind speed at any particular location may depart substantially from the predicted values, especially where the elevation, exposure, or surface roughness differs from that assumed by the model, or where the model scale is inadequate to resolve significant features of the terrain. Despite the adjustments, there is no guarantee that the revised wind map is any more accurate, especially in areas where no data was available, than the original map.

AWS Truewind

6. GUIDELINES FOR USE OF THE MAPS

The following are guidelines for interpreting and adjusting the wind speed estimates in the maps, to be used in conjunction with the accompanying ArcReader CD. The ArcReader CD allows users to obtain the “exact” wind speed value at any point, and it provides the elevation and surface roughness data used by the model, which are needed to apply the adjustment formulas given below.

1. The maps assume that all locations are free of obstacles that could disrupt or impede the wind flow. “Obstacle” does not apply to trees if they are common to the landscape, since their effects are already accounted for in the predicted speed. However, a large outcropping of rock or a house would pose an obstacle, as would a nearby shelterbelt of trees or a building in an otherwise open landscape. As a rule of thumb, the effect of such obstacles extends to a height of about twice the obstacle height and to a distance downwind of 10-20 times the obstacle height.

2. Generally speaking, points that lie above the average elevation within a 200×200 m grid cell will be somewhat windier than points that lie below it. A rule of thumb is that every 100 m increase in elevation will raise the mean speed by

about 0.5 m/s. This formula is most applicable to small, isolated hills or ridges in flat terrain.

3. The mean wind speed at a location could be affected by the roughness of the land surface – determined mainly by vegetation cover and buildings – up to several kilometers away. If the roughness is much lower than that assumed by the model, the mean wind speed could be higher. Typical values of roughness range from 0.01 m in open, flat ground without significant trees or shrubs, to 0.1 m in land with few trees but some smaller shrubs, to 1 m or more for areas with many trees. These values are only indirectly related to the size of the vegetation.

   The following equation provides an approximate speed adjustment for differences in surface roughness in the direction of the wind:

$$\frac{v_2}{v_1} \approx \frac{\log\left(\frac{300-d}{z_{01}}\right)}{\log\left(\frac{h-d}{z_{01}}\right)} \times \frac{\log\left(\frac{h-d}{z_{02}}\right)}{\log\left(\frac{300-d}{z_{02}}\right)}$$

   v_1 and v_2 are the original and adjusted wind speeds at height h (in meters above ground level); z_{01} and z_{02} are the model and actual surface roughness values (in meters); and d_1 and d_2 are the corresponding displacement heights. (This equation assumes the wind is unaffected by localized roughness changes above a height of 300 m.)

   As an example, suppose the surface roughness assumed by the model was 0.2 m, and the displacement 2 m, whereas the true roughness is 0.75 m and displacement 7.5 m. For h = 50 m, the above formula gives

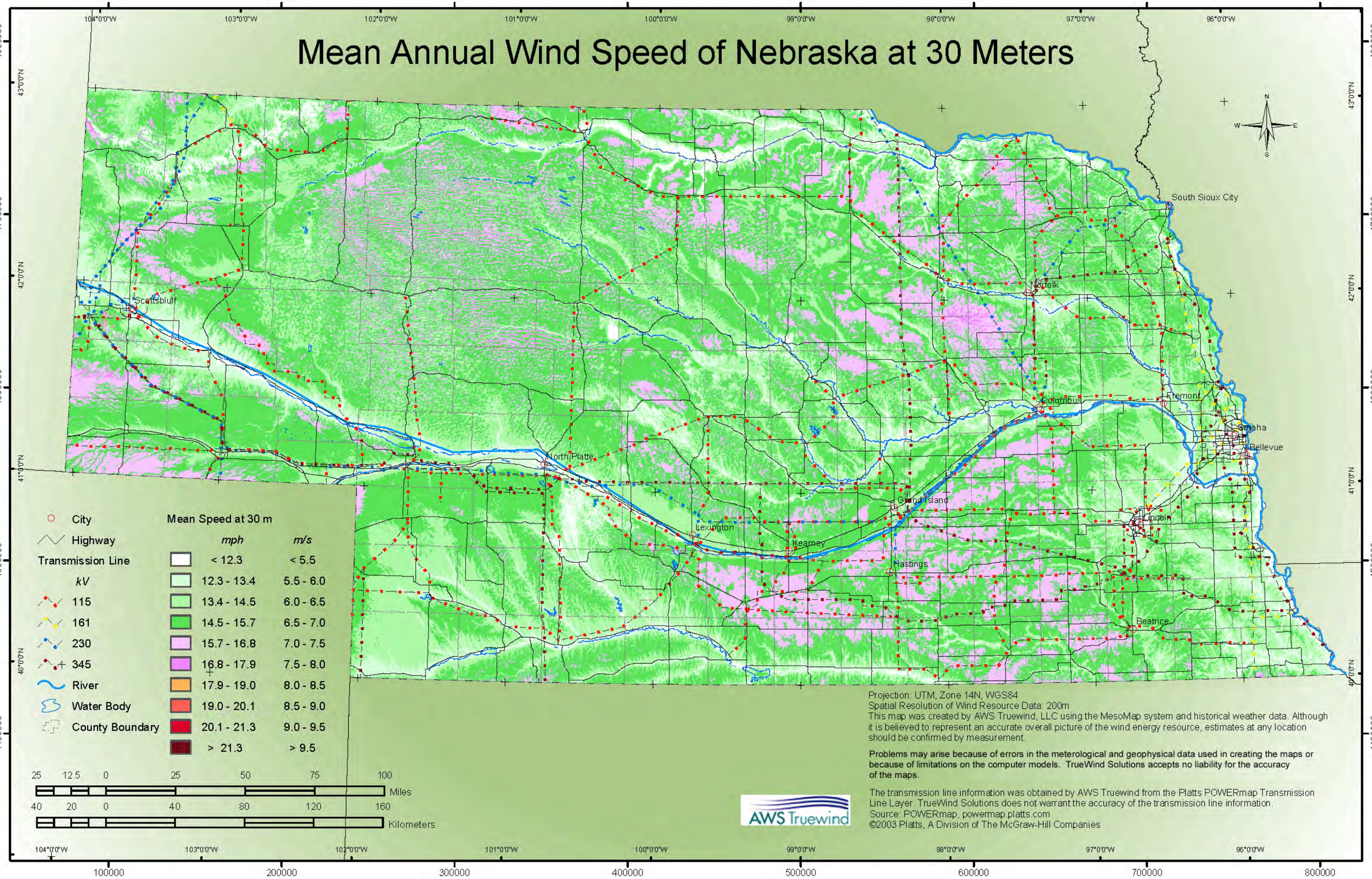
$$\frac{v_2}{v_1} \approx \frac{\log\left(\frac{300-2}{0.2}\right)}{\log\left(\frac{50-2}{0.2}\right)} \times \frac{\log\left(\frac{50-7.5}{0.75}\right)}{\log\left(\frac{300-7.5}{0.75}\right)} = 0.90$$

This shows that the predicted wind speed should be reduced by about 10%.

This formula assumes that the wind is in equilibrium with the new surface roughness above the height of interest (in this case 50 m). When going from high roughness to low roughness (such as from forested to open land), the clearing should be at least 1000 m wide for the benefit of the lower roughness to be fully realized. However, when going from low to high roughness, the reduction in wind speed may be felt over a much shorter distance. For this and other reasons, the formula should be applied with care.

AWS Truewind

Mean Annual Wind Speed of Nebraska at 30 Meters



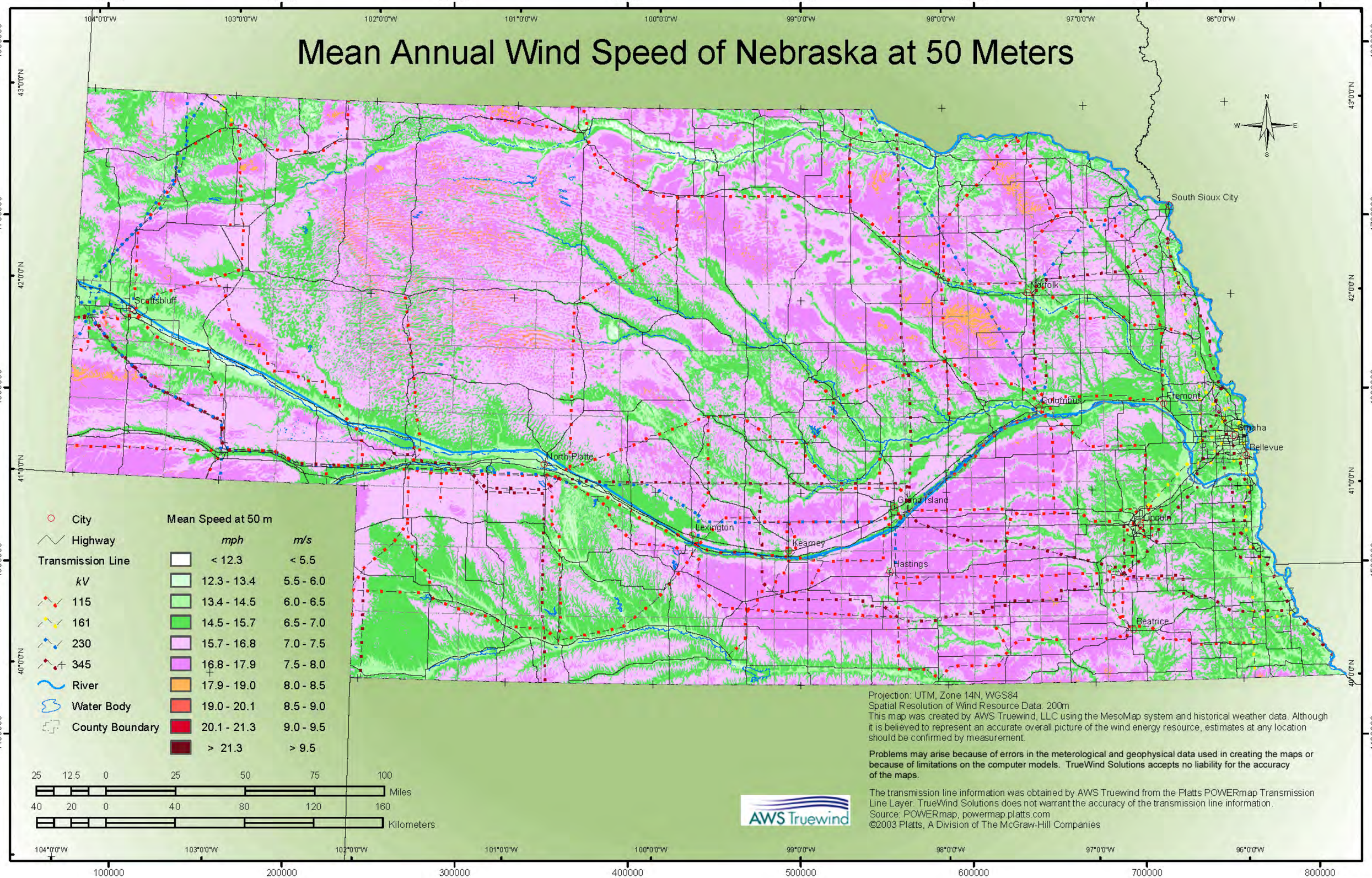
Projection: UTM, Zone 14N, WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind, LLC using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

Problems may arise because of errors in the meterological and geophysical data used in creating the maps or because of limitations on the computer models. TrueWind Solutions accepts no liability for the accuracy of the maps.

The transmission line information was obtained by AWS Truewind from the Platts POWERmap Transmission Line Layer. TrueWind Solutions does not warrant the accuracy of the transmission line information.
Source: POWERmap, powermap.platts.com
©2003 Platts, A Division of The McGraw-Hill Companies

NE_spd50m_033105.mxd

Mean Annual Wind Speed of Nebraska at 50 Meters



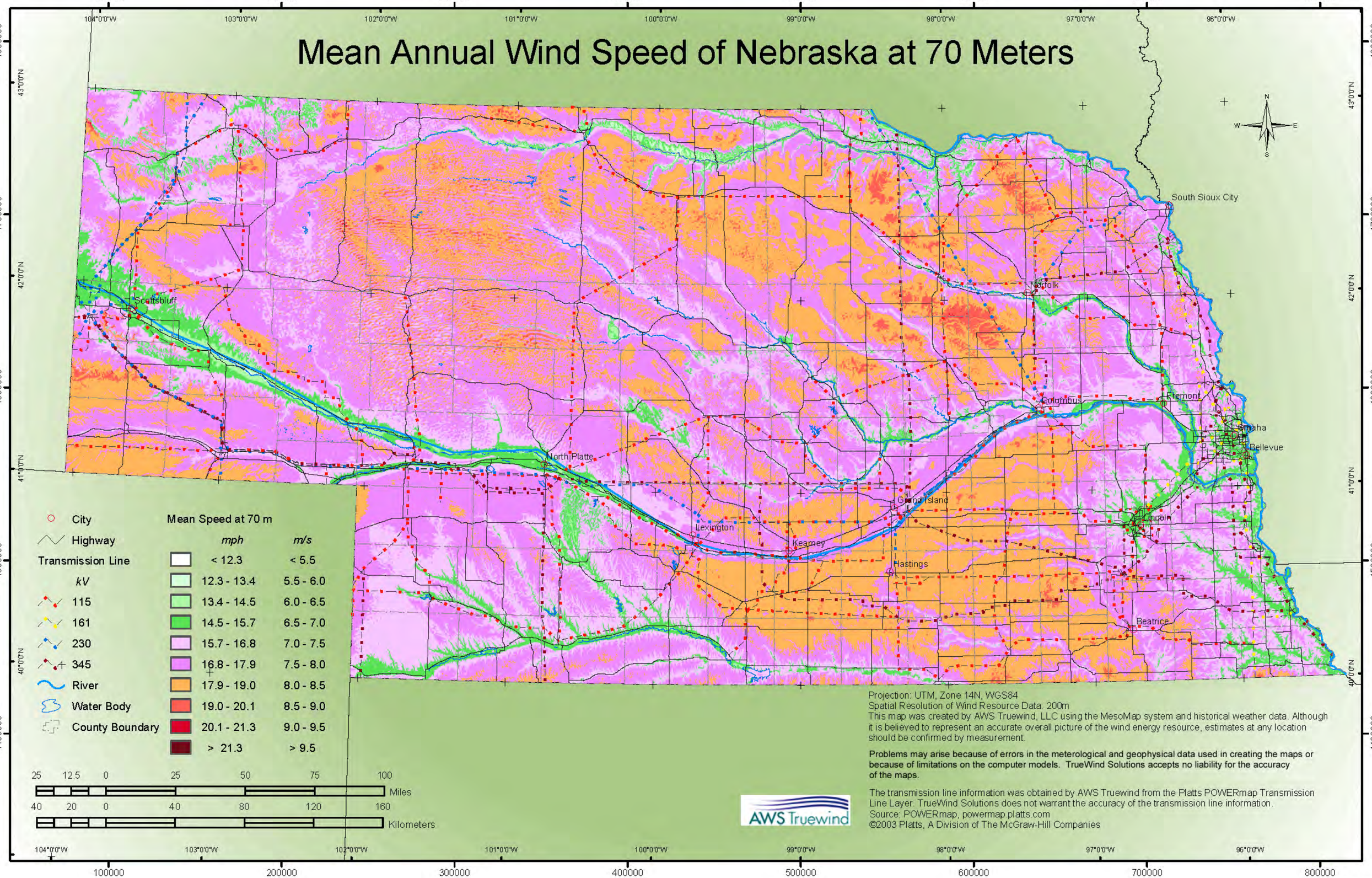
Projection: UTM, Zone 14N, WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind, LLC using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

Problems may arise because of errors in the meterological and geophysical data used in creating the maps or because of limitations on the computer models. TrueWind Solutions accepts no liability for the accuracy of the maps.

