Executive Summary

This executive summary is included in the beginning of the Final Environmental Impact Statement (FEIS) for the South Dakota PrairieWinds Project (Proposed Project) and is also intended to serve as a stand-alone document to provide a summary of the information contained within the full text version of the FEIS. For additional information on the topics contained within this summary please see the FEIS.

S.1 INTRODUCTION

Basin Electric Power Cooperative (Basin Electric) is a regional wholesale electric generation and transmission cooperative owned and controlled by its member cooperatives. Basin Electric serves approximately 2.8 million customers covering 540,000 square miles in portions of nine States. PrairieWinds SD1, Incorporated (PrairieWinds) is a wholly owned subsidiary of Basin Electric and proposes to construct, own, operate, and maintain the Proposed Project. Basin Electric has requested to interconnect the Proposed Project with the transmission system owned and operated by Western Area Power Administration (Western), an agency within the U.S. Department of Energy (DOE). Basin Electric has requested financing for the Proposed Project from the Rural Utilities Service (RUS), an agency within the U.S. Department of Agriculture (USDA). Western and RUS are collectively termed the "Agencies."

Basin Electric's generation interconnection request and financing request trigger a National Environmental Policy Act (NEPA) review process of the Proposed Project by Western and RUS, respectively. The Agencies have determined that an environmental impact statement (EIS) is required and are joint lead Federal Agencies for preparation of the document.

The Proposed Project would include a 151.5-megawatt (MW) nameplate capacity wind-powered energy generation facility that would feature 101 wind turbine generators, operations and maintenance building and fence perimeter, underground communication system and electrical collector lines (within the same trench), collector substation and microwave tower, overhead transmission line, temporary equipment/material storage or lay-down areas, crane walks, and new and/or upgraded service roads to access the facilities. Two alternative locations in South Dakota are being evaluated for the Proposed Project. These locations and Proposed Project facilities are further described in **Section S.6 Alternatives**.

In January 2010, South Dakota Wind Partners, LLC (Wind Partners), a South Dakota Limited Liability Company, and Basin Electric began discussions about adding seven turbines within the alternative site near Wessington Springs. Wind Partners would finance and own these turbines. Through an agreement between Basin Electric and Wind Partners, Basin Electric would construct, operate, and maintain the Wind Partners' proposed development. Basin Electric submitted a request to interconnect these additional wind turbines with the transmission system owned and operated by Western.

S.2 AGENCIES' PURPOSE AND NEED

Western and RUS have prepared the FEIS to analyze the impacts of their respective Federal actions, the Proposed Project and Wind Partners' proposed development in accordance with NEPA, as amended; DOE NEPA Implementing Procedures (Title 10 Code of Federal Regulations [CFR] Part 1021); the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 CFR Parts 1500-1508); and RUS Environmental Policies and Procedures (Title 7 CFR Part 1794). The U.S. Fish and Wildlife Service (USFWS) is participating as a Cooperating Agency for the EIS process. Western, RUS, and USFWS Federal actions are discussed below.

Additionally, the Proposed Project and Wind Partners' proposed development are subject to the jurisdiction of the South Dakota Public Utilities Commission (SDPUC), which has regulatory authority for siting wind generation facilities and transmission lines within the State. The SDPUC approved a Wind Energy Facility Permit for the Proposed Project and Wind Partners' proposed development on June 15, 2010.

Western Area Power Administration

Western has received two interconnection requests from Basin Electric. As addressed in the DEIS, the first request was to interconnect the Proposed Project with either Western's Winner or Wessington Springs Substation. The first interconnection request was for 150 MW. Data from the same model of turbine in operation at other locations indicates that, under ideal conditions, these turbines are occasionally capable of generating slightly more than the nameplate rating of 1.5 MW each. Following issuance of the DEIS, to account for the Wind Partners' proposed development and the potential increase in turbine performance from the Proposed Project and Wind Partners' proposed development, Basin Electric submitted a second request to interconnect an additional 34 MW at the existing Wessington Springs Substation.

Western's purpose and need is to respond to the interconnection requests in accordance with Section 211 of the Federal Power Act and Western's Open Access Transmission Service Tariff (Tariff). Section 211 of the Federal Power Act requires that transmission service be provided upon request, if transmission capacity is available. The Wind Partners' proposed development is dependent upon the Proposed Project; therefore, Western is performing studies combining the interconnection requests. Thus, Western is examining the potential impacts of an 184-MW interconnection request at Wessington Springs. If Western either denies Basin Electric's request for an interconnection for Basin Electric's Proposed Project or approves the request for the interconnection at the Winner substation and not the Wessington Springs substation, the Wind Partners' proposed development could not proceed. Western could grant an interconnection for the original request which would allow the Proposed Project to be built, and deny the second interconnection request in which case, the Wind Partners' proposed development would not be constructed and the Proposed Project would be operated at its nameplate capacity of 151.5 MW.

Western's Tariff provides open access to its transmission system. If there is available capacity on the transmission system, Western provides transmission services through an interconnection. This interconnection request requires Federal action which triggers NEPA review. When

responding to the need for agency action, and subject to its NEPA review, Western is bound by the following:

- Providing Transmission Service – under Western's Tariff, Western offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff complies with the Federal Energy Regulatory Commission's (FERC) Final Orders which are intended to ensure non-discriminatory transmission system access. Western submitted revisions to its non-jurisdictional Tariff in January 2005 as to certain terms and for inclusion of the Large Generator Interconnection Procedures (LGIP) and a Large Generator Interconnection Agreement (LGIA). Both interconnection requests would be addressed under Western's LGIP. In March 2007, Western submitted another revision for certain terms and to incorporate the Small Generator Interconnection Procedures (SGIP) and a Small Generator Interconnection Agreement (SGIA). Final approval for these filings was received from FERC in September 2007. In September 2009 Western submitted yet another set of revisions to address FERC Order 890 requirements along with revisions to existing terms.
- Protecting Transmission System Reliability and Service to Existing Customers – Western must ensure that existing reliability and service is not degraded. Western's LGIP and SGIP provide for transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate the Proposed Project and ensure that they are in the project scope.

Rural Utilities Service

RUS is authorized to make loans and loan guarantees that finance the construction of electric distribution, transmission and generation facilities, including system improvements and replacements required to furnish and improve electric service in rural areas, as well as demand side management, energy conservation programs, and on-grid and off-grid renewable energy systems.

Basin Electric has requested financial assistance for the Proposed Project from RUS. RUS's proposed Federal action is to decide whether to provide financial assistance; accordingly, completing the NEPA review process is one requirement, along with other technical and financial considerations in processing Basin Electric's application. No financial assistance has been requested from RUS for the Wind Partners' proposed development.

The Rural Electrification Act of 1936, as amended, (7 U.S. Code [U.S.C.] 901 *et seq*.) (RE Act) generally authorizes the Secretary of Agriculture to make rural electrification and telephone loans, including specifying eligible borrowers, preferences, purposes, terms and conditions, security and self-liquidation requirements. The RE Act also authorizes the Secretary of Agriculture to assist borrowers that implement conservation and renewable energy programs.