The transmission line information was obtained by AWS Truewind from the Platts POWERmap Transmission Line Layer. TrueWind Solutions does not warrant the accuracy of the transmission line information.
Source: POWERmap, powermap.platts.com
©2003 Platts, A Division of The McGraw-Hill Companies

NE_spd50m_033105.mxd

Mean Annual Wind Speed of Nebraska at 70 Meters



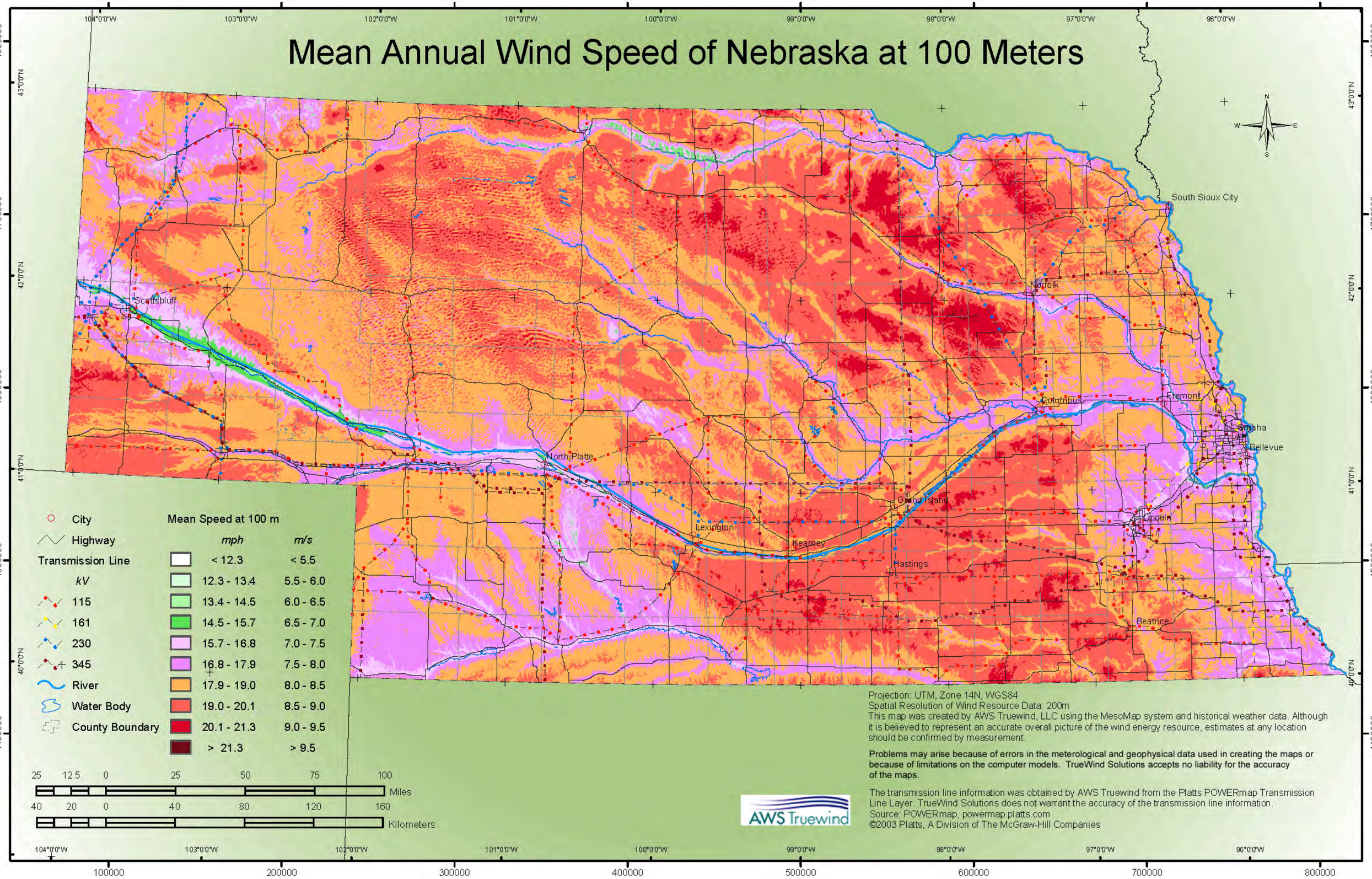
Projection: UTM, Zone 14N, WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind, LLC using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

Problems may arise because of errors in the meterological and geophysical data used in creating the maps or because of limitations on the computer models. TrueWind Solutions accepts no liability for the accuracy of the maps.

The transmission line information was obtained by AWS Truewind from the Platts POWERmap Transmission Line Layer. TrueWind Solutions does not warrant the accuracy of the transmission line information.
Source: POWERmap, powermap.platts.com
©2003 Platts, A Division of The McGraw-Hill Companies

NE_spd50m_033105.mxd

Mean Annual Wind Speed of Nebraska at 100 Meters



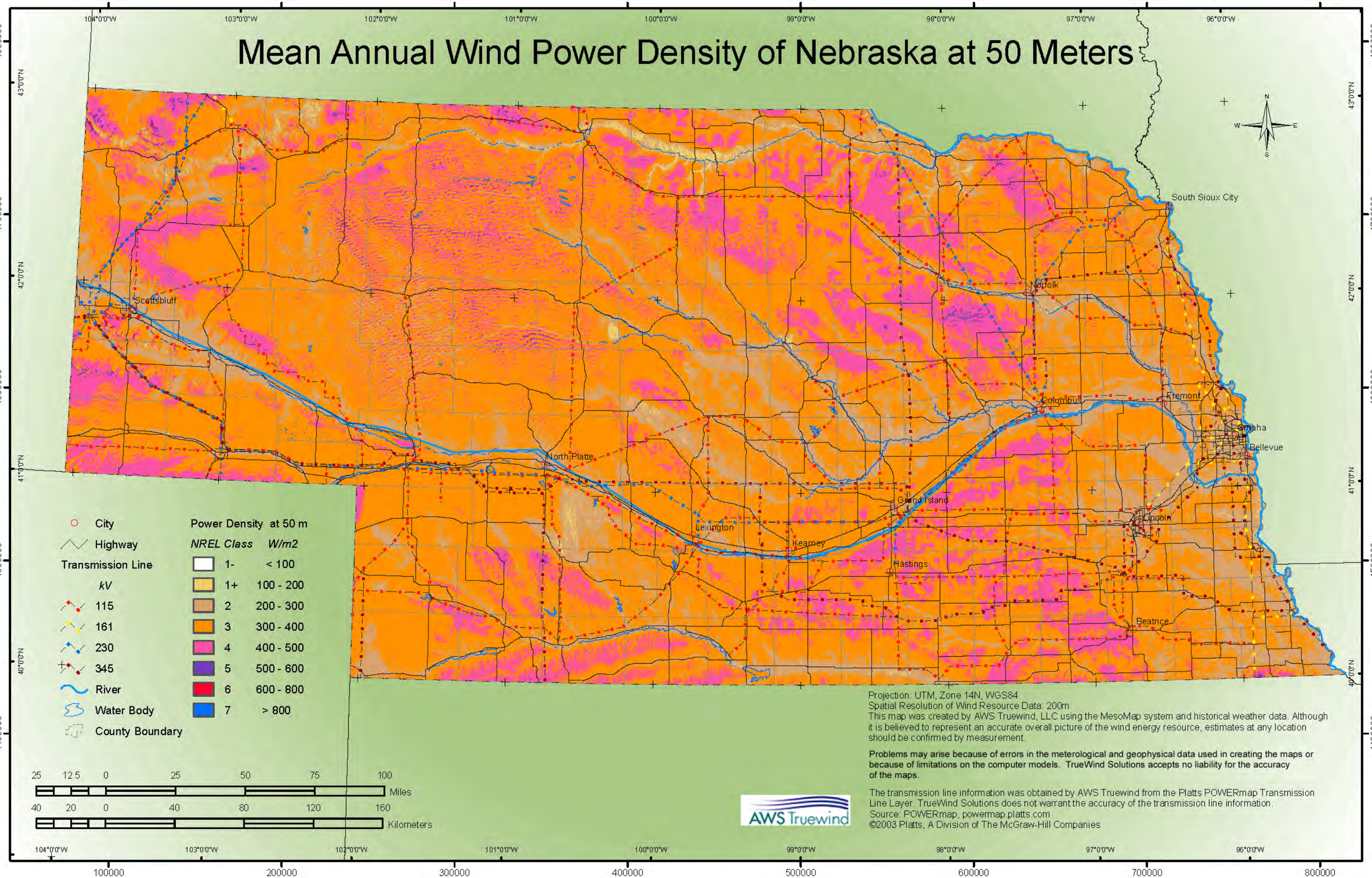
Projection: UTM, Zone 14N, WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind, LLC using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

Problems may arise because of errors in the meterological and geophysical data used in creating the maps or because of limitations on the computer models. TrueWind Solutions accepts no liability for the accuracy of the maps.

The transmission line information was obtained by AWS Truewind from the Platts POWERmap Transmission Line Layer. TrueWind Solutions does not warrant the accuracy of the transmission line information.
Source: POWERmap, powermap.platts.com
©2003 Platts, A Division of The McGraw-Hill Companies

NE_spd50m_033105.mxd

Mean Annual Wind Power Density of Nebraska at 50 Meters



Projection: UTM, Zone 14N, WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind, LLC using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

Problems may arise because of errors in the meterological and geophysical data used in creating the maps or because of limitations on the computer models. TrueWind Solutions accepts no liability for the accuracy of the maps.

The transmission line information was obtained by AWS Truewind from the Platts POWERmap Transmission Line Layer. TrueWind Solutions does not warrant the accuracy of the transmission line information.
Source: POWERmap, powermap.platts.com
©2003 Platts, A Division of The McGraw-Hill Companies

NE_pwr50m_033105.mxd

Wind Energy in Nebraska

Find wind data and information in Nebraska, including maps, capacity, ordinances, and more.

Nebraska

Capacity and Generation

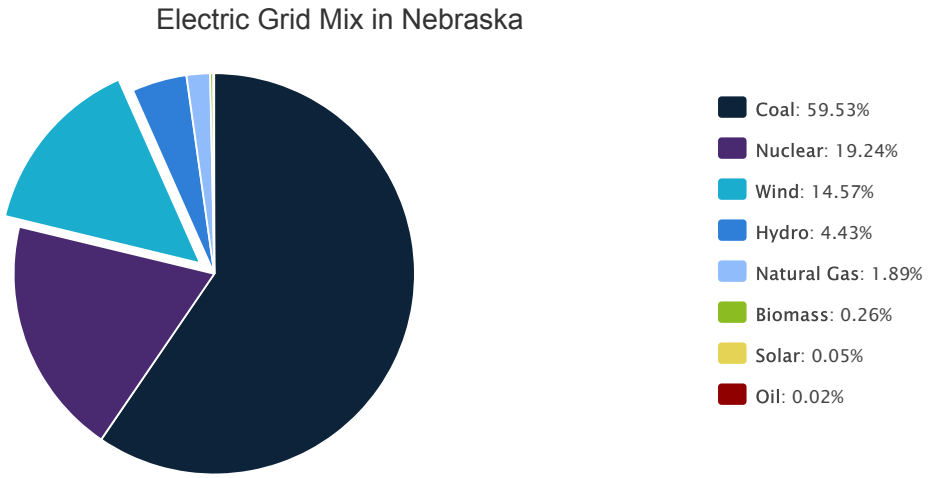
Installed Capacity	1,415 MW
Potential Capacity	465,475 MW

Source: AWS Truepower, NREL

Annual Potential Generation

2015	1,873,306 GWh
2020	1,931,439 GWh
2030	2,004,702 GWh
2050	2,107,101 GWh

Source: AWS Truepower, NREL Annual Technology Baseline



Source: U.S. Energy Information Administration's Open Data API, Electricity Net Generation.

Wind power potentials reflect the amount of wind power that is technologically possible to have installed in a given region. For more information, see the U.S. wind capacity and potential map(/wind-installed) and the Wind Vision Report(https://energy.gov/eere/wind/maps/wind-vision).

Policies & Incentives

Attach. D

Most Recent Ordinances

La Vista, Nebraska - Wind Energy Ordinance - Section 7.18

Dec. 15, 2016

(/policies-incentives?id=6512)

Cass County, Nebraska - Wind Energy Ordinance - Article 7 - Section 7.14

June 1, 2016

(/policies-incentives?id=6519)

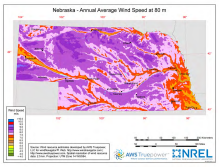
Gage County, Nebraska - Wind Energy Ordinance

March 30, 2016

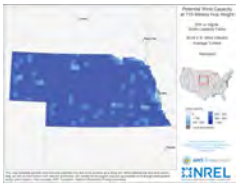
(/policies-incentives?id=6508)

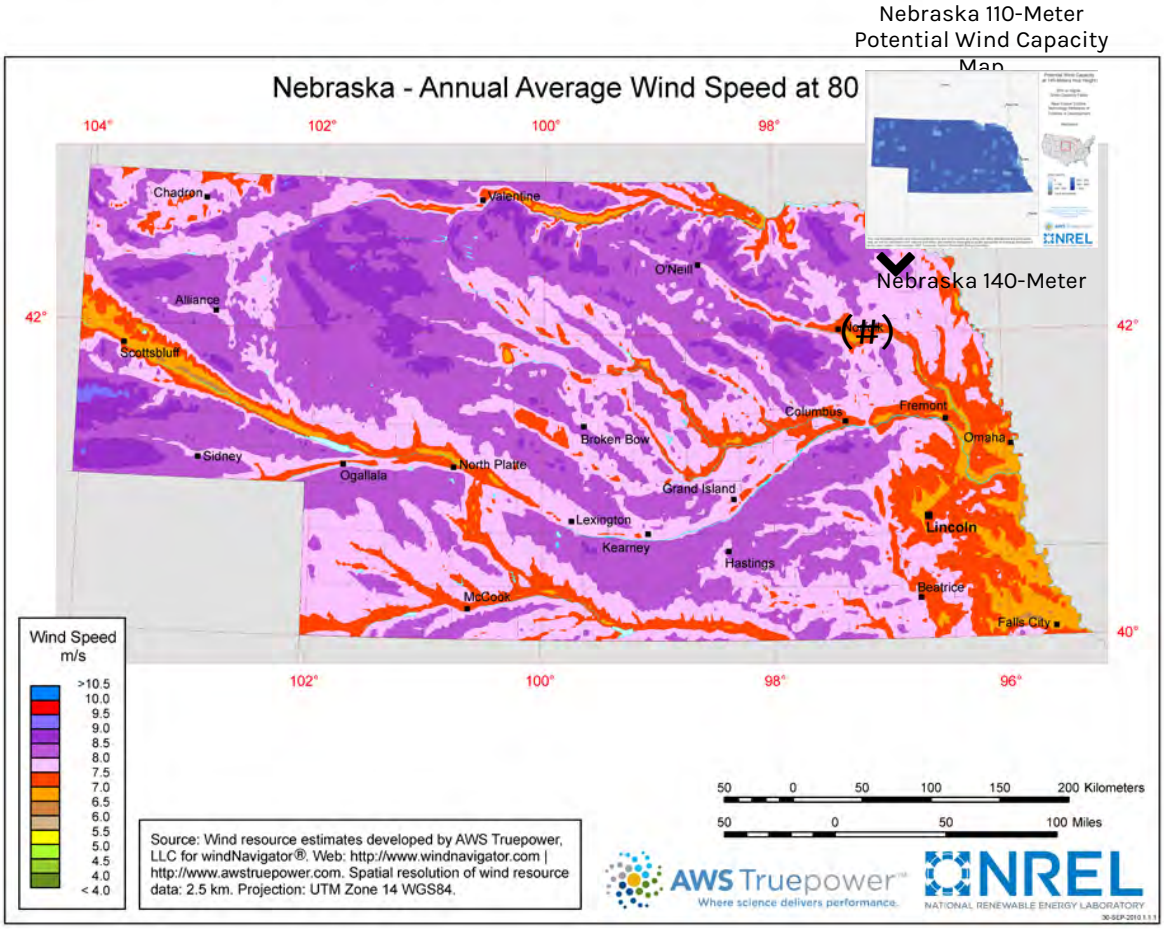
More Policies & Incentives(/policies-incentives?state=ne)

Maps & Data



Nebraska 80-Meter Wind Resource Map





(/maps-data/80)

Wind Education & Training

Career training and projects at schools in Nebraska.

Training Locations

Nebraska Wind Application Center (University of Nebraska)
Western Nebraska Community College
Northeast Community College

More Career & Education Information(/training)

Wind for Schools Project Locations

Creighton Public Schools
Pleasanton Public Schools
Southeast Community College
Garden County Public Schools
West Point Public Schools

West Holt High School
Norfolk Senior High School
Hyannis Public Schools
Hastings High School
Superior Public Schools
Kimball Public Schools
Laurel-Concord Public Schools
Meridian Public Schools
Southeast Community College - Milford
Central Community College
Bancroft-Rosalie Public School
Bloomfield Community Schools
Loup City Public Schools
Papillion-LaVista Public Schools
Crawford Public Schools
Cedar Rapids Public School
Elkhorn Valley Schools
Diller-Odell Public Schools
Hayes Center Public Schools
Mullen Public Schools
Norris Public Schools
Logan View Public Schools

More About Wind for Schools(/windforschools)

Regional Resource Center

Regional Resource Centers (RRCs) help address the unique challenges and opportunities of wind energy in key regions of the United States.

The RRC for Nebraska is National Renewable Energy Laboratory(/rrc/national).

Contact

Windexchange Contact(mailto:windexchange@nrel.gov)

Go to RRC website(http://www.nrel.gov)

(/rrc/national)

Nebraska Offices and Organizations

Clean Energy Group (http://www.cleanegroup.org/)

Clean Energy Group is a leading national, nonprofit organization working on innovative policy, technology, and finance programs in the areas of clean energy and climate change. The group's projects concentrate on climate and clean energy issues at the state, national, and international levels and include stakeholders from governments and the private and nonprofit sectors. Clean Energy Group assists states to create and implement innovative practices and public funding programs for clean energy project deployment; creates networks of U.S. and international policy makers to address climate stabilization strategies; and advances effective distributed innovation theories, finance, and commercialization tools for new climate technologies.

High Plains Regional Climate Center (https://hprcc.unl.edu/index.php)

The High Plains Regional Climate Center serves to increase the use and availability of climate data and information by providing climate services and developing climate data and information products. The center's six-state region covers Kansas, Colorado, Nebraska, Wyoming, South Dakota, and North Dakota.

Nebraska Energy Office (http://www.neo.ne.gov/renew/wind.htm)

This website provides Nebraska wind project data and statistics, wind resource maps, and links to presentations and webinars.

The Wind Coalition (http://windcoalition.org/)

The Wind Coalition is the industry trade association created to promote the development of the wind energy resource as a clean, reliable, affordable, and infinite source of power. The Wind Coalition is the wind energy industry's voice within the Electric Reliability Council of Texas (ERCOT) and Southwest Power Pool (SPP) systems, which include Texas, Kansas, Oklahoma, Nebraska, Arkansas, Missouri, New Mexico, and Louisiana. The organization works to expand transmission capacity, increase wind power use within the region, and facilitate wind power export.

Publications

Reports

Clean Jobs Midwest

Sept. 7, 2017

(http://www.cleanjobsmidwest.com/)

Other

Small Wind Guidebook

July 3, 2017

(/small-wind-guidebook)

Other

U.S. Wind Energy State Facts

March 31, 2017

(https://www.awea.org/resources/statefactsheets.aspx?itemnumber=890)

Reports

Clean Jobs America: A Comprehensive Analysis of Clean Jobs in America

March 28, 2016

(http://www.e2.org/wp-content/uploads/2016/03/CleanJobsAmerica_FINAL.pdf)

Brochures & Fact Sheets

Wind Vision State Fact Sheets

Sept. 29, 2015

(http://windenergyfoundation.org/about-wef/wind-vision/wind-vision-resources/)

More Publications(/publications)

News & Events

News

Facebook to Buy Renewable Energy from Nebraska Wind Project

Oct. 23, 2017

(/news/6847)

News

Turbines Propel Nebraska Past a Wind Energy Milestone

May 3, 2017

(/news/6675)

News

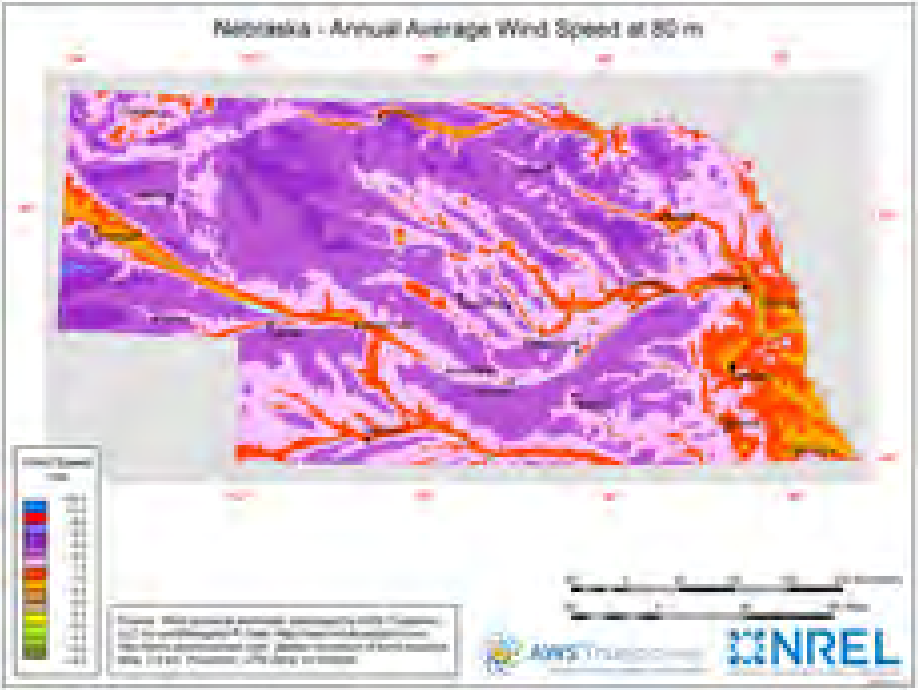
Facebook to Build New Data Center in Nebraska, Also 100% Powered by Wind Energy

April 4, 2017

(/news/6545)

More News & Events(/news-events)

Nebraska - Annual Average Wind Speed at 80 m

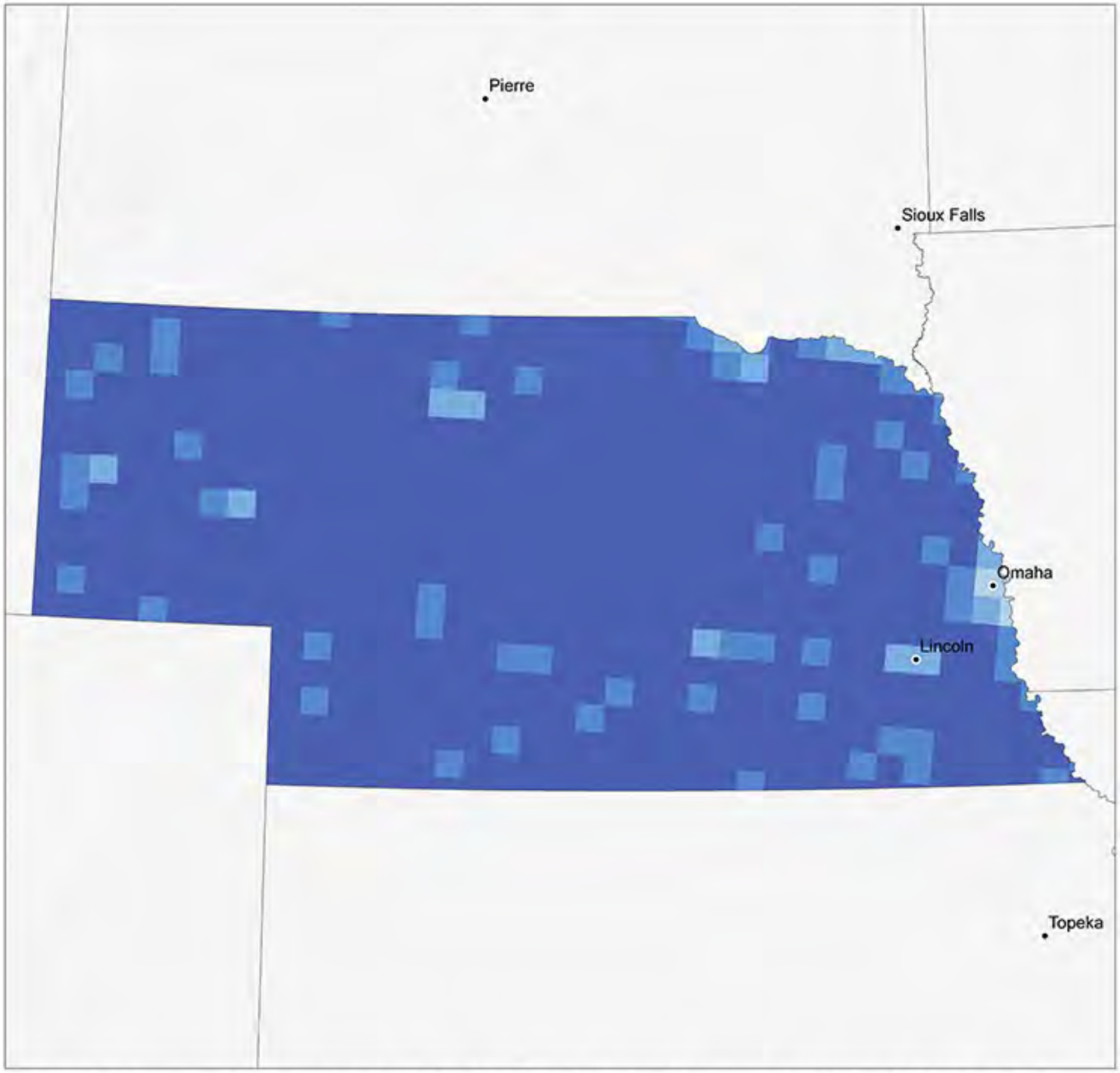


Potential Wind Capacity at 110-Meters Hub Height

35% or Higher
Gross Capacity Factor

2014 U.S. Wind Industry
Average Turbine

Nebraska



Area (sq km)

- 0
- < 100
- 100 - 200
- 200 - 300
- 300 - 400
- > 400
- Land exclusions

This map was produced by the National Renewable Energy Laboratory for the Department of Energy. January 2015

AWS Truepower

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

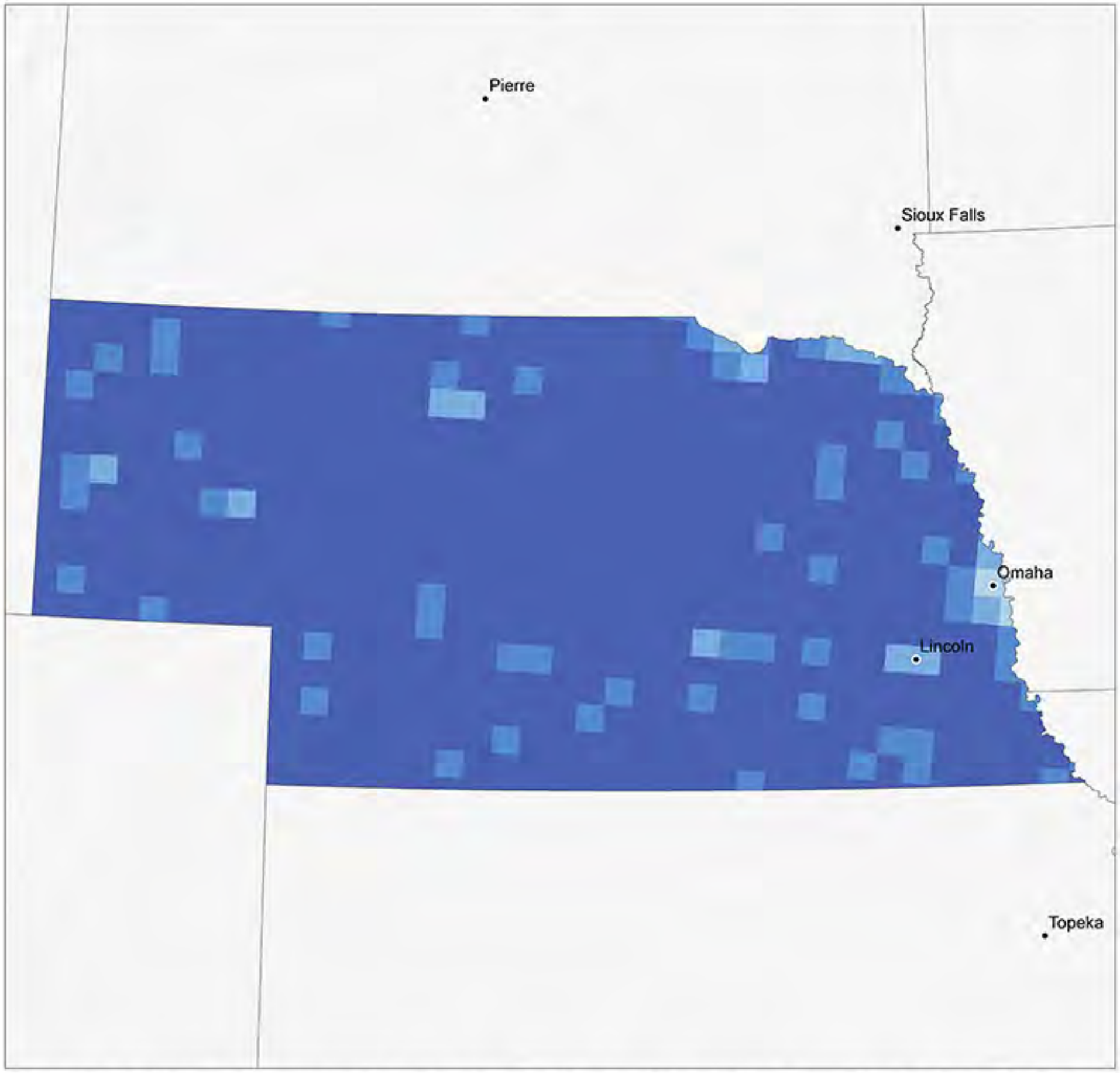
This map illustrates general wind resource potential only and is not suitable as a siting tool. More detailed site and wind speed data, as well as coordination with relevant authorities, are needed to thoroughly evaluate appropriate wind energy development at any given location. *Data sources: AWS Truepower, National Renewable Energy Laboratory*

Potential Wind Capacity at 140-Meters Hub Height

35% or Higher
Gross Capacity Factor

Near-Future Turbine Technology Reflective of Turbines in Development

Nebraska



Area (sq km)

- 0
- < 100
- 100 - 200
- 200 - 300
- 300 - 400
- > 400
- Land exclusions

This map was produced by the National Renewable Energy Laboratory for the Department of Energy. February 2015

AWS Truepower

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

This map illustrates general wind resource potential only and is not suitable as a siting tool. More detailed site and wind speed data, as well as coordination with relevant authorities, are needed to thoroughly evaluate appropriate wind energy development at any given location. *Data sources: AWS Truepower, National Renewable Energy Laboratory*

Nebraska Renewable Energy Export (LB 1115) Study

PRESENTED TO

Nebraska Power Review Board

PREPARED BY

Judy Chang
Michael Hagerty
Johannes Pfeifenberger

December 12, 2014

THE Brattle GROUP

Attach. E

Copyright © 2014 The Brattle Group, Inc.

Presentation Agenda

Scope and Approach

Key Findings

Challenges to Increasing Renewable Energy Exports

Options for Legislature to Consider

Impacts on Electricity Rates and Economic Benefits

Renewable Energy Export Study Scope

We completed the Nebraska Renewable Energy Export Study in response to LB 1115 (2014) and the associated Power Review Board RFP (RFP NPRB-1115)

Based on LB 1115 and the RFP, the scope of the study was to:

- Review state, regional, and national transmission infrastructure and policy;
- Identify future needs for transmission infrastructure and policy;
- Assess market availability, opportunities, and barriers to the construction of renewable generation facilities in Nebraska primarily designed for export
- Analyze the implications on the rates and service to Nebraska's electricity consumers and utilities

The RFP requested that we consider a potential range of 5,000 to 10,000 MW of renewable generation capacity in Nebraska intended for export

As instructed by the RFP, we did not complete detailed modeling of the power system in Nebraska and the surrounding states

Study Approach

Our approach for completing the study included the following steps:

- We reviewed transmission planning processes utilized for expanding the grid and the capabilities of the existing transmission system in and around Nebraska
- We analyzed supply and demand balances for renewable generation in the region with a particular emphasis on the competitive landscape in and around Nebraska
- We researched policies and financial incentives for renewable generation development in neighboring states
- We interviewed stakeholders in the LB 1115 Working Group, including individuals representing developers of wind generation and transmission projects, the Nebraska public power utilities, environmental regulatory agencies, and the Southwest Power Pool (SPP)
- We focused on wind generation capacity as the primary renewable resource in Nebraska for export due to the high quality of the resource in the state

Key Findings

Transmission Capacity Available

We find that the Nebraska transmission system will allow for at least an additional 2,000 MW of renewable resources to be added to the system but likely will require significant upgrades to achieve 5,000 – 10,000 MW

- Several hundred MWs of renewable capacity can likely be added before transmission constraints significantly limit new capacity
- Transmission projects already approved or under construction (e.g., "R-Plan" and Neligh-Hoskins 345 kV lines) will increase available capacity by 2016 – 2018
- We estimate that the transmission upgrades will allow for at least 2,000 MW of new wind capacity, but could potentially accommodate up to 4,000 MW
- We find limited transmission to export wind from Nebraska to outside of SPP and to move power from western Nebraska to the rest of the Western Interconnection
- We estimate the total investment in transmission infrastructure would likely range from $1.5 billion to $4.0 billion (assuming needed for >2,000 MW of new wind)
- A significant portion will likely be borne by Nebraska ratepayers, depending on whether new lines are developed through regional processes or other options
- Some of the costs will be offset by the benefits of reduced congestion that also increase the value of all off-system power sales by Nebraska electric suppliers

Key Findings

Market Demand and Competitive Landscape

The broader regional market for additional renewable generation is currently saturated but a new wave of development would likely occur if the economic opportunities present themselves

- There is limited remaining demand for meeting existing RPS mandates and targets in the region around Nebraska and the expiration of the federal production tax credit (PTC) increases the price at which wind generation can sign energy contracts
- Future demand likely to be driven by higher electricity prices, plant retirements, implementation of more stringent environmental regulations (e.g., Clean Power Plan), renewal of the federal PTC, and/or additional state mandates

Nebraska renewable power exports face substantial competition from neighboring states

- Small differences in the relative economics (e.g., tax incentives and energy prices) can significantly affect where renewable capacity is developed
- Developers are less familiar with regulatory requirements in Nebraska due to limited previous development experience and additional approvals not required in other states

Challenges to Increasing Renewable Exports

There are several market and regulatory challenges that limit the expansion in Nebraska of renewable generation capacity including:

1. Long-term Transmission Constraints
2. Limited Near-term and Uncertain Long-term Demand for Renewable Energy
3. Less Attractive Economics Compared to the most attractive Neighboring State
4. Greater Perceived Risks Compared to Neighboring States

To be prepared to meet the next wave of demand for renewable energy, Nebraska will need to directly address these challenges while understanding that they are likely to occur over different time periods

- *Near-term*: Economic disadvantages and the perceived permitting and regulatory risks relative to neighboring states
- *Longer-term*: Limited transmission capacity after exhausting the additional interconnection capabilities and congestion relief provided by already-approved new transmission projects