RUS's agency action involves:

- Provide engineering reviews of the purpose and need, engineering feasibility and cost of the Proposed Project

- Ensure that the Proposed Project meets the borrower's requirements and prudent utility practices
- Evaluate the financial ability of the borrower to repay its potential financial obligation to RUS
- Review and study the alternatives to mitigate and improve transmission reliability issues
- Ensure that adequate transmission service and capacity are available to meet the Proposed Project needs
- Ensure that NEPA and other requirements and RUS Environmental Policies and Procedures are satisfied prior to taking a Federal action

U.S. Fish and Wildlife Service

The site alternatives are located within two USFWS Wetland Management District (WMD) administrative boundaries. The Huron WMD and Lake Andes WMD are responsible for administering and managing lands on which the USFWS has acquired a property interest. Both the Huron and Lake Andes WMDs are responsible for addressing the potential impacts to USFWS lands within the site alternative areas. Additionally, the USFWS works with agencies and other partners to conserve wetlands, migratory birds, and Federally listed threatened/ endangered wildlife by administering the Fish and Wildlife Coordination Act, Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712), Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (ESA) (7 U.S.C. 136; 16 U.S.C. 460 *et seq.).*

S.3 BASIN ELECTRIC'S PURPOSE AND NEED

Public policy regarding the electric industry has increasingly focused on the carbon intensity of the resources commonly used to generate electricity. As a result, incentives and regulations to encourage or require the generation of power from renewable or low-environmental-impact resources are being actively considered and/or implemented within the Basin Electric member service areas. At the same time, a number of proposals for national Renewable Portfolio Standards (RPS) are pending in Congress. With members in nine States, Basin Electric recognizes the need for additional renewable energy capacity to service forecasted member load-growth demands and to meet State mandated RPS. A wind project of 151.5 MW was determined to be the best available, least-cost renewable resource option to satisfy future load and RPS requirements.

Basin Electric membership passed a resolution at their 2005 annual meeting that established a goal to "obtain renewable or environmentally benign resources equal to 10 percent of the MW capacity needed to meet its member demand by 2010." This Proposed Project would provide an opportunity for Basin Electric to meet that goal.

S.4 WIND PARTNERS' PURPOSE AND NEED

The concept underlying the Wind Partners' proposed development is to enable local community involvement and investment in wind projects. The proposed development would also help meet the State of South Dakota's voluntary Renewable Energy Objectives (REOs) of 10 percent by 2015.

S.5 PUBLIC PARTICIPATION

Western and RUS employed various methods to provide information to the public and solicit input. The Agencies invited Federal, State, local and tribal governments; Basin Electric; and other interested persons and groups to participate in defining the scope of the EIS. Venues for participation included two scoping meetings and one interagency meeting. In addition to receiving comments at meetings, the Agencies invited interested individuals to submit written comments via mail, fax, e-mail and/or the project website.

Notice of Intent

The "Notice of Intent to Prepare an Environmental Impact Statement and to Conduct Scoping Meetings; Notice of Floodplain and Wetlands Involvement" was published in the *Federal Register* ([FR] 74 FR 15718) on April 7, 2009. The Notice of Intent (NOI) included information on the Proposed Project, agency actions, times and locations for the April 28 and April 29, 2009 scoping meetings, and contact information for questions pertaining to the Proposed Project.

Paid advertisements announcing the public scoping meetings were published in *Indian Country Today*, *Mitchell Daily Republic*, *Plankinton South Dakota Mail*, and the *Winner Advocate*. *Indian Country Today* is a national, Native American interest publication, while the others are local newspapers.

In addition, Western and RUS mailed post card scoping notices and letters in April, 2009 to over 4,000 potentially interested persons. The mailing list included Federal, State and local agencies; elected officials; Native American tribes; members of the public; and addresses within seven miles of the Proposed Project alternatives.

Scoping Meetings

Two scoping meetings were hosted by Western and RUS during the public scoping process. The scoping meetings were held using an open-house format to allow for an informal one-on-one exchange of information. Scoping meeting handouts included a copy of the FR NOI, project fact sheet, scoping process information sheet, comment form and a DOE NEPA brochure. Large-scale aerial photographs illustrating the Proposed Project alternatives were presented to facilitate identification of issues and alternatives. Additional large-scale poster boards included: a South Dakota wind resource map; an EIS process and timeline graphic; the agencies' Federal Action boards; and turbine and transmission line siting parameters. A station was set up at the meetings with a looping PowerPoint presentation to provide an opportunity for individuals to sit and view Proposed Project information and follow along with a print out of the presentation slides. The same information was available at each meeting. All information presented at the meetings is available on the project website: http://www.wapa.gov/transmission/sdprairiewinds.htm. **Table S.1** lists the scoping meeting locations, dates, times and attendance.

Table S.1 Public Scoping Meetings

Location	Date	Time	Attendance
Winner, SD	April 28, 2009	4 - 7 p.m.	88
Plankinton, SD	April 29, 2009	4 - 7 p.m.	81
Total			169

Interagency Meeting

On April 28, 2009, Western and RUS hosted an interagency meeting at the Best Western Ramkota Hotel, in Pierre, South Dakota, from 9 a.m. to 11 a.m. to encourage Federal, State and local agencies to participate in defining the scope of the EIS. Proposed Project-specific information was presented at the meeting followed by a group discussion. Fourteen agencies attended the meeting.

Scoping Comments

Comments were used to define the scope of the EIS. Comments received during scoping are summarized in **Appendix A** of the FEIS.

Notice of Availability

The "Environmental Impact Statements, Notice of Availability" was published in the *Federal Register* (75 FR 2540) on January15, 2010. The Notice of Availability (NOA) provided information on the Proposed Project, locations, and point of contact for the Proposed Project.

Paid advertisements announcing information on the Proposed Project; agency actions; times and locations for the February 11, 2010, open house and public hearing; locations for public review of the DEIS; and contact information for questions pertaining to the Proposed Project were published in *Indian Country Today*, *Mitchell Daily Republic*, *Plankinton South Dakota Mail*, and the *Winner Advocate*.

In addition, Western and RUS mailed open house /public hearing notice post cards, DEIS request forms, and letters in January 2010 to over 7,000 potentially interested persons. The mailing list included Federal, State and local agencies; elected officials; Native American tribes; members of the public; and addresses within seven miles of the Proposed Project alternatives.

Open House and Public Hearing

Western and RUS hosted an open house and public hearing on February 11, 2010, at Cozard Memorial Library, in Chamberlain, South Dakota. The open-house was held from 4 p.m. to 5 p.m. and allowed for an informal one-on-one exchange of information. Open house handouts included a fact sheet for the Wind Partners' proposed development and a comment form. Large-scale poster boards included: a map depicting the site alternatives, a South Dakota wind resource map; an EIS process and timeline graphic; the agencies' Federal Action boards; and turbine and transmission line siting parameters. Additionally, copies of the DEIS and the executive summary were available. The public hearing was held from 5 p.m. to 7 p.m. During the public hearing, information on the Proposed Project, the Wind Partners' proposed development and Agency actions was provided. In addition, a court reporter was available and members of the public were given an opportunity to provide feedback on the draft environmental findings and alternatives for

inclusion in the EIS. Fifteen individuals attended the open house and public hearing; the court reporter transcribed comments from three individuals.

DEIS Interagency Meeting

On February 11, 2010, Western and RUS hosted an interagency meeting at the Rawlins Municipal Library, in Pierre, South Dakota; from 10 a.m. to 12 p.m. to encourage Federal, State and local agencies to discuss project components and provide feedback on the draft environmental findings and alternatives. Proposed Project-specific information was presented at the meeting followed by a group discussion. Thirteen representatives from seven different agencies attended the meeting.

DEIS Comments

The public review period of the DEIS commenced on January 15, 2010, and closed on March 1, 2010. The Agencies received 33 comment letters (via public hearing, fax, mail and e-mail) on the DEIS. Substantive, factual, and editorial comments were incorporated and addressed in the FEIS; other comments not affecting the substance of the document have been noted. A guide for comment and response location, the comment and response tracking table, copies of written comments and hearing transcripts are included in **Appendix F** of the FEIS.