Challenge #1: Transmission Constraints

Transmission upgrades will be required to achieve 5,000 – 10,000 MW of wind capacity

Brief summary of transmission planning by SPP:

- SPP plans transmission on a portfolio basis through a series of studies called the Integrated Transmission Plan (ITP), which covers near-term, 10-year, and 20-year horizons
- SPP planning processes are multi-state, multi-stakeholder processes that are often contentious, create planning and cost allocation risks, and require 3–8 years to build new lines
- Transmission upgrades are initially justified in the ITP to meet reliability, economic, or policy needs, but the complete portfolio is approved based on region-wide economic benefits
- Cost allocation for approved transmission facilities depends on voltage level through SPP highway/byway methodology with projects >300kV allocated regionally
- Transmission costs are directly assigned to generators and/or off-takers if needs are identified through Generation Interconnection and Transmission Service Requests with transmission associated with designated wind network resources allocated 2/3rd regionally
- Nebraska utilities can "sponsor" self-funded transmission projects that would largely bypass SPP's planning and cost allocation processes

Expanding transmission to the west will likely be costly as there is limited transmission between interconnections and significant constraints exist to the rest of WECC

Few effective and actionable planning processes currently exist for transmission upgrades across regional boundaries; awaiting interregional FERC approval

Challenge #2: Uncertain and Limited Demand

Beyond RPS mandates/targets, wind generation can be attractive for development if their costs are competitive with energy market prices and new conventional generation sources (e.g., gas CC)

- Wind Levelized Cost of Energy w/o PTC = $45 – 60/MWh
- New Gas CC Levelized Cost of Energy = $50 – 65/MWh

We find that it is likely that significant new demand for renewable generation resources will arise if and when:

- Significant load growth continues to reemerge in and around Nebraska
- A substantial amount of existing generation retires due to the high costs of environmental retrofits and/or low wholesale power prices
- Natural gas price increases result in higher wholesale electricity prices
- Environmental regulations around fossil-fueled generation resources, such as EPA's proposed Clean Power Plan, become more stringent over time, which in turn increases electricity prices, particularly if a cost was placed on carbon emissions

Challenge #3: Less Attractive Economics

The regional market for developing wind resources is very competitive such that small differences in costs lead to significant differences in development

Developing wind generation in Nebraska has been less economically attractive than the most desirable neighboring state due to:

- *Additional Tax Incentives*: While we estimate the tax incentives available in Nebraska to be equivalent to those in Kansas, we find that additional tax incentives in Oklahoma put Nebraska at an economic disadvantage of approximately $3 per MWh of wind energy produced
- *Higher Energy Prices:* Wholesale power market have been (and are projected to be) lower in Nebraska than other regions in SPP with high quality wind resources, especially southern SPP, by $5 – 10/MWh. In addition, Nebraska prices are slightly less than in Kansas and neighboring regions within MISO

All other factors being equal, more attractive financial incentives and higher wholesale power prices in other states provide a $5 – 10/MWh economic disadvantage for developing wind in Nebraska

Challenge #4: Greater Perceived Risks

Compared to other states that have had significant renewable generation built over the past decade primarily to meet RPS targets in their state, developers:

- Have limited experience of developing renewable generation in Nebraska
- Perceive that developing wind projects in Nebraska is more risky than in some neighboring states

Nebraska is the only state in the region to require special regulatory approval, such as through the Certified Renewable Export Facility (CREF) process

- Most states require approval of offtake contracts if the local utility is the purchaser, but no special approval needed for exporting power out of the state
- No developer has completed the CREF process yet; thus perceived risky
- Developers generally very positive in their feedback on working experience with PRB

We find that other permitting requirements in Nebraska are no more difficult than in neighboring states; but developers have limited experience with them

Options for Nebraska Legislature to Consider

We find that there could be significant future demand for renewable energy exports, creating a new wave of development

We provide the Legislature four options to consider for overcoming the existing challenges to development in Nebraska

1. Develop a State-Wide Transmission Strategy
2. Provide Additional Tax Incentives
3. Simplify the CREF Process
4. Create a State Function to Promote Nebraska Renewables

Option #1: Develop Transmission Strategy

Despite the significant upgrades currently in development, we find that Nebraska must start now in setting its transmission strategy due to long lead time to identify, approved, and build transmission

A transmission infrastructure strategy that offers the lowest cost to ratepayers would most likely be a combination of the following:

- *Pursue transmission infrastructure development through SPP*: Continue working through SPP process to take advantage of regional cost allocation
- *Evaluate and reduce barriers related to SPP GI and TSRs*: Explore opportunities to group future requests to achieve more cost-effective scale
- *Explore state-sponsored "gathering facilities"*: Such transmission facilities would connect most attractive regions for wind generation with SPP backbone; will require up-front funding by Nebraska ratepayers
- *Explore developing transmission interties to market outside of SPP*: Develop projects that directly connect wind generation with markets to the west and east and not SPP (also requires up-front funding)

Option #2: Provide Additional Tax Incentives

We estimate that additional incentives to overcome the combined economic disadvantage faced by developers in Nebraska would be $5 – 10/MWh

There are several tax-related incentives Nebraska could provide to make development in the state more attractive:

- *Eliminate Nameplate Capacity Tax*: Provides $1/MWh of incentives
- *Provide state-level Production Tax Credit*: Set at desired incentive level
- *Provide state-level Investment Tax Credit*: ITC of 9 – 18% expected to provide $5 – 10/MWh of incentives on a levelized basis

We find the elimination of the Nameplate Capacity Tax and the ITC to be the most effective option for attracting development while limiting impact on ratepayers

Options for Nebraska Legislature to Consider

Option #3: Simplify CREF Process

To reduce perceived and actual risks in Nebraska for approval of wind generation, we provide two options for simplifying the CREF process

Requirement	Current Process	Option A	Option B
Demonstrate identifiable and quantifiable public benefits	✓		
Demonstrate intent to sign a PPA with a purchaser outside NE for at least 90% of output for 10 years or more	✓		
Offer NE suppliers an option to purchase up to 10% of output	✓		
Demonstrate facility will not have a materially detrimental effect on the state's retail electric rates	✓		
Demonstrate executed agreements for generation interconnection and transmission service with appropriate transmission provider	✓	✓	
No demonstration (from third-parties) of substantial risk of creating stranded assets owned by NE consumer-owned electric utilities	✓		
Applied for and is actively pursuing required approvals from other federal, state or local entities, including all environmental permits	✓	✓	✓
Demonstrate that applicant and interconnecting transmission owner have a joint transmission development agreement	✓	✓	
Agrees to reimburse electric suppliers for transmission costs not otherwise covered	✓		
Submit a decommissioning plan	✓	✓	✓
Must meet CREF definition, including having a PPA for at least 90% of output for 10 years or more	✓	✓	

Option #4: Create Function to Promote Nebraska

Similar to entities in neighboring states such as Wyoming, Kansas, and South Dakota, Nebraska may want to set up a function that helps the state promote and achieve its policy goals

Some potential objectives of the new function could include:

- Reaching out to developers and potential customers to promote Nebraska as an attractive location for development and is "open for business"
- Guiding interested developers through the development process
- Streamlining processes necessary for developing wind generation and transmission, including support for siting and environmental analysis
- Communicating with landowners to raise awareness of objectives
- Monitoring market conditions for renewable energy
- Contributing to state transmission strategy

The added function would need the active and credible support of key policy makers to be effective in completing its objectives

Impact on Electricity Rates

We estimate transmission investment of $1.5 – 4.0 billion to support 5,000 to 10,000 MW of new renewable resources in the state

- The amount paid by Nebraska ratepayers depends on the approach taken and the timing when the investment is necessary (may not be required until at least 2022)
- We estimate that a single year $1 billion investment through SPP ITP in a 345 kV project would increase Nebraska rate by 0.7%; the impact would be significantly higher (3 – 5%) if investment is in lower voltage "gathering facilities"

Additional wind generation may reduce wholesale prices and increase rates

- Nebraska utilities are net sellers into the wholesale market such that their off-system sales revenues decrease when energy prices decrease
- Specific impact requires detailed modeling and can be overcome by transmission
- If average prices are reduced by $5/MWh, we estimate rates will increase by 2%

Wind generation may increase SPP's balancing costs for providing additional back up capacity to respond to intermittent generation

- Estimated additional balancing cost range from $2 – 10/MWh of wind generation
- Impact on ratepayers depends on the actual need and how costs are spread across SPP; also may provide additional revenues to Nebraska generation that can respond

Impact on State Economic Development

We estimated economic benefits of wind and transmission development in Nebraska from increased employment, economic activity, and property taxes

- *Wind Benefits*: Accrue over construction and 20-year operating period
- *Transmission Benefits*: Assume additional transmission is needed beyond 2,000 MW and estimate economic development benefits only during construction period

We find the following economic benefits of 5,000 – 10,000 MW of wind generation development in Nebraska:

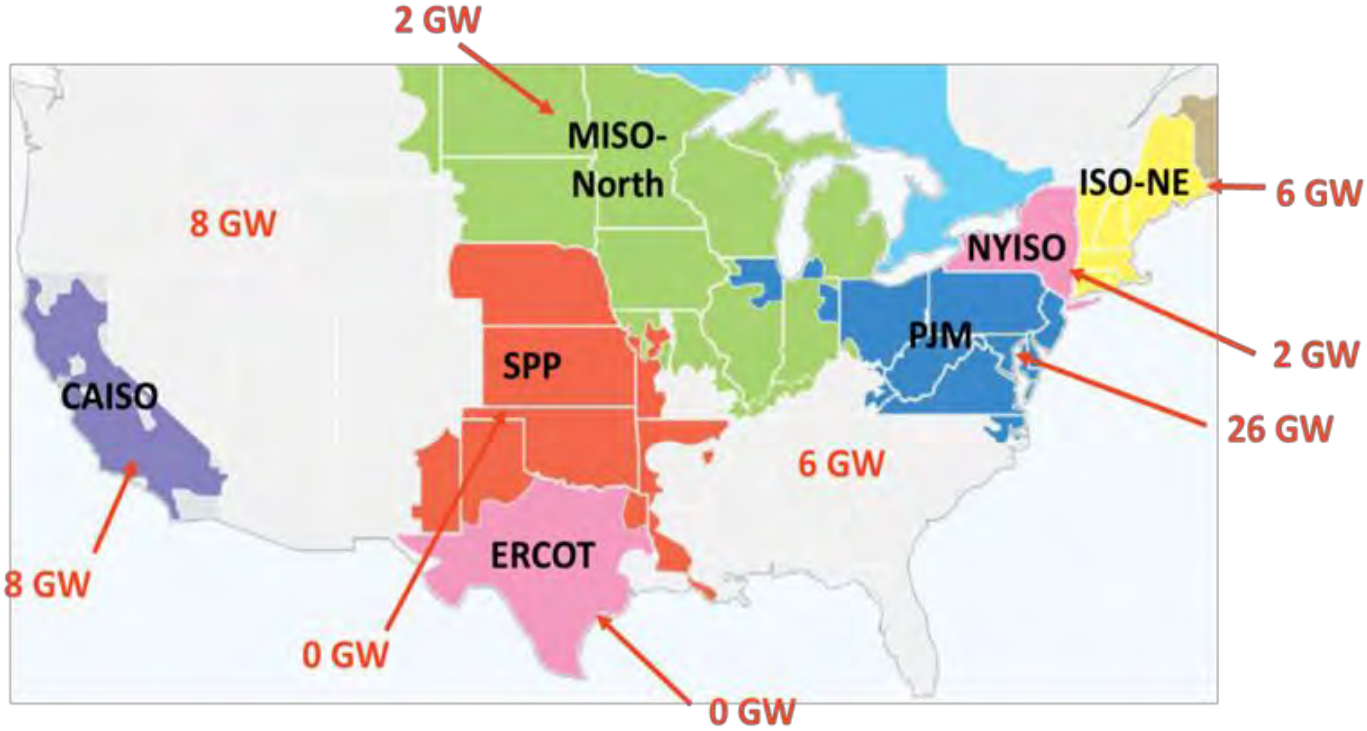
- *Employment*: 50,000 – 100,000 full-time equivalent (FTE) years
- *Economic Activity*: $7 – 15 billion
- *Property Taxes*: $33 – 66 million

Additional Wind Capacity	Full-Time Equivalent Years of Employment			Economic Activity			Property Taxes
	Wind	Transmission	Total	Wind	Transmission	Total	
MW	*FTEs*	*FTEs*	*FTEs*	*$m*	*$m*	*$m*	*$m/yr*
1,000	7,700	-	7,700	1,100	-	1,100	7
5,000	38,500	9,800	48,300	5,400	1,600	7,000	33
10,000	76,900	26,300	103,200	10,800	4,200	15,000	66

Appendix Slides

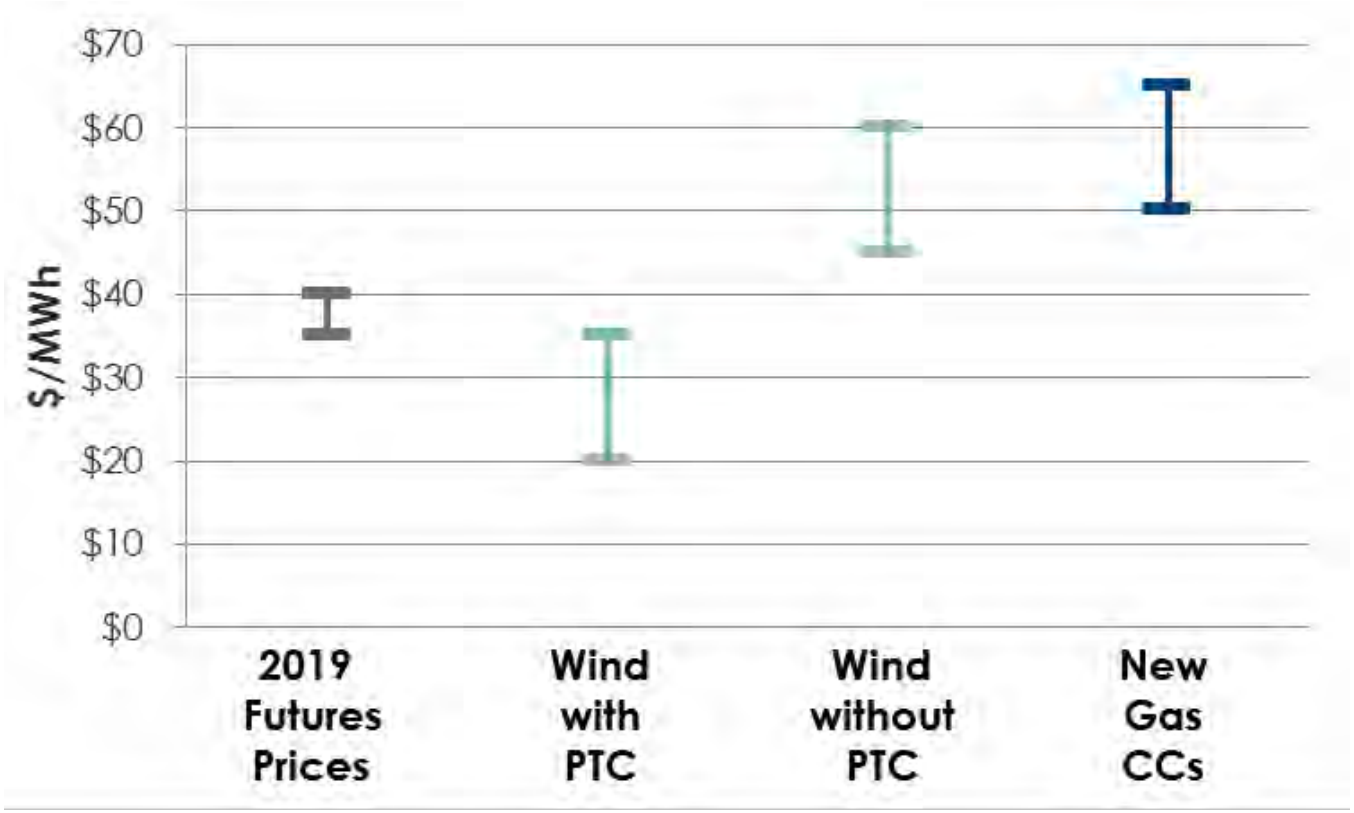
Renewable Portfolio Standards and Targets

Figure 1
Remaining Demand for Wind Generation Driven by Renewable Portfolio Standards and Targets for 2025



Estimated PPA Prices

Figure 2
Comparison of 2019 SPP Electricity Futures to Estimated PPA Price for Wind and Gas CCs



Transmission Planning Regions

Figure 5
Regional Transmission Organizations in and around Nebraska as of 2014

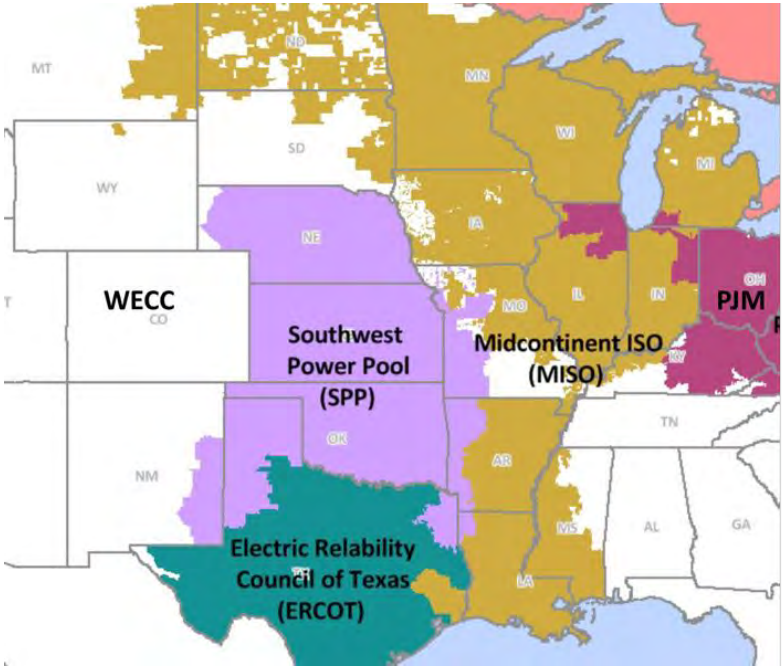
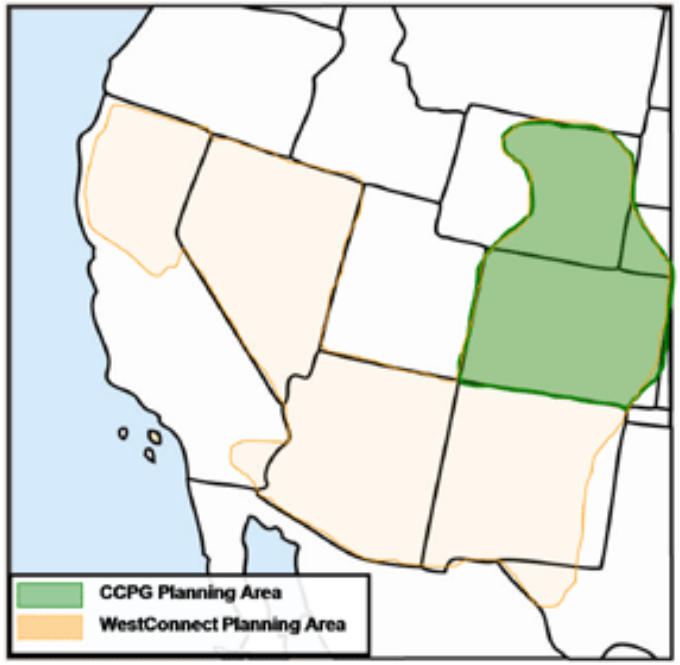


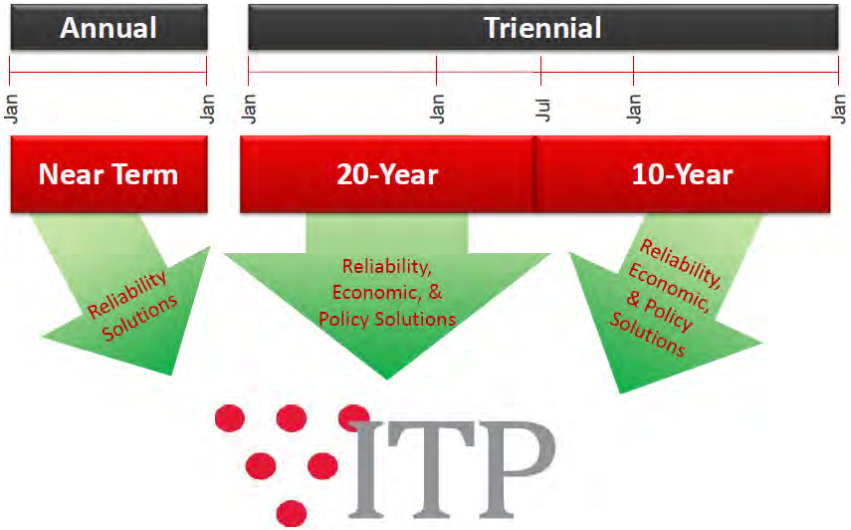
Figure 6
Colorado Coordinated Planning Group and WestConnect Planning Areas



SPP Transmission Planning

Figure 7
Summary of SPP Transmission Planning Processes

Figure 9
SPP Integrated Transmission Planning Process Timeframe



SPP Cost Allocation

Table 1
SPP Highway/Byway Cost Allocation Methodology

Facility Voltage	Transmission Zone	% Allocated to Nebraska
>300 kV ("Highway")	Anywhere in SPP	14%
100–300 kV ("Byway")	Nebraska	71%
	Rest of SPP	5%
<100 kV	Nebraska	100%
	Rest of SPP	0%

SPP Transmission Build Out

Figure 8
SPP Transmission Projects in Progress as of July 2014

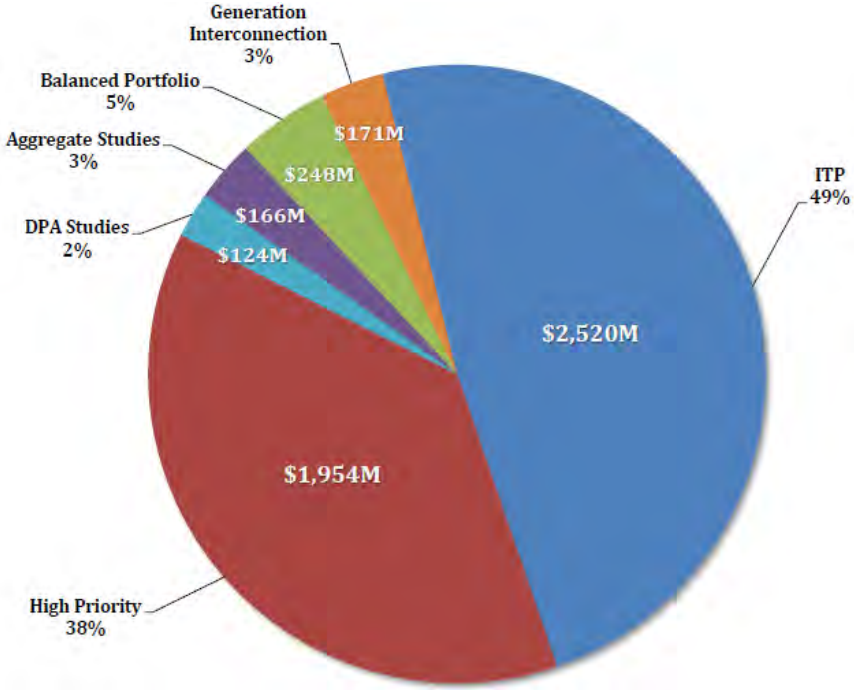
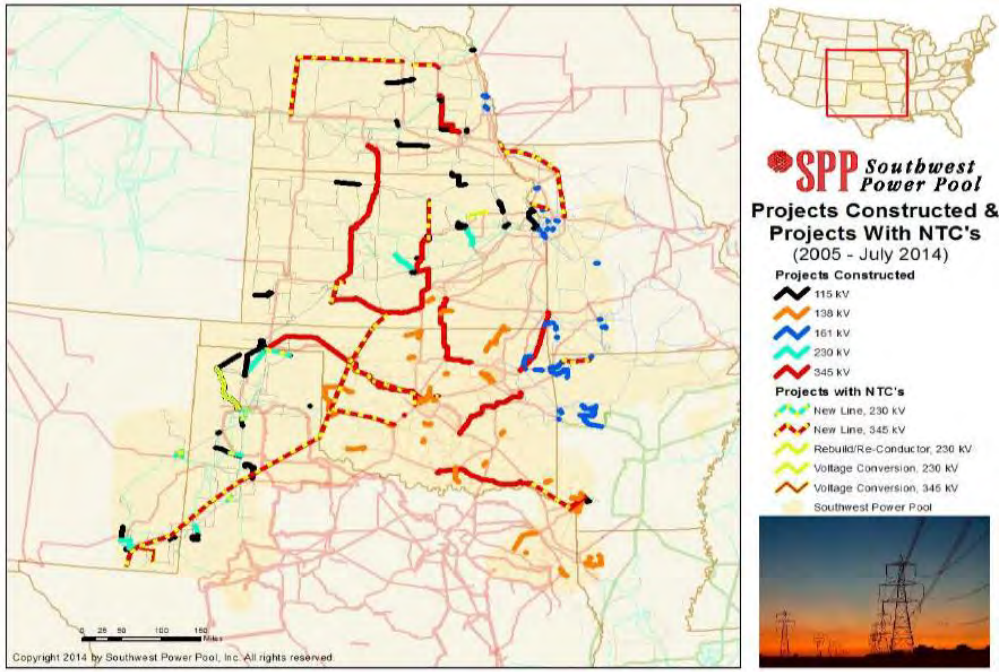


Figure 10
SPP Projects Constructed and Projects with NTC's, 2005–2014



Nebraska Wind and Transmission In Development

Table 3
Major SPP Transmission Projects Planned, Approved, and Under Construction in Nebraska

Transmission Line	Study	Length	Cost	In-Service Date
Nebraska City–Sibley 345 kV	2010 Priority Projects	215 miles	$410 million	2017
Gentlemen–Cherry County–Holt County 345 kV ("R-Plan")	2012 ITP10	220 miles	$215 million	2018
Neligh–Hoskins 345 kV	2012 ITP10	40 miles	$80 million	2016
Rebuild North Platte–Stockville–Red Willow 115 kV	2015 ITP10	94 miles	$68 million	n/a

Table 5
Renewable Generating Plants Operating or Under Development in Nebraska Since 2012

Wind Generation Facility	Capacity (MW)	Stage of Development	Commercial Online Date	Largest PPA Counterparty
Broken Bow Wind Farm	80	Operating	2012	NPPD
Crofton Bluffs Wind Farm	42	Operating	2012	NPPD
Steel Flats Wind Project	75	Operating	2013	NPPD
Prairie Breeze Wind Energy	201	Operating	2014	OPPD
Broken Bow Wind Farm II	73	Under Construction	2014	NPPD
Verdigre Wind Farm	80	Under Construction	2015	N/A
Grand Prairie Wind	400	Permitted	2016	OPPD

State Taxes and Incentives for Renewable Energy

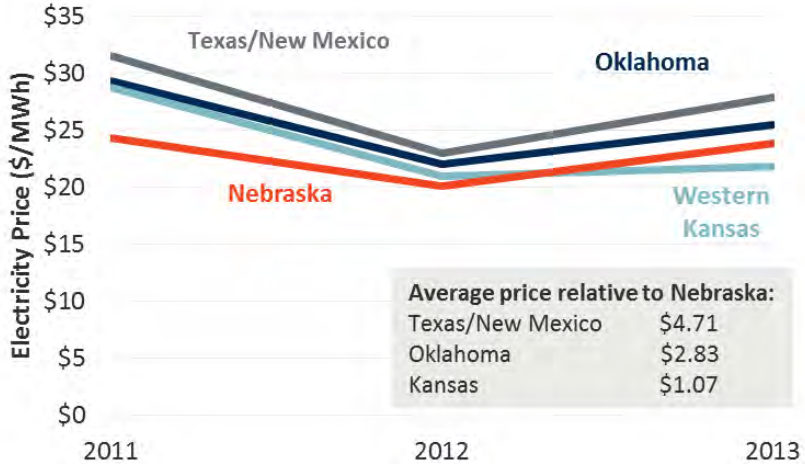
Table 4
State Taxes for Renewable Energy Generation

State	Property Tax	Nameplate Capacity Tax	Sales and Use Tax	Production Tax Credit	Estimated Incentives Relative to Nebraska
Nebraska	Exempt from personal property taxes, but not real property taxes	$3,518/MW	Refunded, except for 1.5% local tax	No Credit	—
Iowa	5 year exemption from real property taxes; no personal property tax	None	Exempt	No Credit	Ranges from $1/MWh more to $2/MWh less attractive depending on county
Kansas	Exempt from all property taxes	None	Not Exempt	No Credit	Equivalent incentives
Oklahoma	5 year exemption from ad valorem tax	None	Not Exempt	$5/MWh for 10 years	$3.00/MWh *more* incentives

SPP Wholesale Energy Prices

Figure 18
Average Historical Wholesale Energy Prices in SPP

(a) Annual Average SPP Energy Imbalance Service Market Prices for 2011–2013



(b) Monthly Average Day-Ahead Prices in SPP Integrated Marketplace

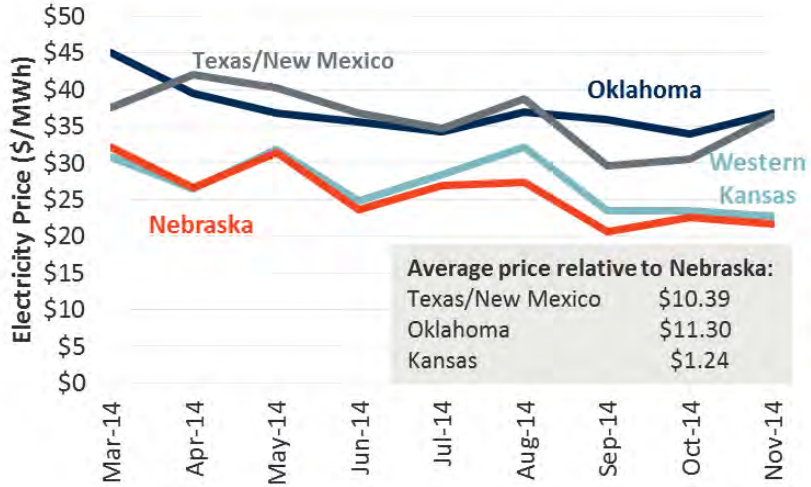
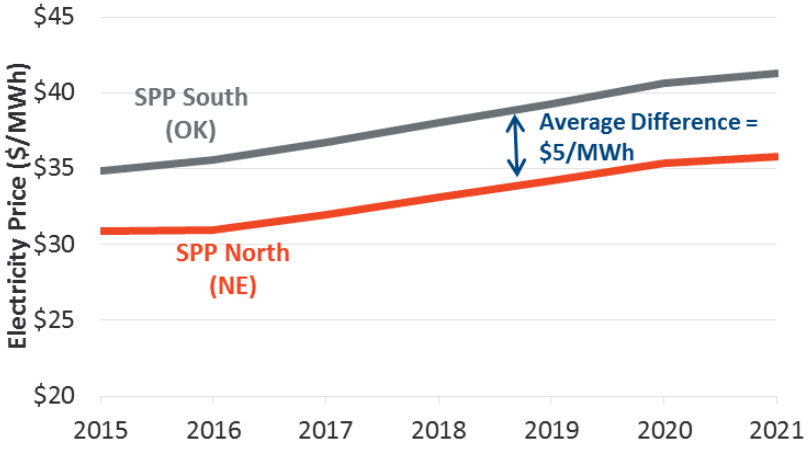


Figure 19
Electricity Futures Prices by SPP Trading Hub



Wind Generation Capacity by State

Figure 20
Wind Generation Operating and Under Construction by State

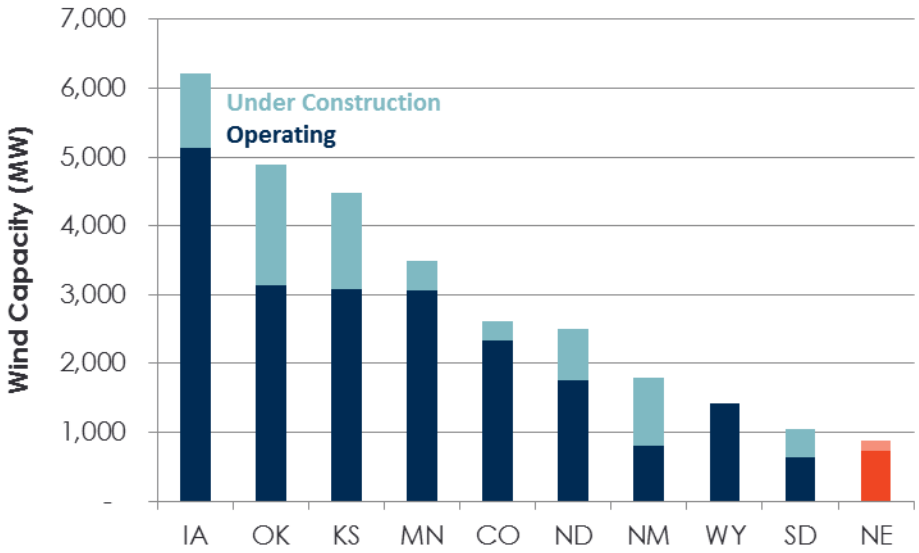
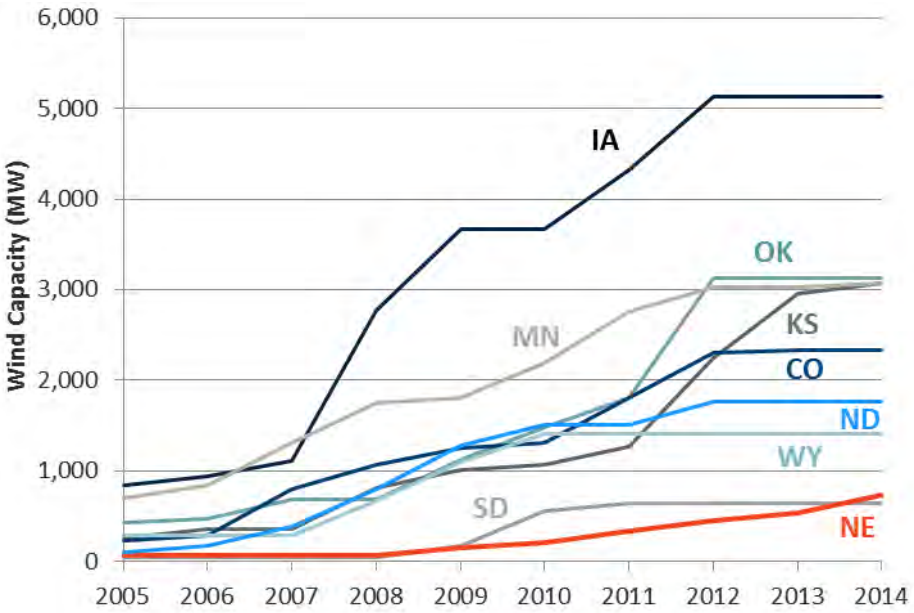