S.6 ALTERNATIVES

Prior to submitting the interconnection request and financing request for the Proposed Project, Basin Electric conducted a screening process to analyze types of generation and possible alternatives. The *PrairieWinds – SD 1 Alternative Evaluation Analysis and Site Selection Study*, was completed in January of 2009. As a result of Basin Electric's screening process, two alternatives, Crow Lake and Winner, appeared favorable for development of a wind-powered generation facility (see **Figure S.1** for general location). The alternative sites were presented at scoping meetings and the interagency meeting to provide a basis for discussing the scope of the EIS. No additional alternatives were identified in response to public issues or concerns. The alternatives under evaluation in the EIS include the Crow Lake Alternative, Winner Alternative, and No Action Alternative.

Regardless of location, the Proposed Project would include wind turbine generators, an operations and maintenance building and fence perimeter, underground communication system and electrical collector lines (within the same trench), collector substation and microwave tower, overhead transmission line, temporary equipment/material storage or lay-down areas, temporary batch plant, crane walks, and new and/or upgraded service roads to access the facilities.

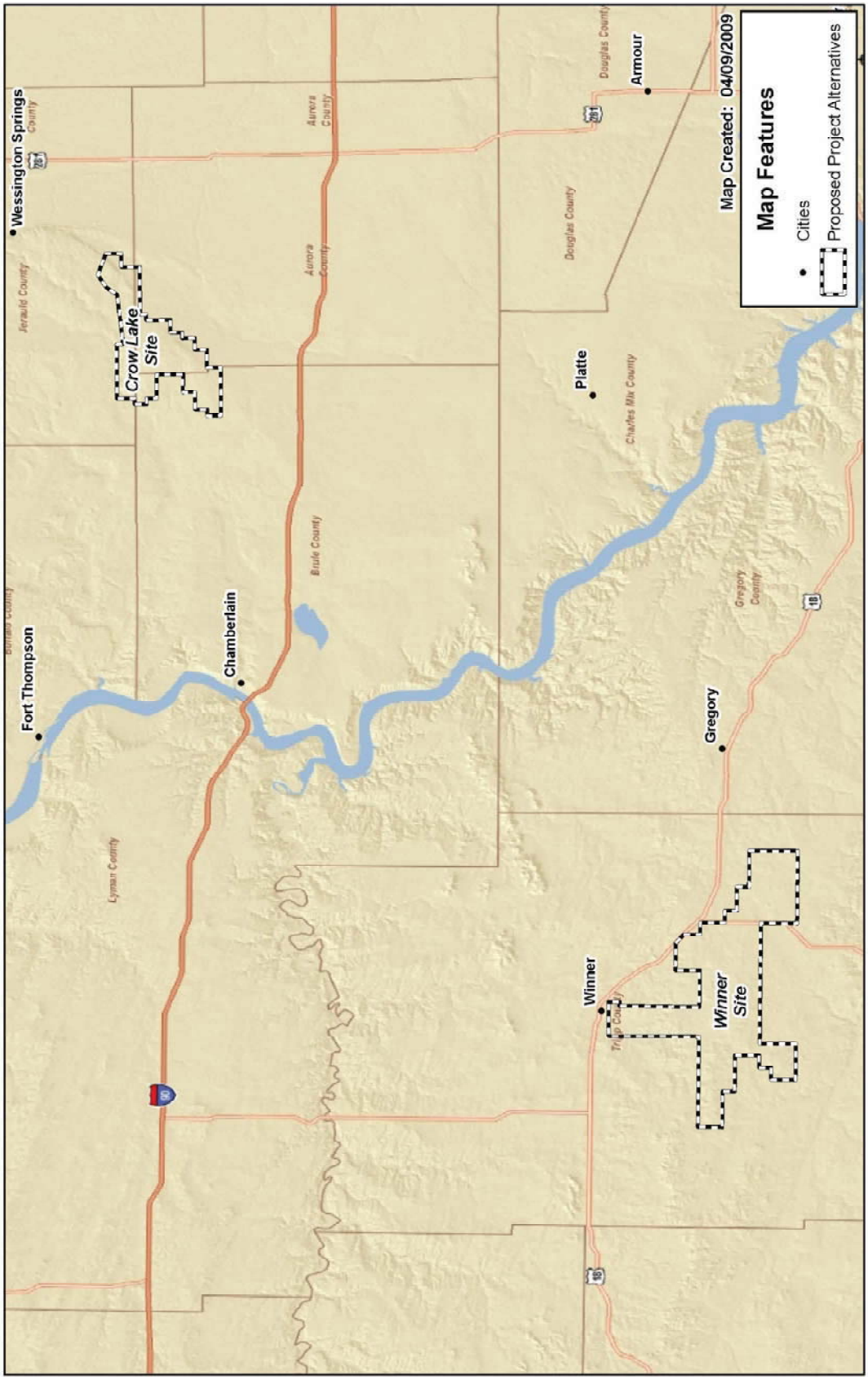

Figure S.1 Proposed Project Alternatives

The Proposed Project would involve the installation and operation of a 151.5-MW nameplate capacity wind-powered energy generation facility that would feature 101 wind turbine generators. Each turbine would have a hub height of 262 feet and a rotor diameter of 252 feet. The total height of each wind turbine would be 389 feet with a blade in the vertical position. The towers would be constructed of tubular steel, approximately 15 feet in diameter at the base, with internal joint flanges. The color of the towers and rotors would be standard white or off-white. During construction, a work/staging area at each turbine would include the crane pad and rotor assembly area, temporarily disturbing an area of approximately 500 feet by 500 feet; and permanently disturbing a 25-foot radius around each turbine.

Ten additional turbine locations were identified and analyzed in the DEIS. These turbines were initially analyzed as contingent turbine locations for the Proposed Project in case specific turbine locations were eliminated as a result of additional resource surveys and engineering siting; or to be installed within the selected site at a later date, pending future load, transmission availability, and renewable production standard requirements. At this time, for the Crow Lake Alternative only, seven of these contingent turbine locations are proposed by the Wind Partners. The Wind Partners' proposed development would have a nameplate capacity of 10.5 MW.

Each wind turbine would be connected by a service road for access and a 34.5-kilovolt (kV) underground electrical collection system that would ultimately route the power from each turbine to a collector substation, where voltage would be increased for interconnection to Western's transmission system. New access roads would be built to facilitate both constructing and maintaining the turbines. Existing roads would be used and, where appropriate, improved. The communication system would be located within the same trenches as the underground collector system. The underground collector system, collector substation, transmission line, and access roads are further described within each alternative discussion below.

Crow Lake Alternative

The proposed Crow Lake Alternative would involve installing wind turbines on 131 acres within an approximately 36,000-acre area. This Proposed Project area is approximately 15 miles north of White Lake, and 17 miles southwest of Wessington Springs, South Dakota, within Brule, Aurora, and Jerauld counties. For this alternative, the requested interconnection to Western's electric transmission system is at the Wessington Springs Substation, in Jerauld County, South Dakota.

Each wind turbine would be interconnected with underground power and communication cables, called the collector system. The Crow Lake Alternative would require approximately 64 miles of underground collector system, one 34.5-kV to 230-kV collector substation, as well as a 230-kV transmission line to interconnect to a new 230-kV interconnection point at Western's existing Wessington Springs Substation. The Wessington Springs Substation is located a straight-line distance of approximately 9 miles from the proposed collector substation; the transmission line length would be approximately 11 miles. The proposed transmission line would be built using steel single-pole structures. The structures would be between 75 to 85 feet high with a span of about 800 feet. In addition, this alternative would require approximately 44 miles of new wind turbine access roads to be built and 37 miles of existing roads would be used and, where appropriate, improved.