Figure 21
Wind Generation Growth by State



CREF Process

Figure 22
Summary of Nebraska's CREF Process

Conditional Approval
Facility must use renewable energy resources and be developed by a non-public power entity
Demonstrate identifiable and quantifiable public benefits
Demonstrate intent to negotiate a PPA with a purchaser outside NE for at least 90% of output for 10 years or more
Offer NE suppliers an option to purchase up to 10% of output

Applicant must notify PRB within 18 months whether it is prepared to proceed to Final Approval

Final Approval
Demonstrate facility will not have a materially detrimental effect on the state's retail electric rates
Demonstrate executed agreements for generation interconnection and transmission service with appropriate transmission provider
No demonstration (from third-parties) of substantial risk of creating stranded assets owned by NE consumer-owned electric utilities
Applied for and is actively pursuing required approvals from other federal, state or local entities, including all environmental permits
Demonstrate that applicant and interconnecting transmission owner have a joint transmission development agreement
Agree to reimburse electric suppliers for transmission costs not otherwise covered, including renewable integration costs
Submit a decommissioning plan
Must meet CREF definition, including having a PPA for at least 90% of output for 10 years or more

Table 6
Recommended Options for Simplifying CREF Process

Requirement	Current Process	Option A	Option B
Demonstrate identifiable and quantifiable public benefits	✓		
Demonstrate intent to sign a PPA with a purchaser outside NE for at least 90% of output for 10 years or more	✓		
Offer NE suppliers an option to purchase up to 10% of output	✓		
Demonstrate facility will not have a materially detrimental effect on the state's retail electric rates	✓		
Demonstrate executed agreements for generation interconnection and transmission service with appropriate transmission provider	✓	✓	
No demonstration (from third-parties) of substantial risk of creating stranded assets owned by NE consumer-owned electric utilities	✓		
Applied for and is actively pursuing required approvals from other federal, state or local entities, including all environmental permits	✓	✓	✓
Demonstrate that applicant and interconnecting transmission owner have a joint transmission development agreement	✓	✓	
Agrees to reimburse electric suppliers for transmission costs not otherwise covered	✓		
Submit a decommissioning plan	✓	✓	✓
Must meet CREF definition, including having a PPA for at least 90% of output for 10 years or more	✓	✓	

Speaker Bio and Contact Information

Judy W. Chang
Principal, Director
Judy.Chang@brattle.com
617.864.7900 office
617.234.5630 direct

Note:

The views expressed in this presentation are strictly those of the presenter and do not necessarily state or reflect the views of *The Brattle Group, Inc*.

Ms. Judy Chang is an energy economist and policy expert with a background in electrical engineering and over 17 years of experience in advising energy companies and project developers with regulatory and financial issues. Ms. Chang has submitted expert testimonies to the U.S. Federal Energy Regulatory Commission, U.S. state and Canadian provincial regulatory authorities on topics related to transmission access and renewable energy. She also has authored numerous reports and articles detailing the economic issues associated with system planning, including comparing the costs and benefits of transmission. In addition, she assists clients in comprehensive organizational strategic planning, asset valuation, finance, and regulatory policies.

Ms. Chang has presented at a variety of industry conferences and has advised international and multilateral agencies on the valuation of renewable energy investments. She holds a Bachelor of Science in Electrical Engineering from University of California, Davis, and a Master's in Public Policy from Harvard Kennedy School, is a member of the Board of Directors of the Massachusetts Clean Energy Center, and the founding Executive Director of New England Women in Energy and the Environment.

Speaker Bio and Contact Information

J. Michael Hagerty
Associate
Michael.Hagerty@brattle.com
202.955.5050 office
202.419.3323 direct

Note:

The views expressed in this presentation are strictly those of the presenter and do not necessarily state or reflect the views of *The Brattle Group, Inc*.

- Experience with transmission planning and development, climate and renewable policy analysis, and wholesale electricity market design
- Recent transmission-related projects include analysis of the benefits of new transmission, review of transmission permitting processes and costs, and long term scenario analysis for the ERCOT transmission system
- Renewable and climate policy analysis completed for New England RPS market, California AB32 programs, and federal Renewable Fuel Standard
- Assisted utilities, RTOs, and cooperatives in identifying future scenarios to consider in strategic planning efforts
- Brings project management and operations experience from previous work commissioning and operating oil refinery process units while working for Honeywell
- M.S. in Technology and Policy from the Massachusetts Institute of Technology; B.S. in Chemical Engineering from the University of Notre Dame

Speaker Bio and Contact Information

Johannes P. Pfeifenberger
Principal
Hannes.Pfeifenberger@brattle.com
617.864.7900 office
617.234.5624 direct

Note:

The views expressed in this presentation are strictly those of the presenter and do not necessarily state or reflect the views of *The Brattle Group, Inc*.

- Economist with a background in finance and power engineering
- Over 25 years of power industry experience
- Testified before FERC, U.S. Congress, courts, arbitration panels state and Canadian regulatory agencies
- Extensive experience in transmission and wholesale markets, including transmission cost allocation, inter-regional planning, and analyses of economic benefits
- Worked for utilities, independent system operators, transmission companies, regulatory agencies, public power companies, and generators across North America
- Extensive experience in SPP, MISO, ERCOT, PJM, CAISO and Arizona
- M.A. in Economics and Finance from Brandeis University; M.S. in Power Engineering and Energy Economics from the University of Technology in Vienna, Austria

About The Brattle Group

The Brattle Group provides consulting and expert testimony in economics, finance, and regulation to corporations, law firms, and governmental agencies around the world.

We combine in-depth industry experience, rigorous analyses, and principled techniques to help clients answer complex economic and financial questions in litigation and regulation, develop strategies for changing markets, and make critical business decisions.

Our services to the electric power industry include:

- Climate Change Policy and Planning
- Cost of Capital & Regulatory Finance
- Demand Forecasting & Weather Normalization
- Demand Response & Energy Efficiency
- Electricity Market Modeling
- Energy Asset Valuation & Risk Management
- Energy Contract Litigation
- Environmental Compliance
- Fuel & Power Procurement
- Incentive Regulation
- Market Design & Competitive Analysis
- Mergers & Acquisitions
- Rate Design, Cost Allocation, & Rate Structure
- Regulatory Compliance & Enforcement
- Regulatory Strategy & Litigation Support
- Renewables
- Resource Planning
- Retail Access & Restructuring
- Strategic Planning
- Transmission

Offices

NORTH AMERICA

Cambridge

New York

San Francisco

Washington, DC

EUROPE

London

Madrid

Rome

U.S. DEPARTMENT OF ENERGY

DOE/EIS-0486

Final

PLAINS & EASTERN CLEAN LINE TRANSMISSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT SUMMARY

U.S. DEPARTMENT OF ENERGY
Office of Electricity Delivery and Energy Reliability
Washington, DC

October 2015

Attach. F

COVER SHEET

RESPONSIBLE FEDERAL AGENCY: U.S. Department of Energy (DOE), Office of Electricity Delivery and Energy Reliability

COOPERATING AGENCIES: Natural Resources Conservation Service, Tennessee Valley Authority, U.S. Army Corps of Engineers, U.S. Bureau of Indian Affairs, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service

TITLE: Plains & Eastern Clean Line Transmission Line Project Final Environmental Impact Statement (EIS) (DOE/EIS-0486)

LOCATION: Texas, Oklahoma, Arkansas, and Tennessee: counties in Texas—Hansford, Ochiltree, and Sherman; counties in Oklahoma—Beaver, Cimarron, Creek, Garfield, Harper, Kingfisher, Lincoln, Logan, Major, Muskogee, Okmulgee, Payne, Sequoyah, Texas, and Woodward; counties in Arkansas—Cleburne, Conway, Crawford, Cross, Faulkner, Franklin, Jackson, Johnson, Mississippi, Poinsett, Pope, Van Buren, and White; and counties in Tennessee—Shelby and Tipton.

CONTACTS: For additional information on this Final EIS contact:

Dr. Jane Summerson, National Environmental Policy Act (NEPA) Document Manager
on behalf of the Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
DOE NNSA, Post Office Box 5400 Building 391
Kirtland Air Force Base East
Albuquerque, NM 87185
Telephone: (505) 845-4091
Jane.Summerson01@nnsa.doe.gov

For general information on the DOE NEPA process, please write or call:

Ms. Carol M. Borgstrom, Director
Office of NEPA Policy and Compliance, GC-54
U.S. Department of Energy
1000 Independence Ave, SW
Washington, DC 20585
askNEPA@hq.doe.gov
Telephone: (202) 586-4600 or
Leave a message at (800) 472-2756

ABSTRACT: In June 2010, DOE, acting through the Southwestern Power Administration and the Western Area Power Administration, both power marketing administrations within DOE, issued *Request for Proposals for New or Upgraded Transmission Line Projects under Section 1222 of the Energy Policy Act of 2005* (EPAct; 42 United States Code [USC] § 16421; 75 *Federal Register* 32940; June 10, 2010). In response to the request for proposals (RFP),

underground conductors would be a significant challenge to the installation. Also, the large insulation requirements would result in extreme weights for an underground conductor relative to an overhead conductor, so only short segments could be installed at any one time, significantly increasing the cost and time required for completing the construction. The diagnosis and repair of outages could be time-consuming, which would affect emergency response times, and could result in additional ground disturbance and excavation to locate and repair the problems.

S.5.3.4.3 Local Generation and Distribution

During public scoping, commenters suggested utilizing distributed generation as an alternative to the Project. Distributed generation involves the use of small-scale power generation technologies that are usually installed at or near the location of the load being served by the generated power. Distributed generation does not require long-range transmission lines. Distributed generation systems range in size from approximately 5 kilowatts to 10MW; in contrast, utility-scale generation ranges from 10MW to more than 1,000MW per site. Examples of distributed generation resource technologies include residential and roof-top photovoltaic, energy storage devices, microturbines, and fuel cells.

This alternative was eliminated from further analysis because Section 1222 of the EPAct does not authorize the Secretary of Energy to participate with other entities in distributed generation, and the alternative does not meet the DOE-issued RFP for new or upgraded transmission projects. As such, the alternative would not meet the purpose and need for agency action. DOE has established policies and programs related to distributed generation (http://www.energy.gov/eere/slsc/renewable-energy-distributed-generation-policies-and-programs).

S.5.3.4.4 Energy Conservation Programs

During public scoping, commenters suggested energy conservation programs as an alternative to the Project. Commenters suggested that mandatory conservation and demand response programs be used to eliminate the need for more generation and transmission. This alternative was eliminated from detailed consideration because Section 1222(b) of the EPAct does not authorize the Secretary of Energy to participate with other entities in energy conservation programs. As such, the alternative would not meet the purpose and need for agency action. Further, the alternative would not satisfy the eligibility criteria in the DOE-issued RFP for new or upgraded transmission projects. DOE has established policies and programs related to energy conservation programs (http://www.energy.gov/eere/efficiency).

S.5.4 Connected Actions

Connected actions are those that are “closely related” to the proposal. Actions are considered connected if they automatically trigger other actions that may require environmental impact statements, cannot or will not proceed unless other actions have been taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR 1508.25). The potential environmental impacts resulting from the connected actions are analyzed in the EIS and summarized in Section 2.11.

S.5.4.1 Wind Energy Generation

The construction and operation of reasonably foreseeable wind power facilities are evaluated as connected actions in the Plains & Eastern EIS. Wind power facilities that would interconnect with the Project are anticipated to be located in parts of the Oklahoma Panhandle and Texas Panhandle within an approximately 40-mile radius of the Oklahoma converter station. The Applicant based the 40-mile radius assumption on preliminary studies of engineering

constraints and wind resource data, industry knowledge, and economic feasibility. The Applicant anticipates that these wind generators would be the primary customers using the transmission capacity of the Plains & Eastern transmission line. To achieve full utilization of the 3,500MW delivery capacity of the Applicant Proposed Project, the Applicant anticipates actual wind farm build-out to be approximately 4,000MW. With the addition of the Arkansas converter station alternative, the Applicant anticipates the delivery capacity of the Project to increase to 4,000MW, and associated wind farm build-out to be approximately 4,550MW (Clean Line 2014[6]). An analysis of the wind resource in Oklahoma's Panhandle region by the National Renewable Energy Laboratory shows that large areas of wind resources with average annual wind speeds greater than 8 meters/second are prevalent in that part of the state.

Neither the Applicant nor DOE knows the exact location of wind power facilities that would be connected to the Project. However, it is reasonably foreseeable that future wind farms would be located in a reasonable proximity to the Project's Oklahoma converter station and in areas with high wind resource potential and suitable land use(s). This EIS provides an analysis of impacts from wind development within an area of approximately 40 miles of the Oklahoma converter station. Where construction and operation of individual wind power facilities require permits or authorizations, site-specific environmental review, possibly including NEPA review, may be conducted prior to the construction and operation of individual wind farm projects.

S.5.4.2 Related Substation and Transmission Upgrades

In addition to the transmission lines and related facilities analyzed as part of the Project, the EIS also analyzes facility additions and upgrades to existing third-party transmission systems that would be required to enable the Project to transmit power. The additions and upgrades in Oklahoma and Tennessee are evaluated as connected actions in the Plains & Eastern EIS. No connected actions are currently identified as associated with substation or transmission upgrades in Arkansas. If, in the future, network upgrades were identified, they would likely be similar to those discussed for TVA, below.

Oklahoma

The Applicant Proposed Project includes construction and operations and maintenance of a converter station in Texas County, Oklahoma. The Oklahoma converter station would be interconnected to the existing transmission system. This interconnection is necessary to enable the AC to DC conversion process within the Oklahoma converter station. The interconnection between the proposed Oklahoma converter station and the SPS system would be controlled to a nominal value of zero (0) MW, meaning that there would be no net energy exchange. Based on the SPS analysis, a new substation would be necessary to accommodate the interconnection due to space constraints at the existing 345kV Hitchland Substation. To alleviate these space constraints, SPS has proposed a new substation nearby, tentatively named "Optima." This new substation, which represents the connected action, would be located within a few miles of the Oklahoma converter station in Texas County, Oklahoma, within the area identified on Figure 2.1-3 in Appendix A of the EIS as the AC Interconnection Siting Area. Additional background and details are provided in Section 2.2.1.1.

Arkansas

A DOE Alternative would include construction and operations and maintenance of an intermediate converter station in Arkansas to enable injection and delivery of up to 500MW of power into the Arkansas electrical grid. Clean Line

[6] Clean Line Energy Partners LLC. 2014. *Wind Generation Technical Report for the Plains and Eastern Transmission Line Project*. Prepared by Clean Energy Partners LLC for the Department of Energy pursuant to 10 CFR 1021.215(b)(2). March 2014. (Available on EIS Reference CD.)

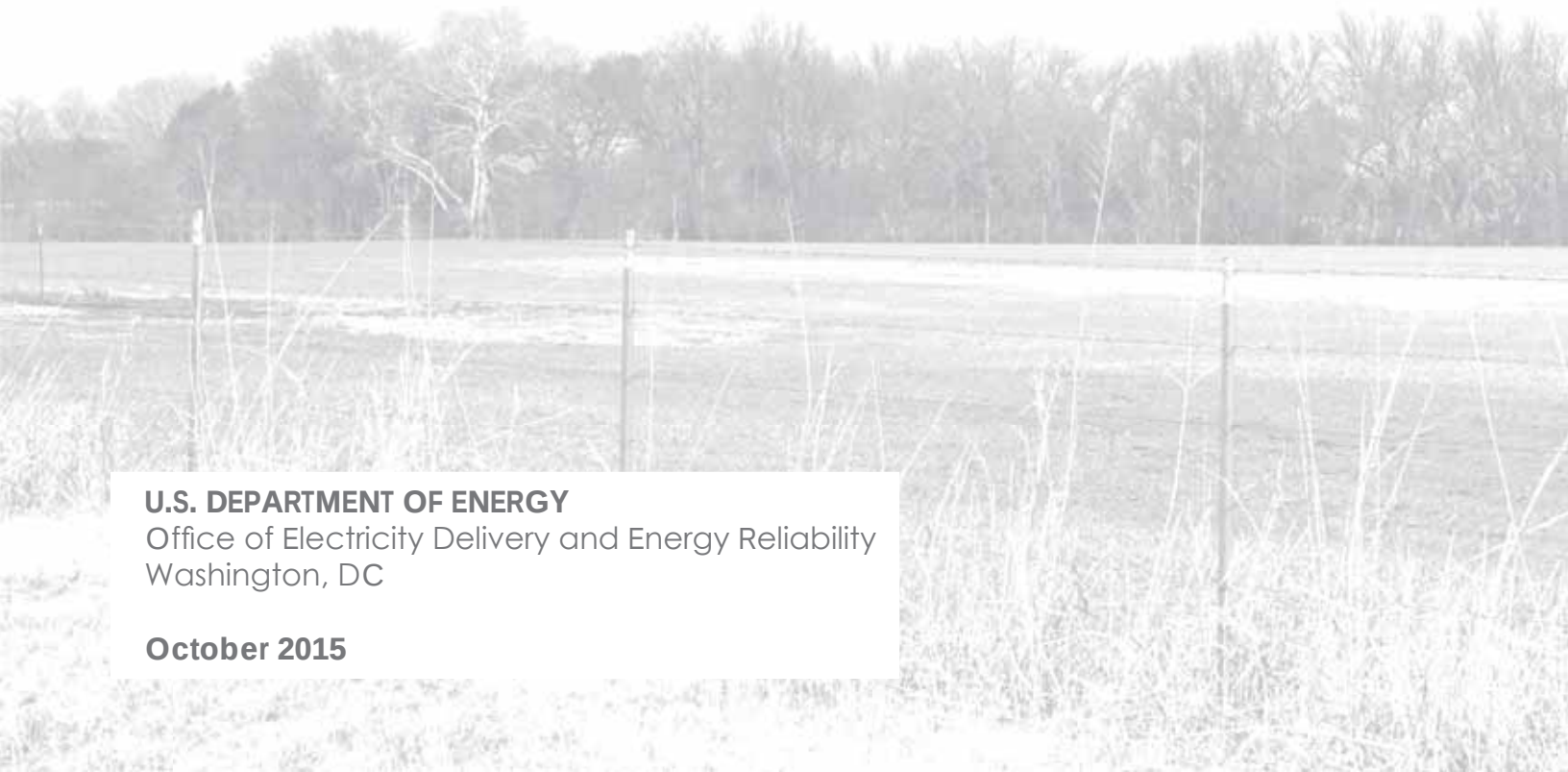
DOE/EIS-0486

Final

PLAINS & EASTERN CLEAN LINE TRANSMISSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT

Volume I of VIII



U.S. DEPARTMENT OF ENERGY
Office of Electricity Delivery and Energy Reliability
Washington, DC

October 2015

Department of Energy
Washington, DC 20585

Dear Reader:

Enclosed is the U.S. Department of Energy's (DOE's) Final *Environmental Impact Statement for the Plains & Eastern Clean Line Transmission Project* (DOE/EIS-0486; Final EIS). Included with the Final EIS is a Reference CD, which includes key Project-specific documents. The Final EIS also is available on the DOE National Environmental Policy Act (NEPA) website at http://nepa.energy.gov/nepa and on the Plains & Eastern EIS website at http://www.plainsandeasterneis.com/. DOE has prepared this Final EIS in consultation with the following cooperating agencies: the Bureau of Indian Affairs, Natural Resources Conservation Service, Tennessee Valley Authority, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service.

In 2010, DOE, acting through the Southwestern Power Administration (Southwestern) and the Western Area Power Administration, both power marketing administrations within DOE, issued *Request for Proposals for New or Upgraded Transmission Line Projects Under Section 1222 of the Energy Policy Act of 2005* (75 *Federal Register* 32940; June 10, 2010). In response to the Request for Proposals, Clean Line Energy Partners LLC of Houston, Texas, the parent company of Plains and Eastern Clean Line LLC and Plains and Eastern Clean Line Oklahoma LLC (collectively referred to as Clean Line or the Applicant in the EIS) submitted a proposal to DOE for the Plains & Eastern Clean Line Project (Applicant Proposed Project).

The Applicant Proposed Project would include an overhead ± 600-kilovolt (kV) high voltage direct current (HVDC) electric transmission system and associated facilities with the capacity to deliver approximately 3,500 megawatts primarily from renewable energy generation facilities in the Oklahoma and Texas Panhandle regions to the Mid-South and Southeast United States via an interconnection with the Tennessee Valley Authority in Tennessee. Major facilities associated with the Applicant Proposed Project consist of converter stations in Oklahoma and Tennessee; an approximately 720-mile HVDC transmission line; an alternating current collection system; and access roads. The Final EIS also analyzes potential environmental impacts of a No Action Alternative and a range of reasonable alternatives to the Applicant Proposed Project, including alternative routes for the HVDC transmission line and adding a converter station in Arkansas (to deliver power to the Arkansas electrical grid). The potential environmental impacts resulting from connected actions (wind energy generation and currently identified substation and transmission upgrades related to the Project) are also analyzed.

The Final EIS considers comments submitted on the Draft EIS, including those submitted during the public comment period that began on December 19, 2014, and ended on April 20, 2015, after an extension to the original 90-day comment period. During the comment period, DOE held 15 public hearings in Oklahoma, Texas, Arkansas, and Tennessee. Approximately 950 comment documents (including several email and letter campaigns) were received during the public comment period. Late comments have been considered to the extent practicable. The primary topics raised include, concern about electric and magnetic fields from the transmission line; concern about reductions in property value; concern about impacts to agricultural resources such as crop production, irrigation, and aerial spraying; concern about the use of eminent domain; and concern about visual impacts from the transmission line and requests to bury the electric transmission line underground. Appendix Q of this EIS contains the comments received on the Draft EIS and DOE's responses to these comments.

This Final EIS was revised to incorporate new information gathered since the issuance of the Draft EIS, including updated resource-specific analytical data as well as information received from commenters on the Draft EIS. Vertical bars in the margins of the pages of the Final EIS indicate where revisions, including deletions, were made. Appendices M–Q are entirely new parts of this EIS; therefore, they do not contain bars indicating changes from the Draft EIS.

DOE's purpose and need for agency action is to implement Section 1222 of the Energy Policy Act of 2005. To that end, this Final EIS will assist DOE as it decides whether and under what conditions it would participate in the Applicant Proposed Project. DOE has considered the range of reasonable alternatives, the comparison of potential impacts for each resource area, and the input received on the Draft EIS. Based on the information presented in the Final EIS, DOE has identified participation in the Project as its preferred alternative in the Final EIS. The Project would include the Oklahoma converter station and AC interconnection, the AC collection system, the Applicant Proposed Route for the majority of the HVDC transmission line (with the exception of route variation Region 4, APR Link 3, Variation 2), and the Arkansas converter station and AC interconnection.

DOE has continued consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), which considers the potential effects of the Project on historic properties. The Final EIS includes a draft Programmatic Agreement in Appendix P developed pursuant to 36 CFR 800.14(b) to address obligations under NHPA Section 106, including government-to-government consultation with Indian Tribes and Nations that may attach religious and cultural significance to historic properties that may be affected by the undertaking, and consultation with the Arkansas, Oklahoma, Tennessee, and Texas State Historic Preservation Officers. DOE intends to execute the PA prior to issuance of the ROD or otherwise comply with procedures set forth in 36 CFR Part 800.

DOE and the Applicant have prepared a Biological Assessment of potential impacts on special status species protected under the Endangered Species Act (ESA) as part of the Section 7 consultation between DOE and the U.S. Fish and Wildlife Service. The Section 7 consultation review is a parallel, but separate, process to the NEPA process, conducted pursuant to the requirements of ESA and the applicable implementing regulations. The Biological Assessment and associated addendum are included as Appendix O to the Final EIS. The Biological Opinion, to be issued by the U.S. Fish and Wildlife Service prior to the issuance of the Record of Decision, may identify additional protective measures may be identified and adopted to avoid or minimize impacts to special status species.

For additional information, contact me at Jane.Summerson01@nnsa.doe.gov or visit the EIS website at: http://www.plainsandeasterneis.com.

Thank you for your interest and participation in the NEPA process.

Sincerely,

Jane Summerson, Ph.D.
NEPA Document Manager
on behalf of DOE's Office of Electricity Delivery and Energy Reliability

DOE has determined that energy conservation programs would not meet the need of utility-scale generation and would still require the Project to meet the needs of the agency's goal. DOE has established policies and programs related to energy conservation programs (see: http://www.energy.gov/eere/efficiency).

2.5 Connected Actions

Connected actions are those that are "closely related" to the proposal. Actions are considered connected if they automatically trigger other actions which may require environmental impact statements, cannot or will not proceed unless other actions have been taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR 1508.25). Connected actions are analyzed together with the Applicant Proposed Project and DOE Alternatives in this EIS.

2.5.1 Wind Energy Generation

The construction and operations and maintenance of reasonably foreseeable wind power facilities are evaluated as connected actions in the Plains & Eastern EIS. Wind power facilities that would interconnect with the Project are anticipated to be located in parts of the Oklahoma Panhandle and Texas Panhandle within an approximate 40-mile radius of the western converter station. As identified in Section 2.1.2.3, the Applicant based the 40-mile radius assumption on preliminary studies of engineering constraints and wind resource data, industry knowledge, and economic feasibility. The Applicant anticipates that these wind energy generators will be the primary customers using the transmission capacity of the Plains & Eastern transmission line. To achieve full utilization of the 3,500MW delivery capacity of the Applicant Proposed Project, the Applicant anticipates actual wind farm build-out to be approximately 4,000MW. With the addition of the Arkansas converter station alternative, the Applicant anticipates the delivery capacity of the Project to increase to 4,000MW, and associated wind farm build-out to be approximately 4,550MW (Clean Line 2014b). The Oklahoma Panhandle region contains an excellent wind resource (DOE 2011). An analysis of the wind resource in Oklahoma's Panhandle region by the National Renewable Energy Laboratory shows that large areas of wind resources with average annual wind speeds greater than 8 meters/second are prevalent in that part of the state (NREL 2011).

Neither the Applicant nor DOE knows the exact location of wind power facilities that would be connected to the Project. However, it is reasonably foreseeable that future wind farms would be located in a reasonable proximity to the Project's Oklahoma converter station and in areas with high wind resource potential and suitable land use(s). This EIS provides an analysis of potential impacts from wind development within an area of an approximate 40-mile radius of the Oklahoma converter station. Clean Line identified 12 Wind Development Zones (WDZs) in its *Wind Generation Technical Report* (Clean Line 2014b) based on available wind resources and existing land uses within the 40-mile radius. Table 2.5-1 presents the size and potential maximum generation capacity for each WDZ analyzed in this EIS for potential wind energy generation. Figures 2.1-2 and 2.1-17a in Appendix A provide illustrations of the WDZs in relation to the locations of the various Project components.

Table 2.5-1:
Size and Potential Maximum Generation Capacity of Wind Development Zones

WDZ	Approximate Total Size (acres)	Potentially Suitable Areas for Wind Development (acres)	Approximate Maximum Wind Development (megawatts)
A	109,000	101,000	800
B	125,000	108,000	900
C	160,000	123,000	1,000

Table 2.5-1:
Size and Potential Maximum Generation Capacity of Wind Development Zones

WDZ	Approximate Total Size (acres)	Potentially Suitable Areas for Wind Development (acres)	Approximate Maximum Wind Development (megawatts)
D	69,000	43,000	300
E	47,000	43,000	300
F	112,000	82,000	700
G	186,000	159,000	1,300
H	116,000	67,000	500
I	105,000	85,000	700
J	92,000	44,000	400
K	92,000	84,000	700
L	165,000	144,000	1,200

Where construction and operations and maintenance of individual wind power facilities require permits or authorizations, site-specific environmental review, possibly including NEPA review, may be conducted prior to the construction and operations and maintenance of individual wind farm projects.

2.5.2 Related Substation and Transmission Upgrades

In addition to the transmission lines and related facilities analyzed as part of the Project, the EIS also analyzes facility additions and upgrades to existing third-party transmission systems that would be required to enable the Project to transmit power. The additions and upgrades in Oklahoma and Tennessee are evaluated as connected actions in the EIS.

Oklahoma

The Applicant Proposed Project includes construction and operations and maintenance of a converter station in Texas County, Oklahoma. The Oklahoma converter station would be interconnected to the existing transmission system. This interconnection is necessary to enable the AC to DC conversion process within the Oklahoma converter station. The interconnection between the proposed Oklahoma converter station and the SPS system would be controlled to a nominal value of zero (0) MW; meaning that there would be no net energy exchange. Based on the SPS analysis, a new substation would be necessary to accommodate the interconnection due to space constraints at the existing 345kV Hitchland Substation. To alleviate these space constraints, SPS has proposed a new substation nearby, tentatively named “Optima.” This new substation, which represents the connected action, would be located within a few miles of the Oklahoma converter station in Texas County, Oklahoma, within the area identified on Figure 2.1-3 in Appendix A as the AC Interconnection Siting Area. Additional background and details are provided in Section 2.2.1.1.

Arkansas

A DOE Alternative would include construction and operations and maintenance of an intermediate converter station in Arkansas to enable injection and delivery of up to 500MW of power into the Arkansas electrical grid. Clean Line selected the Arkansas Nuclear One-Pleasant Hill 500kV Point of Interconnection in an attempt to avoid the need for additional upgrades to the surrounding transmission system and to accommodate a 500MW injection. MISO performed a feasibility study of the request and delivered results to Clean Line in February 2014. The purpose of this

3.3.6.6 Irreversible and Irretrievable Commitment of Resources

No irreversible and irretrievable commitments of air quality resources are anticipated to result from the Project.

3.3.6.7 Relationship between Local Short-term Uses and Long-term Productivity

Emissions from construction of the Project are not predicted to impact sensitive receptors and also would not impact long-term productivity. While over the short-term emissions from construction would be higher in localized areas—because the Project provides for development of non-fossil fuel energy sources over the long term—air quality would be improved in comparison to not building the Project.

3.3.6.8 Impacts from Connected Actions

3.3.6.8.1 Wind Energy Generation

The impacts from the wind energy generation facilities that would interconnect to the Project as a result of the Project being built were qualitatively assessed because precise wind energy developments have not been identified that may result after the Project is constructed. The anticipated wind energy developments are all located within the Region 1 Oklahoma Panhandle and the adjacent portions of Texas. Although site-specific layouts of wind energy generation facilities in the wind energy development zones identified in Region 1 have yet to be designed, information regarding air emissions impacts from these potential wind energy generation facilities has been provided by the Applicant (Clean Line 2014). Emissions from construction activities were calculated based on techniques similar to those that were used to analyze impacts from the Applicant Proposed Project and DOE Alternatives. The potential impacts would be more than compensated for by reductions in emissions associated with the fact that wind energy projects generate nominal emissions, such as those from maintenance activities, and the power generated by wind energy would displace power that could otherwise be generated from fuel combustion. The benefit to air quality of these wind energy developments via displacing fossil fuel energy sources would outweigh the temporary construction air quality impacts. Section 3.3.6.8.1.2 provides qualitative analysis of the air quality emissions that may be expected from wind energy developments.

3.3.6.8.1.1 Construction Impacts

Construction of wind farms would result in criteria air pollutant and GHG emissions via engines burning fossil fuels. Fugitive dust would also result from construction of wind farms. Construction equipment emissions would be intermittent and generated in relatively small areas confined to the areas of wind farm construction. Construction planners estimate that the erection of wind farms requires roughly 150,000 gallons of fuel (approximately 85 percent diesel, 15 percent gasoline) per 100MW of capacity constructed (Repholz 2014). The GHG emissions associated with construction of 4,000–4,550MW of generating capacity is therefore approximately 66,000 to 75,000 tons CO_2e;[2] the corresponding emissions of NO_x, the most prevalent criteria pollutant in the exhaust of construction equipment, would depend on the exact mix of equipment but would be in the neighborhood of 300 to 600 tons.[3] These

[2] This calculation is based on fuel heating values and GHG emission factors in 40 CFR Part 98, Subpart C.

[3] The lower end of this range is based on an average NO_x emissions rate of approximately 0.74 pound per one million British thermal units (mmBtu) of heat input for 4,000MW of generation; the higher end is based on an average NOx emissions rate of approximately 1.3 lb/mmBtu for 4,550MW of generation.

construction emissions would be temporary, and are not expected to contribute to substantially increased air pollutant concentrations.

Dust suppressants would be implemented to reduce fugitive dust emissions during construction of the wind farms. Typically, impacts related to fugitive dusts during construction of wind farms are reduced through the use of dust palliatives and through micrositing the turbines and related components in such a way to minimize or eliminate potential temporary impacts.