For the Crow Lake Alternative only, eight of the 64 miles of underground collector system would be required to interconnect the Wind Partners' proposed development to the collector substation. In addition, four of the 44 miles of new wind turbine access roads would be required for the Wind Partners' proposed development.

The Wind Partners' proposed development applies only to the Crow Lake Alternative. The Wind Partners' proposed development is dependent upon Basin Electric's Proposed Project. If Western denies Basin Electric's request for an interconnection for Basin Electric's Proposed Project, the Wind Partners' proposed development could not proceed. Western could grant an interconnection for the Proposed Project and deny the interconnection request for the Wind Partners' proposed development.

Winner Alternative

The Winner Alternative would involve installing wind turbines on 261 acres within an area of approximately 83,000 acres. This proposed project area is within Tripp County, approximately eight miles south of Winner, South Dakota. For this alternative, the requested interconnection to Western's electric transmission system is at the Winner Substation, in Tripp County.

The Winner Alternative would require approximately 108 miles of underground collector system, one 34.5-kV to 115-kV collector substation, as well as a 115-kV transmission line to interconnect to a new 115-kV interconnection point at Western's existing Winner Substation. The Winner Substation is approximately 9 miles from the proposed collector substation. Depending on route, the proposed transmission line would be approximately 10 to 11 miles long. The proposed transmission line would be built using steel single-pole structures. The structures would be between 85 and 95 feet high with a span of about 800 feet. In addition, this alternative would require approximately 46 miles of new wind turbine access roads to be built and 71 miles of existing roads would be used and where appropriate, improved.

No Action Alternative

Under the No Action Alternative, Western would not approve an interconnection request(s) and/or RUS would not approve financing for the Proposed Project. For the purpose of impact analysis and comparison in this FEIS, it is assumed that the Proposed Project (and Wind Partners' proposed development as it pertains to the Crow Lake Alternative) would not be built and that the environmental impacts associated with construction and operation of the Proposed Project would not occur.

S.7 IMPACTS

Table S.2 presents a summary of the impacts for each of the alternatives discussed in the FEIS. Where impacts for each of the alternatives would be the same, the impact discussions within the table have been combined and the summary information has been stated once; differences in impacts between the alternatives are provided in a side-by-side comparison. Significance criteria were only developed for potential impacts identified as issues during the EIS scoping process and were based on scientific information, statute, or in response to public concern. Additional potential impacts are also addressed as described in **Table S.2**.

The term "Applicants" refers to Basin Electric and, for the Crow Lake Alternative, includes Wind Partners. The Applicants and Agencies have included Best Management Practices (BMPs) and Applicants' Proposed Measures (APMs), by resource area and as applicable, for the Proposed Project, Wind Partners' proposed development and Federal actions to minimize impacts associated with construction, operation and decommissioning. The Applicants and Agencies have committed to these included BMPs and APMs prior to the evaluation of environmental impacts (see **Table 2.2** and **Table 2.3** for a summary of these measures).

Critical Elements of the Human Environment, as defined and specified in statutes and Executive Orders that could be impacted by the Proposed Project, Wind Partners' proposed development and proposed Federal actions include:

- Geology and soils
- Water resources
- Climate change and air quality
- Biological resources
- Cultural resources
- Land use
- Transportation
- Visual resources
- Noise
- Socioeconomics
- Environmental justice
- Health and safety

Critical Elements of the Human Environment that would not be affected are listed below, followed by the justification for dismissal of these elements from further discussion.

Paleontology – Investigations of publicly available maps and local geology did not identify paleontological resource sites in the Proposed Project area. The glacial till and outwash deposits that compose the majority of the surface soils in the area are unlikely to contain fossils.

Wild and Scenic Rivers – Review of the U.S. Department of Interior, National Park Service (NPS) Website indicates that there are no Federally-designated Wild and Scenic Rivers in South Dakota (NPS 2004).

Wilderness – There are no Federally-designated wilderness areas near the Proposed Project alternatives.

The original analysis in the DEIS was conservative and included the evaluation of 10 contingent turbines and associated facilities. At this time, seven of the contingent turbine locations for the Crow Lake Alternative represent the Wind Partners' proposed development (see **Section 2.3.1 and Table 2.4**); therefore, the Wind Partners' proposed development was addressed in the DEIS analysis. As such, the Wind Partners' proposed development represents an increment of the impact described for the Crow Lake Alternative for all resources.

The Wind Partners' proposed development would be constructed within the boundaries of the Crow Lake Alternative and share many of the components described for the Proposed Project. For the Crow Lake Alternative, the term "Proposed Project Components" includes the Wind Partners' proposed development.

S.8 PREFERRED ALTERNATIVE

Table S.2 provides a summary of the impacts by resource type. **FEIS Table 2.4** summarizes the anticipated estimated surface disturbance areas (both temporary and permanent) associated with the Proposed Project Components for each of the action alternatives (note that the No Action Alternative would not result in surface disturbances). **FEIS Chapter 4** provides the detailed impact analysis for each alternative.

Western's Preferred Alternative: Western's Tariff provides open access to its transmission system. If there is available capacity in the transmission system, Western provides transmission services through an interconnection. Transmission studies completed for the Crow Lake Alternative demonstrate that transmission capacity is available for the Proposed Project through an interconnection at Western's existing Wessington Springs Substation without the need to expand the substation. Facility expansion may be required at Western's Winner Substation to accommodate interconnecting the Winner Alternative. Since transmission capacity is available for the Crow Lake Alternative and transmission studies have demonstrated that system reliability and service to existing customers would not be jeopardized, and taking into account the environmental impacts, the interconnection at Western's Wessington Springs Substation is Western's preferred alternative.

RUS's Preferred Alternative: The RE Act authorizes the Secretary of Agriculture to make loans to eligible rural electric and telephone borrowers for electric and telecommunications infrastructure as well as assisting borrowers that implement conservation and renewable energy programs. RUS has reviewed the Proposed Project, alternatives and their anticipated impacts in relation to Basin Electric's renewable portfolio and prudent utility practices. Based on the analyses, the construction of wind generation at the Crow Lake Alternative would result in fewer environmental impacts than the Winner Alternative and would meet Basin Electric's purpose and need. Therefore, RUS's preferred alternative is the construction of a wind farm at the Crow Lake Alternative.

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Geology and soils	**Soils – Crow Lake Alternative** Temporary impact: 1,006 acres Permanent impact: 190 acres Soils in the Crow Lake Alternative are considered by Natural Resources Conservation Service (NRCS) to have a slight to moderate risk of erosion.	**Soils – Winner Alternative** Temporary impact: 3,188 acres Permanent impact: 261 acres Soils in the Winner Alternative are considered by NRCS to have a slight risk of erosion.	No impact.
	For either site alternative, during construction, existing vegetation would be removed in the areas associated with the Proposed Project Components, potentially increasing the risk of erosion. Once vegetation is removed in the vicinity of the construction areas, soils would be excavated to achieve necessary grades and put into stockpiles. Construction would be conducted in compliance with the Applicants' and Agencies' included BMPs, the APMs and a Storm Water Pollution Prevention Plan (SWPPP) to minimize potential impacts to soils from erosion. Geotechnical investigations would identify the stability of the soils and underlying geology to assist with turbine placement, design of foundations and specification of drainage controls. For either site alternative, staging and construction activities would require sand and gravel resources. Sand and gravel resources are located in the vicinity. For the Proposed Project, each turbine base would use approximately 320 cubic yards of concrete, encompassing approximately 33,000 cubic yards total, and would require approximately 46,200 tons of sand and gravel. This amount is less than half of one percent of the sand and gravel annually generated within South Dakota. There could also be potential for additional gravel to be used for road improvements. Use of these resources for the construction activities would not deplete the availability and supply of sand and gravel. For the aforementioned reasons, regardless of which transmission line alternative would be selected, the Proposed Project Components would result in minimal erosion and would not cause long-term impacts to geology, soils, or water resources; thus, the impacts would be less than significant. Western's system modifications would be short-term in duration and confined to a previously disturbed and graded area. Impacts to soils would be less than significant.		

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Water resources	A wetland delineation has been conducted for the preferred alternative (the Crow Lake Alternative, Proposed Project only), in accordance with USACE standard protocols. A wetland delineation would be conducted for the Wind Partners' proposed development, prior to the start of construction, in accordance with USACE standard protocols to identify wetlands. Construction activities would avoid wetlands such that there would be no direct impacts from Proposed Project Components. If final engineering results in layout modifications, then additional delineations would be performed within the final impact areas to identify wetlands that would require minor re-routes such that wetlands would be avoided. Although not anticipated, if impacts to wetlands (including jurisdictional WUS [collectively termed "wetlands"]) are unavoidable, then the Applicants would obtain a section 404 Permit through the USACE. Wetland delineations were not completed for the Winner Alternative because this alternative was not chosen as the preferred alternative; however, if the Federal actions are approved for the Winner Alternative, delineations would be completed after final design. As detailed in the included BMPs and APMs, further coordination would occur between the Applicants and the USACE to avoid and minimize potential impacts to wetlands. As necessary, the Applicants would obtain the necessary permit(s) under Section 404 of the CWA prior to construction; permits may not be acquired before the completion of the EIS. Potential permanent impacts to wetlands would be less than significant in accordance with USACE requirements for each of the alternatives. Wetlands within USFWS easements on private property are under USFWS jurisdiction. As detailed in the included BMPs and APMs, the Applicants would locate the Proposed Project Components to avoid wetlands; if wetlands cannot be avoided, the Applicants would work with the USFWS and/or USACE to obtain permits and minimize impacts. Therefore, impacts to wetlands would be less than significant. The majority of both temporary and permanent disturbances would be on land currently used for rangeland and agriculture and on soils with low representative slopes. However, the excavation and exposure of soil during construction of the Proposed Project Components could cause sediment runoff during rain events. Implementation of the included BMPs and APMs would ensure that potential impacts to surface water flows, drainage patterns, stream channel morphology, quantity and quality are less than significant during construction, operation and decommissioning activities. On-site or off-site flooding would not result from construction, operation or decommissioning of the Proposed Project. Flood hazard zones have not been identified in the Proposed Project areas; as needed, the final engineering design would evaluate site conditions, and the included BMPs and APMs would be implemented to address potential flooding. Thus, development of the Proposed Project would result in less than significant impacts to floodplains. If shallow groundwater is encountered during construction or decommissioning, the Applicants would acquire a Dewatering Permit from the Department of Environment and Natural Resources (DENR). Water extraction during potential dewatering operations would be conducted in a manner to protect water quality, and would be of minimal volume. Potential effects on groundwater would be isolated and small-scale, resulting in short-term, localized water table depressions that would not remain following construction or decommissioning. Thus, development of the Proposed Project would result in less than significant impacts to water supplies. Development of the Western system modifications at either of the existing Western substations (Wessington Springs or Winner) would not result in any impacts to water resources since drainage from the sites are controlled by the sites' SWPPPs and BMPs. Because Western's substations are already in operation, groundwater is not expected to be encountered during foundation excavation activities. If groundwater is encountered, Western would address this in accordance with the included BMPs and other regulatory requirements.		No impact.

Table S.2 Impact Summary by Alternative

<table>
<tr><th>Resource</th><th>Crow Lake Alternative</th><th>Winner Alternative</th><th>No Action Alternative</th></tr>
<tr><td>Climate change and air quality</td><td colspan="2">The Proposed Project and Wind Partners' proposed development would offset emission sources when compared to similarly-sized electric generating facilities using carbon-based fuel sources. It is estimated that the Proposed Project Components would avoid 726,600 metric tons of CO_2 emissions per year compared to fossil-fueled generating stations employed in South Dakota. Wind power generates electricity without air emissions, including carbon dioxide.
For either site alternative, fugitive dust from construction and vehicle emissions would be generated during construction, decommissioning, and maintenance of the Proposed Project Components and proposed Federal actions.
Applicants would use the included BMPs and APMs during construction to minimize impacts. Developing the Proposed Project Components would not result in a violation of any local, State, or Federal air quality standard. Impacts would be temporary, minor, and would not affect long-term air quality; and would therefore result in less than significant impacts.
SF_6 breakers would be installed at Western's Wessington Springs Substation or Winner Substation to accommodate the interconnection. During operation of the new substation additions, authorized Western personnel would conduct periodic inspections and service equipment as needed; including storage and replacement of SF_6 to minimize any releases to the environment. Western's system modifications would incorporate dust abatement measures and other BMPs, and APMs; therefore, impacts to air quality from fugitive dust would be less than significant.</td><td>No impact.</td></tr>
<tr><td>Biological resources</td><td colspan="2">Note: The impacts presented in the biological resources sub-sections have been identified regardless of which transmission line alternative would be selected. Also, see the land use discussion in this table for grassland and wetland easement impact summary.
Vegetation
<table>
<tr><th>Vegetation Type</th><th>Crow Lake Alternative Total Temporary Disturbance (acres)</th><th>Crow Lake Alternative Total Permanent Disturbance (acres)</th><th>Winner Alternative Total Temporary Disturbance (acres)</th><th>Winner Alternative Total Permanent Disturbance (acres)</th></tr>
<tr><td>Mixed-grass prairie</td><td>691</td><td>141</td><td>2,314</td><td>184</td></tr>
<tr><td>Cropland</td><td>306</td><td>46</td><td>741</td><td>62</td></tr>
<tr><td>Wetlands</td><td>0</td><td>0</td><td>16</td><td>1.8</td></tr>
<tr><td>Farmstead</td><td>2</td><td>1</td><td>63</td><td>8.2</td></tr>
<tr><td>Shelterbelt</td><td>3</td><td>1</td><td>31</td><td>3.6</td></tr>
<tr><td>Deciduous forest</td><td>2</td><td>1</td><td>22</td><td>0.9</td></tr>
<tr><td>Total area</td><td>1,006</td><td>190</td><td>3,187</td><td>261</td></tr>
</table>
Note: Discrepancy in total values is due to exclusion of mine/quarry land use and rounding.
The area of impact for the Winner Alternative would be nearly double that for the Crow Lake Alternative, mainly due to the need for more access roads, longer underground collection lines, and more crane walks. However, because the footprint of the Proposed Project Components is relatively small compared with the overall size of both of the Proposed</td><td>No impact.</td></tr>
</table>