3.3.6.8.1.2 Operations and Maintenance Impacts

Operational impacts to air quality associated with the wind farms are expected to be beneficial, because operations and maintenance of wind farms would result in negligible emissions (Clean Line 2014), whereas much of the electricity generated today is produced with fossil fuels such as coal or natural gas. The Applicant used a commercially available simulation model (PROMOD version 10.1) to determine a best estimate of which power sources would be displaced and what the corresponding emissions reduction would be. The Applicant used the Ventyx East NERC version 9.4 root database and updated the database to reflect expected 2018 market conditions as of May/June 2013, when the simulation work began. The model updates included but were not limited to transmission upgrades to reflect ISO transmission plans, market membership changes (e.g., Entergy joining MISO), then-current natural gas forecast, and recently announced coal plant retirements. The model provided a best estimate of displaced emissions as follows: approximately 0.00058 pounds NO_x/megawatt hours (MWh), 0.0017 pounds SO_x/MWh, 0.707 pounds CO_2/MWh, and 0.0000114 pounds mercury/MWh. Using these displaced emissions rates with the range of megawatts of anticipated power production from wind energy as identified in Section 2.5.1 (4,000MW from the wind farm build-out and 4,550MW with the addition of the Arkansas converter station alternative), calculations of displaced emissions were calculated as follows:

- NO_x, 9,800 to 11,100 TPY
- SO_x 29,000 to 33,000 TPY
- CO_2e 12 to 14 million TPY
- Mercury 0.1 TPY (approximate)

These reductions in emissions occur each year, and even 1 year of emissions reduction far exceeds the combined emissions increases associated with the construction of the Project and the wind farms. Although the emissions reduction from this single project is small relative to the 7,249 million tons CO_2e (6,576 million metric tonnes) emitted by anthropogenic sources in the United States in 2009, the electric power generation sector contributes approximately 40 percent of those emissions (EIA 2011) and the implementation of lower-GHG electricity generation is therefore an important component of achieving significant GHG emissions reductions both nationally and globally. Currently, there is no methodology that would allow DOE to estimate the specific impacts (if any) this increment of climate change would produce in the vicinity of the facility or elsewhere.

3.3.6.8.2 Optima Substation

Operationally the Substation would not result in air quality impacts. Construction emissions would be similar to those for the Project or DOE alternative converter stations and therefore would not result in exceedance of the NAAQS. Therefore, no impacts to air quality are anticipated from construction of the future Optima Substation.

3.14.1.7.7 Relationship between Local Short-term Uses and Long-term Productivity

Both the Applicant Proposed Route and the DOE Alternatives may result in a short-term disturbance to special status wildlife; however, these impacts should not affect the long-term productivity of populations of special status wildlife.

3.14.1.7.8 Impacts from Connected Actions

3.14.1.7.8.1 Wind Energy Generation

Potential special status wildlife species that could occur within the six-county region in Texas and Oklahoma which contain the WDZs include LEPC, whooping crane, interior least tern, piping plover, Sprague's pipit, red knot, golden eagle, and bald eagle. Specific wind farm development locations are unknown in the 6-county area; therefore, impacts to specific special status species and their habitat could vary greatly depending on where wind farms are developed. Impacts could be reduced by locating wind farms on previously disturbed lands (e.g., croplands) that have little value has habitat for special status species.

Wind energy developers are expected to develop and construct wind energy projects based on guidance outlined by the USFWS Land-Based Wind Energy Guidance (USFWS 2012c) and the APLIC guidelines (APLIC 2012). These guidelines may include the development of conservation strategies and specific actions that, when implemented, could reduce the risk of impacts to special status wildlife species and their habitats. The estimated acreage of land that could be disturbed during construction and would remained disturbed during operation (e.g., permanent access roads, footprint of wind turbines and electrical stations) of the wind farms are listed in Table 3.14.1-7. These estimates assume a 30 percent build-out of the WDZs that would supply the electrical transmission capacity of the Applicant Proposed Project with an estimated 2 percent disturbance of land area during construction and a 1 percent land disturbance remaining during operation of the wind farms.

Table 3.14.1-7:
Description of the WDZ and the Potential Special Status Wildlife Species That May Occur In Area

WDZ Name	Potentially Suitable Area for Wind Development (acres)	Estimated Acres of Impact during Construction[1]	Estimated Acres of Impact during Operation[1]	Special Status Species Potentially Present in the WDZ
WDZ-A	101,000	606 acres of primarily croplands and grasslands	303 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). LEPC and whooping crane may feed within the croplands and grasslands that are common in WDZ-A; however, the whooping crane occurrence within the WDZ-A is likely to be limited to occasional migratory stopover occurrences.
WDZ-B	108,000	648 acres of primarily croplands and grasslands	324 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). LEPC and whooping crane may feed within the croplands and grasslands that are common in WDZ-B; however, the whooping crane occurrence within the WDZ-B is likely to be limited to occasional migratory and stopover occurrences.

Table 3.14.1-7:
Description of the WDZ and the Potential Special Status Wildlife Species That May Occur In Area

WDZ Name	Potentially Suitable Area for Wind Development (acres)	Estimated Acres of Impact during Construction[1]	Estimated Acres of Impact during Operation[1]	Special Status Species Potentially Present in the WDZ
WDZ-C	123,000	738 acres of primarily croplands and grasslands	369 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). LEPC and whooping crane may feed within the croplands and grasslands that are common in WDZ-C; however, the whooping crane occurrence within the WDZ-C is likely to be limited to occasional migratory and stopover occurrences.
WDZ-D	43,000	258 acres of primarily grasslands	129 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). LEPC and whooping crane may feed within the grasslands that are common in WDZ-D; however, the whooping crane occurrence within the WDZ-D is likely to be limited to migratory and stopover occurrences. WDZ-D contains the ODWC Schultz WMAs.
WDZ-E	43,000	258 acres of primarily croplands and grasslands	129 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). This WDZ contains extensive cropped areas and less potential to support LEPC. Whooping crane may feed within the grasslands that are common in WDZ-E; however, the whooping crane occurrence within the WDZ-E is likely to be limited to migratory and stopover occurrences.
WDZ-F	82,000	492 acres of primarily grasslands and croplands	246 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). LEPC and whooping crane may feed within the croplands and grasslands that are common in WDZ-F; however, the whooping crane occurrence within the WDZ-F is likely to be limited to migratory and stopover occurrences. This WDZ is located farther from existing mapped LEPC habitat but contains grassland habitats with the potential to support LEPC.
WDZ-G	159,000	954 acres of primarily grasslands and croplands	477 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). WDZ-G is just south of high-quality LEPC habitat in southeastern Colorado and southwestern Kansas and could affect populations across the border in Oklahoma. Whooping crane may feed within the croplands and grasslands that are common in WDZ-G; however, the whooping crane occurrence within the WDZ-G is likely to be limited to occasional migratory and stopover occurrences.
WDZ-H	67,000	402 acres of primarily grasslands and croplands	201 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). Has some large grassland areas with the potential to support LEPC. Whooping crane may feed within the croplands and grasslands that are common in WDZ-H; however, the whooping crane occurrence within the WDZ-H is likely to be limited to occasional migratory and stopover occurrences.

Table 3.14.1-7:
Description of the WDZ and the Potential Special Status Wildlife Species That May Occur In Area

WDZ Name	Potentially Suitable Area for Wind Development (acres)	Estimated Acres of Impact during Construction[1]	Estimated Acres of Impact during Operation[1]	Special Status Species Potentially Present in the WDZ
WDZ-I	85,000	510 acres of primarily grasslands and croplands	255 acres	Potentially suitable habitat for piping plover and interior least tern is limited; however, there is a potential for both species to occur during migration (which generally occurs from April to June). This WDZ is just northwest of an area with LEPC, including leks. Development here could affect movement of LEPC from the Oklahoma/Kansas border to the eastern panhandle area. Whooping crane may feed within the grasslands that are common in WDZ-I; however, the whooping crane occurrence within the WDZ-I is likely to be limited to occasional migratory and stopover occurrences.
WDZ-J	44,000	264 acres of primarily grasslands	132 acres	Potentially suitable habitat for piping plover and interior least tern is limited; however, there is a potential for both species to occur during migration (which generally occurs from April to June). Whooping crane may feed within the grasslands that are common in WDZ-J; however, the whooping crane occurrence within the WDZ-J is likely to be limited to migratory and stopover occurrences. The LEPC habitat within WDZ-J is categorized as CHAT category 1 (i.e., focal area) suggesting that large areas of undeveloped, contiguous grassland/herbaceous land cover occur within the WDZ. Development here may also affect LEPC movements from the northwest to the southeast and vice versa. The ODWC Shorb WMA is located outside the western boundary of this WDZ.
WDZ-K	84,000	504 acres of primarily grasslands and croplands	252 acres	The LEPC occurs in this WDZ, particularly the eastern portion that is near existing leks and focal habitat. Potentially suitable habitat for piping plover and interior least tern is limited; however, there is a potential for both species to occur during migration (which generally occurs from April to June). Whooping crane may feed within the grasslands that are common in WDZ-K; however, occurrence within the WDZ-K is likely to be limited to occasional migratory and stopover occurrences.
WDZ-L	144,000	864 acres of primarily grasslands and croplands	432 acres	Potentially suitable habitat for piping plover is limited; however, there is a potential for piping plover to occur during migration (which generally occurs from April to June). The eastern portion of WDZ-L contains quality LEPC habitat and is near focal habitat and several leks. Whooping crane may feed within the grasslands that are common in WDZ-L; however, the whooping crane occurrence within the WDZ-L is likely to be limited to migratory and stopover occurrences.

1 The estimated acres of impact assumes a 30 percent build-out with 2 percent of the land affected during construction and 1 percent affected during operations based on the potentially suitable area for wind development in each WDZ (Table 2.5-1).

Potential impacts during wind farm development could include short-term disturbances to species (i.e., displacement in the vicinity of construction activity) during construction, loss of habitat from land disturbance, and potential mortality from vehicle collisions. Impacts to the interior least tern, piping plover, and red knot are not expected during construction. These three species use sparsely vegetated shorelines, sandbars, mudflats, and islands of rivers, lakes, and reservoirs. These habitats are relatively uncommon in the WDZs and are not likely sites that would be

developed for wind energy. The LEPC could be potentially impacted during construction of wind farms by clearing of grassland habitats for access roads, wind turbines, and electrical stations.

Although the proportion of land potentially disturbed during wind farm construction is relatively small (2 percent), construction in undisturbed grasslands could fragment LEPC habitat that could reduce overall LEPC habitat quality in a larger area surrounding a wind farm. The potential for construction impacts to the LEPC and its habitat is greater in WDZs D, I, J, K, and L. These WDZs occur in eastern Texas County and western Beaver County in Oklahoma and western Ochiltree County in Texas. These WDZs are closest to areas mapped as focal and connectivity habitat areas in the LEPC Range-Wide Conservation Plan (Van Pelt et al. 2013) and include the ODWC Shultz and Shorb WMAs. Although impacts to LEPC could occur on land outside the identified focal and connectivity habitat areas, the focal areas represent high priority conservation areas to preserve larger more contiguous blocks of LEPC habitats and to encourage development in areas with less potential impact.

Sprague's pipit also is an occupant of grasslands, but it occurs as an uncommon migrant and rare winter resident in the vicinity of the WDZs and impacts to this species are expected to be minimal from construction activities (USFWS 2014d). Construction impacts to either golden eagles or bald eagles are not expected as both species are wide-ranging and nesting habitat for the golden eagle is limited in the WDZs. Once construction has been completed, temporary construction areas would revert to their previous use. Only turbines, access roads, generation tie-lines (if necessary), substations, and operations and maintenance buildings would remain. Existing land uses, primarily agriculture and grazing, would be expected to return to almost all areas of the facilities unless deemed incompatible with the operations of a wind energy development. During the operations and maintenance phase of wind energy developments, approximately 1 percent of the land could be affected (i.e., occupied by turbines, electrical stations, access roads). For the 12 WDZs, assuming 30 percent build-out, 3,249 acres could be impacted (Table 3.14.1-7).

Operation and maintenance of wind energy developments are known to have the potential to directly impact some special status wildlife species, specifically avian and bat species, due to collisions with wind turbine blades, collisions and electrocutions associated with generation tie-lines, barotrauma (physical tissue damage caused by air pressure differences) of bat species, and potential avoidance of otherwise suitable habitat surrounding vertical structures such as wind turbines and transmission structures. None of the four special status bat species (three listed as endangered, one proposed as endangered) that occurs on the Applicant Proposed Project occurs in Region 1, so none would be affected by potential wind energy development. Historically, the average number of avian species fatalities associated with operations of a wind energy facilities has varied among developments and is considered a function of a number of factors, including the proximity to known staging areas, winter ranges, nesting sites, migration stopovers or corridors, and leks or other areas of seasonal importance (USFWS 2012c).

Given the limited habitat for either the piping plover or interior least tern in the wind development zones, impacts to either species is not expected. Some whooping cranes migrate through the WDZ region, although the area is west of the primary whooping migration corridor. Because of their large size and lower maneuverability, whooping cranes could be at risk for collisions with wind turbines. Because Sprague's pipit is a relatively uncommon migrant through the region, potential collision mortalities are possible but probably unlikely. The preferred cliff and canyon nesting habitat of the golden eagle occurs west of the WDZs. However, migrant golden eagles, and some bald eagles, may occur in the WDZ region and could be at risk for mortality collisions. Occurrence of avian special status species within the WDZ and collision mortalities from wind energy facilities would likely be documented by wind energy

developers under the Land-Based Wind Energy Guidelines (USFWS 2012c), in accordance with appropriate state and federal regulations.

Indirect impacts causing habitat loss and/or modification have been reported for some species of prairie-grouse; however, little is known about effects of wind farms on LEPC (Van Pelt et al. 2013). Behavioral avoidance by LEPC of otherwise suitable habitat surrounding wind turbine towers may increase the area of impact (Pruett et al. 2009, Winder et al. 2014). Empirical data on impact distances from vertical structures for LEPC is limited; however, appropriate buffer distances and restrictions near LEPC occupied habitat would be determined during any ESA consultation by the wind energy developer. The resulting habitat loss and/or modification may reduce the overall fitness of birds, reduce reproductive success, and inhibit movement and gene flow of birds (Van Pelt et al. 2013; 79 FR 20074, April 10, 2014). Although specific empirical data currently are not publically available, the suggestion that LEPC may avoid otherwise suitable habitat has led the USFWS to recommend the consideration of occupied prairie-grouse habitat (i.e., includes habitat used only periodically or temporarily during some portion of its life history) in locating wind farm facilities (USFWS 2012c).

Once the decommissioning phase has concluded, lands occupied by wind energy developments may be restored to their pre-construction conditions depending on specific contracts between the landowner and developer. Structures, including wind turbines and generation tie-lines, would be dismantled. Impacts associated with the construction, operations and maintenance of wind turbines, generation tie lines, and other permanent structures could therefore be reduced or eliminated as these areas are restored.

3.14.1.7.8.2 Optima Substation

No impacts to piping plovers, interior least terns, and bald eagles are expected from construction and operations and maintenance of the future Optima Substation because the site does not contain suitable habitat for any of these species. Because of the relatively small size (up to 160 acres) of the substation, potential collision mortalities to whooping cranes that migrate through the Oklahoma Panhandle region are unlikely to occur. The existing roads, power poles, and croplands that occur on and/or adjacent to the substation decrease the quality of the LEPC habitat. It is possible that some LEPC occur in grassland habitats in the vicinity of the future Optima Substation; however, potential impacts (loss of habitat and mortality) to LEPC and their habitat are expected to be minor. No leks are known to occur in the vicinity of the future Optima Substation and impacts to leks are not expected to occur (Figure 3.14-1a in Appendix A).

3.14.1.7.8.3 TVA Upgrades

Potential impacts are expected to be lower in areas affected by upgrades to existing TVA facilities than in areas where the new electric transmission line would be constructed. Generally, construction of the new transmission line could involve mortalities or new disturbances of habitat used (e.g., for breeding, nesting, brood-rearing, wintering, or foraging) by special status wildlife species, similar to the Project. Impacts during new construction could include loss of habitat from land clearing, temporary disturbance displacement, and possible mortality or injury by vehicles and construction equipment. These impacts would be short term except for habitat loss on sites used for the ROW, structures or access (i.e., roads) and any wildlife mortality. The new 500kV transmission line could result in mortality and injury of avian special status wildlife species from collisions and electrocutions during operations and maintenance. Existing TVA transmission lines would require fewer construction activities to complete upgrades than the new transmission line and would have proportionally fewer impacts as activities would occur primarily in

ATTACHMENT B

Letter from the Cherokee Nation Regarding Potential for Human Remains in the Vicinity of the Proposed R-Project Transmission Line

July 6, 2018

GWY.Ꭰ DƷᏢ
CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
ᎤᏢ Ꮆh ᏗSSᏩᏍᏯ
ᏅᎦᏩᏅᏗ

S. Joe Crittenden
Deputy Principal Chief
ᏍᏗ. ᏦᏩ ᏗᎦᏯᏍᏯ
ᎯᏢᏗ ᎠᏓᏙᏗ ᏅᎦᏩᏅᏗ

July 6, 2018

Robert Harms
United States Fish and Wildlife Service
9325 South Alda Road
Wood River, NE 68883

Re: FWS/R6/ES/R-Project HCP NHPA
Proposed R-Project 345 kV Transmission Line

Mr. Robert Harms:

The Cherokee Nation (Nation) is in receipt of your correspondence about and related reports for **FWS/R6/ES/R-Project HCP NHPA**, and appreciates the opportunity to provide comment upon this project. Please allow this letter to serve as the Nation's continued consultation for this proposed undertaking.

Provided in our initial May 29, 2018 correspondence, the area of concern includes a culturally sensitive site located near the I-80 eastbound exit near Sutherland, Nebraska. To date, a cultural resources survey has not been conducted in this area. Given the potential for human remains, the Nation requests that this area is avoided for the proposed undertaking. If this area cannot be avoided, the Nation requests additional consultation with the United States Fish and Wildlife Service (USFWS) to discuss scoping for a cultural resources survey with non-invasive methods.

Additionally, the Nation requests that USFWS conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389