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Biological resources *(continued)*	Project areas and much of the area is tilled annually for agricultural production, direct impacts to vegetation would be minimal and would not affect the biological viability of a local, regional or national population of plant species. Wetland delineations would be completed and facilities would be moved based on the results of the delineations such that wetland impacts are minimized or avoided. If the Applicants cannot avoid wetland impacts, a Section 404 permit under the CWA would be obtained through the USACE. State law requires that listed weeds be controlled by the landowner, and the Applicants would comply with local and State requirements for noxious weed control during Proposed Project Components construction. For these reasons, impacts to vegetation resources would be less than significant. **Wildlife** *Mammals (excluding bats)* Noise, excavation and other forms of disturbance during construction would likely temporarily displace wildlife species within or adjacent to the disturbed areas. The risk for direct mortality of species resulting from construction activities or vehicle collision is limited. Upon completion of construction, many wildlife species would become accustomed to operation and maintenance activities and would be expected to resume use of either alternative (refer to impact analysis in Chapter 4). The spacing of turbines and access roads would contribute to habitat fragmentation in the Proposed Project area and may be higher at the Winner Alternative because of the need for more access roads; though, the Winner Alternative mixed-grass prairie ecosystem is currently relatively fragmented, mainly due to the presence of cropland and roads, although it is more intact than the Crow Lake Alternative. The Winner Alterative would result in a greater number of acres of habitat disturbed than the Crow Lake Alternative; however, the acres of habitat permanently disturbed for either alternative represent a relatively small amount of habitat available regionally. This small loss of habitat would not disrupt breeding, rearing or wintering behavior and would not influence the viability of local populations. Permanent vegetation loss would destroy small mammal habitat, but population level effects would be negligible (refer to impact analysis in Chapter 4). For the reasons described above, impacts would not affect the biological viability of a local, regional, or national population of wildlife species. The Proposed Project and proposed Federal actions would not violate Federal or State wildlife conservation policy. Therefore impacts to mammals would be less than significant. *Bats* Bat mortality from collisions with turbines would likely occur. However, some researchers have concluded that observed mortality rates do not have population-level effects, and no significant difference has been noted in mortality rates at lit and unlit turbines. Preliminary data from bat call studies in 2009 indicate low bat activity in the Crow Lake Alternative and Winner Alternative; therefore, the frequency of collisions may be low based on recently collected bat data. For these reasons, impacts would not affect the biological viability of a local, regional, or national population of bat species. The Proposed Project and proposed Federal actions would not violate Federal or State wildlife conservation policy. Therefore impacts to bats would be less than significant. *Reptiles/Amphibians* Impacts to reptiles and amphibians would be similar to those described for mammals, although they are not as mobile as many mammals. Activities associated with construction, operation and decommissioning could result in the direct mortality of reptiles and amphibians if they are not able to move away from equipment and other vehicles. These impacts		

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Biological resources *(continued)*	would be less than significant based on the small amount of habitat that would be temporarily and permanently removed and the low likelihood for direct mortality of individuals. For these reasons, impacts would not affect the biological viability of a local, regional, or national population of reptile or amphibian species (refer to impact analysis in Chapter 4). The Proposed Project and proposed Federal actions would not violate Federal or State wildlife law. Therefore impacts to reptiles and amphibians would be less than significant. *Birds* Baseline migratory and breeding bird surveys have been initiated to assess pre-construction avian abundance and habitat use in the Crow Lake Alternative and Winner Alternative. The results of these surveys were included in the impact assessment for determining possible impacts to avian species. Construction impacts common to all avian species include direct mortality, habitat alteration (fragmentation) or loss, and disturbance related to noise and increased human presence resulting in displacement of individual birds. Construction noise and associated human activity could temporarily disturb or displace individual birds, and may interfere with migrating, foraging, breeding, and nesting. Studies have suggested that noise from construction and human activities disturb upland bird species, displacing birds from traditional habitats, reducing use of leks, and causing nest abandonment. Disturbance would be limited to the duration of construction activities. Construction-related disturbance would be limited to a single migratory (both spring and fall) and breeding-nesting season; however, survival and reproductive success would be temporally reduced. With the included BMPs and APMs, construction impacts would not affect the biological viability of a local, regional, or national population of bird species. The Proposed Project and proposed Federal actions would violate the Federal MBTA but would not violate State wildlife laws. With the included BMPs, APMs, Operations and Monitoring Plan (OMP), and habitat offsets, construction impacts to birds would be less than significant. The types of impacts to birds associated with operation and maintenance of the Proposed Project are similar to those described for construction activities, although several mechanisms are different. Bird fatalities resulting from collisions with turbines have been documented at most operational wind farms and have involved a variety of bird species, including passerines, raptors, waterfowl, and shorebirds. Data indicate bird vulnerability to collisions with turbines is species-specific, habitat-specific, and facility-specific, with morality rates being related to the number of turbines. Other factors that influence avian mortality include the arrangement of turbines (*i.e.*, end turbines have higher collision rates), proximity to migration corridors and rim edges, structure type (*e.g.*, lattice structures provide perches within the Rotor Sweep Area), tower height (*i.e.*, blades are closer to the ground on shorter turbines), conditions that reduce visibility (*i.e.*, fog), and attractants such as abundant prey resources and certain Federal Aviation Administration (FAA) marker lights. While Proposed Project design would reduce fatalities, avian mortality would occur as a result of the Proposed Project. With the included BMPs, APMs, OMP, and habitat offsets, operation and maintenance impacts would not affect the biological viability of a local, regional, or national population of bird species. The MBTA would be violated; however, based on the anticipated low level of mortality, impacts to birds would be less than significant. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the project, bird fatalities are expected to be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations (refer to impact analysis in Chapter 4).		

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Biological resources *(continued)*	**Special Status Species – Crow Lake Alternative** *Federal-listed Species* Suitable habitat for the whooping crane in the Crow Lake Alternative includes stop over, roosting and foraging habitats. The Crow Lake Alternative is within the Aransas-Wood Buffalo Population migration corridor. The Biological Assessment (BA) determined that implementation of this alternative "may affect, is likely to adversely affect" whooping crane. Western and RUS will follow USFWS conditions provided in the Biological Opinion issued by USFWS. Direct impacts on the Topeka shiner would not occur because turbines would be placed in upland areas. With adherence to the included BMPs and APMs, the Proposed Project would not result in a long-term loss of habitat resulting in jeopardizing the continued existence of the Topeka shiner, would not violate the ESA, and would not result in take of a protected species. The BA determined that implementation of this alternative would have "no effect" on Topeka shiner. For these reasons, impacts to Topeka shiners would be less than significant. Based on the low likelihood for occurrence of piping plovers and the lack of suitable habitat, the Proposed Project would not result in a long-term loss of habitat resulting in jeopardizing its continued existence, would not violate the ESA, and would not result in take of the species. The BA determined that implementation of this alternative "may affect, is not likely to adversely affect" piping plover. Therefore, impacts to piping plovers would be less than significant. *State-listed Species* The bald eagle may occur in the Crow Lake Alternative during winter months as a transient resident. With the included BMPs and APMs, impacts would be less than significant. If an eagle take occurs, the BGEPA and MBTA would be violated. In that case, consultation and mitigation of take with the USFWS would be required; however, impacts to bald eagle would be less than	**Special Status Species – Winner Alternative** *Federal-listed Species* Suitable habitat for the whooping crane in the Winner Alternative includes stop over, roosting, and foraging habitats. The Winner Alternative is within the Aransas-Wood Buffalo Population migration corridor. Impacts to whooping cranes would be similar to those described for the Crow Lake Alternative. If the Federal actions for the Winner Alternative are approved, Section 7 consultation would be reinitiated in order to further analyze impacts to this species. Suitable habitat for the American burying beetle occurs within most of the Winner Alternative and the beetle has been documented in the area. Population level impacts could occur with implementation of the Winner Alternative. If the Federal actions for the Winner Alternative are approved, Section 7 consultation would be reinitiated in order to further analyze impacts to this species. *State-listed Species* The bald eagle occurs in the Winner Alternative during winter months as a transient resident. With the included BMPs and APMs, impacts would be less than significant. If an eagle take occurs, the BGEPA and MBTA would be violated. In that case, consultation and mitigation of take with the USFWS would be required; however, impacts to bald eagle would be less than significant based on the anticipated low level of mortality. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the BGEPA and MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the Winner Alternative, bald eagle fatalities are not expected or would be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations. The peregrine falcon occurs in the Winner Alternative during winter months as a transient resident. With the included BMPs and APMs, the new transmission line would be marked with line marking devices. Impacts would be less than	

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Biological resources *(continued)*	significant based on the anticipated low level of mortality. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the BGEPA and MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the Crow Lake Alternative, bald eagle fatalities are not expected or would be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations. *State and Federal Species of Concern* Potential impacts to bird species would be similar as described above in the **Wildlife**, *Birds* section of the table and would be reduced through implementation of the included BMPs and APMs, OMP (WEST 2010), and habitat offsets for protection of grassland habitat (Plank 2010). The MBTA would be violated; however, based on the anticipated low level of mortality, impacts to grassland birds would be less than significant. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the Crow Lake Alternative, bird fatalities are expected to be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations. Impacts to invertebrates would be less than significant because the Proposed Project would not affect the biological viability of a local, regional, or national population of invertebrate species resulting in the increase in severity of listing status.	significant. If a falcon take occurs, the MBTA would be violated; however, impacts to peregrine falcons would be less than significant based on the anticipated low level of mortality. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the Winner Alternative, peregrine falcon fatalities are not expected or would be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations. Direct impacts on fish species would be unlikely because turbines would be placed in upland areas. With adherence to the included BMPs and APMs, the Proposed Project would not result in a long-term loss of habitat resulting in the listing or jeopardizing the continued existence of a fish species and would not violate SDCL 34A-8. For these reasons, impacts to fish species would be less than significant. *State and Federal Species of Concern* Potential impacts to bird species would be similar as described above in the **Wildlife**, *Birds* section of the table. and would be reduced through implementation of the included BMPs and APMs, OMP (WEST 2010), and habitat offsets for protection of grassland habitat (Plank 2010). The MBTA would be violated; however, based on the anticipated low level of mortality, impacts to grassland birds would be less than significant. This reasoning is based on the fact that all wind facilities result in bird fatalities and therefore violate the MBTA; however, fatality rates differ at all facilities and some are higher than others. Based on existing avian use data from the Crow Lake Alternative, bird fatalities are expected to be low compared with other wind facilities around the United States and are therefore not expected to affect the viability of local, regional, or national populations. Potential impacts to mammal species would be similar as described above in the **Wildlife**, *Mammals* section of the table. Potential impacts to reptile and amphibian species would be similar as described above in the **Wildlife**,	

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Biological resources *(continued)*		*Reptiles/Amphibians* section of the table. Impacts to mammals, fish, amphibians, reptiles, and invertebrates would be less than significant because the Proposed Project would not affect the biological viability of a local, regional, or national population of mammal, fish, amphibian, reptile, or invertebrate species resulting in the increase in severity of listing status.	
Cultural resources	A qualitative approach has been developed that incorporated factors that are strong predictors of cultural resources, including climatic zone, slope, access, and water sources to predict site types and densities. Areas within the alternatives are rated as high, moderate or low sensitivity. Agricultural lands are rated low to moderate for site sensitivity and potential to encounter sites. Prairie lands are rated high for site sensitivity and potential to encounter sites. A portion of the Crow Lake Alternative and the majority of the Winner Alternative would be located on rangeland and agricultural lands, where site sensitivity and potential to encounter sites would be low to moderate as surface cultural resources may have already been disturbed. Earthmoving activities, such as grading and digging, have the highest potential for disturbing or destroying substantial cultural resources; however, pedestrian, animal, and vehicular traffic and indirect impacts of earthmoving activities, such as soil erosion, could also have an effect. The construction and decommissioning of the infrastructure necessary for wind-powered facilities has the greatest potential to impact subsurface cultural resources because of the increased ground disturbance during these phases. Potential impacts to cultural resources, such as prehistoric properties, historic properties, and cultural landscapes, were identified in the results of the Class III Survey, survey of historic architectural properties within the Proposed Project Components viewshed, and Traditional Cultural Properties (TCP) Survey that were completed for the preferred alternative (Crow Lake Alternative). Agreements are being developed to ensure avoidance and/or mitigation of adverse effects to historic properties. These agreements are being developed among Western, RUS, South Dakota State Historic Preservation Office, affected Federal agencies, Applicants, and all interested Native American Tribes. The preferred treatment of any potential TCPs and archaeological sites that are eligible for listing or remain unevaluated for the NRHP is to avoid these identified sites. Avoidance and monitoring protocol during construction would be included in an agreement. Viewshed impacts may occur on historic architectural or structural properties. Such viewshed impacts would be mitigated through a MOA in accordance with 36 CFR 800.6.		No impact.
Land use	For either site alternative, the Proposed Project Components would not conflict with applicable policy or regulation of an agency with jurisdiction in the area. The majority of the area is currently used for rangeland and agriculture. Current land uses would continue, even though some land would be converted to industrial use. Additionally, the Applicants have coordinated with landowners and are establishing lease agreements. The Proposed Project Components would result in less than significant impacts to land use. People engaging in casual hiking, birding and hunting within the Proposed Project alternative areas could be temporarily affected during the construction and decommissioning activities due to limited access. Western's system modifications would be confined to the boundary of their existing substation; therefore, there would be no impact to land use from the proposed Federal action(s).		Local landowners would not receive lease payments from the Applicants and could sign leases with another wind power developer. No impact.

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Land use *(continued)*	**Grassland easements – Crow Lake Alternative** Temporary/ permanent impact: 68/ 15 acres **Wetland easements – Crow Lake Alternative** Temporary/ permanent impact: 120/ 22 acres The Applicants would work with the USFWS to obtain permits for the impact. The Proposed Project would not conflict with current USFWS land uses and policies for wetland and grassland easements.	**Grassland easements – Winner Alternative** Temporary/ permanent impact: 0/ 0 acres **Wetland easements – Winner Alternative** Temporary/ permanent impact: 0/ 0 acres The Winner Alternative would not result in temporary or permanent disturbance within USFWS grassland or wetland easements.	
	Prime farmlands – Crow Lake Alternative Temporary/ permanent impact: 11/ 1.5 acres **Farmland of Statewide importance – Crow Lake Alternative** Temporary/ permanent impact: 566/ 99 acres	**Prime farmlands – Winner Alternative** Temporary/ permanent impact: 2.1/ 0.2 acres **Farmland of Statewide importance – Winner Alternative** Temporary/ permanent impact: 509/ 59 acres	
	Farmland For either site alternative, temporary impacts due to constructing the Proposed Project Components would be revegetated with crops matching the surrounding agriculture landscape. Permanent impacts account for less than 0.4 percent of available farmland within either alternative site boundary. In addition, a small amount of prime farmland, if irrigated, would be impacted by the Proposed Project Components; however, the land is not currently used for agricultural purposes and therefore the Proposed Project Components would not result in a reduction in active agriculture. The Proposed Project Components would not substantially alter the use of farmland in areas designated for turbine and access road installations. The Farmland Protection Policy Act (FPPA) does not authorize the Federal government to affect the property rights of private landowners or regulate the use of private land, so conversion of some prime farmland and farmland of Statewide importance to different uses would not conflict with FPPA policy.		
	Residences – Crow Lake Alternative During construction and decommissioning, noise, dust, traffic and the presence of a construction force would temporarily affect the rural to primitive character of the area. No residences are within 1,000 feet of the proposed turbine locations, in accordance with the Applicants' siting parameters. Further, the nearest residence to the centerlines of the transmission line right-of-way is at least 1,900 feet away, so residential use would not be affected.	**Residences – Winner Alternative** During construction and decommissioning, noise, dust, traffic and the presence of a construction force would temporarily affect the rural to primitive character of the area. One residence is located within approximately 800 feet from a proposed turbine location. It is anticipated that this turbine location would be eliminated from further consideration, because it does not meet the Applicants' siting criteria. The second nearest residence for the proposed turbine locations is 1,050 feet away, and meets the Applicants' siting criteria. The closest residence to the centerline of the alternative 1 transmission line corridor is approximately 100 feet away,	

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Land use *(continued)*		and due to this proximity, does not meet the Applicants' line siting criteria. It is anticipated that the alternative 1 transmission line corridor would be eliminated from further consideration. The closest residence to centerline of the alternative 2 transmission line corridor is at least 900 feet away, and meets the Applicants' siting criteria. Impacts associated with the short-term construction of the transmission corridor would be minimized through the implementation of the included BMPs and APMs.	
Transportation	Transportation activities during operations would be minimal, similar to those currently occurring, and would not be expected to cause noticeable impacts to local road networks; therefore, operational impacts would be less than significant. The heavy equipment and materials needed for site access, site preparation, and foundation construction are typical of heavy construction projects and do not pose unique transportation considerations. Heavy equipment and cranes would be required for turbine and tower dismantlement, breaking up tower foundations, and regrading and recontouring the site to the original grade. With the possible exception of a main crane, oversized and/or overweight shipments are not expected during decommissioning activities because the major turbine components could be disassembled, segmented or size-reduced prior to shipment. Thus, potential disruptions to local traffic during decommissioning would likely be fewer than those during original construction activities; therefore, decommissioning impacts would be less than significant. Short-term traffic congestion may exist when construction delivery vehicles are on the road, and localized increases in road wear and maintenance may occur. However, the construction, operation and decommissioning of the Proposed Project Components would result in less than significant impacts to permanent, regional and local traffic and transportation infrastructure through the implementation of traffic control measures and other standard construction practices. **Aviation** The Applicants have provided preliminary information to the FAA regarding the Proposed Project Components. Prior to construction, the Applicants would notify the FAA regarding exact facility heights and latitude and longitude coordinates. Prior to construction, the Applicants would consult with the FAA to identify applicable lighting requirements. The Proposed Project Components would not impact an FAA-designated air safety zone, nor would it result in a change in air traffic patterns, an increase in traffic levels or a change in location that results in substantial safety risks. Therefore, the construction, operation and decommissioning of the Proposed Project Components with included BMPs and APMs incorporated would result in less than significant impacts to aviation.		No impact.

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Visual	The regional landscape is generally uniform, does not contain highly distinctive or important landscape features, is not densely populated or used, and the local residents' sensitivity to visual changes associated with the Proposed Project Components and proposed Federal actions is low; therefore, the visual impacts within either of the alternative boundaries from development of the Proposed Project Components and proposed Federal actions would be less than significant. Developing the Proposed Project Components would not substantially alter or degrade scenic resources and would not substantially degrade the visual quality of either of the site alternatives as viewed from the Lewis and Clark National Historic Trail auto tour route or Lewis and Clark Interpretive Center; therefore, impacts to visual resources would be less than significant.		No impact.
Noise	**Construction and Decommissioning** *(estimated levels of short-term/temporary noise increases are provided)* Nearest residence to turbine: 1,270 feet Estimated noise level: 57-59 dBA Nearest residence to proposed transmission line corridor: 1,900 feet Estimated noise level: 52-54 dBA Nearest residence to proposed collector substation: 6,700 feet Estimated noise level: 41-43 dBA Nearest residence to existing Wessington Springs Substation: 1,500 feet Estimated noise level: 56-58 dBA **Operation** Anticipated noise levels would be between 50-45 dBA at a distance between 660 feet and 1,320 feet from the wind turbine; therefore, noise levels associated with the wind turbines at the nearest residence would be near or below 45 dBA, and would likely be between 3 dB and 5 dB greater than existing ambient noise levels. Impacts from operational noise would be less than significant. Additionally, operation of the transmission line would not result in any noise-related impacts. Developing Western's system modifications at the existing Wessington Springs Substation would similarly be expected to result in less than significant noise impacts.	**Construction and Decommissioning** *(estimated levels of short-term/temporary noise increases are provided)* Nearest residence to turbine: 800 feet (eliminated from further consideration) Second nearest residence to turbine: 1,050 feet Estimated noise level: 57-59 dBA Nearest residence to alternative 1 transmission line corridor: 100 feet (eliminated from further consideration) Nearest residence to alternative 2 transmission line corridor: 900 feet Estimated noise level: 59-61 dBA Nearest residence to proposed collector substation: 1,400 feet Estimated noise level: 56-58 dBA Nearest residence to existing Winner Substation: 300 feet Estimated noise level: 69-71 dBA **Operation** At the nearest residence to a wind turbine, operational noise associated with the Proposed Project would be closer to 50 dBA. The increase would likely be between 5 dB and 10 dB greater than existing ambient noise levels; however, it is anticipated that the nearest turbine location would be eliminated from further consideration, because it does not meet the Applicants' siting criteria. With this consideration, impacts from operational noise would be less than significant. Additionally, operation of the transmission line would not result in any noise-related impacts (considering the alternative 1 transmission does not meet the Applicants' line siting	No impact.

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Noise *(continued)*		criteria and is anticipated to be eliminated from further consideration). Developing Western's system modifications at the existing Winner Substation would similarly be expected to result in less than significant noise impacts.	
Socioeconomics	Minor employment or population changes are anticipated as a direct result of constructing the Proposed Project Components and Federal actions. Any increase in population would be for the duration of the construction period, and would be small relative to the total population. Most of the non-local construction workforce would likely reside within a 60-mile commuting distance of the site alternative, so there would be very little demand for additional temporary or permanent housing near either of the alternatives; there would be no impact to the available supply of housing in the local counties. In the event that construction workers are hired from outside the 60-mile radius of the standard commuting distance from the site alternative area, there would likely be sufficient capacity in the existing motel rooms in the local counties. Therefore, less than significant impacts are likely to occur from the influx of the construction workforce. Given the short-term duration of construction activities and the small operations workforce, no significant increase in permanent population to local communities would be expected as a result of constructing and operating the Proposed Project Components and Federal actions. The Proposed Project Components and Federal actions would not result in significant increased needs for public services, including fire protection. In addition, there would be no discernible impact on local utilities, government, or community services from the construction workforce associated with the Proposed Project Components and Federal actions. Impacts to economic resources would be primarily short-term beneficial effects to the local economy. Indirect economic benefits would accrue to businesses in the area from construction workers purchasing goods and services, such as hotels, restaurants, gas stations and grocery stores. There would also be economic benefits for the counties from added taxes paid on real estate properties on leased lands. Increased tax revenues collected as a result of the Proposed Project Component operation could be used to benefit or improve local government or community services.		No impact. Local landowners would not receive lease payments from the Applicants and could sign leases with another wind power developer.
Environmental justice	Disproportionately high and significant effects to minority populations are unlikely based on three factors: a lower percentage of minority populations in the Crow Lake Alternative area (approximately one to five percent) compared with South Dakota as a whole (approximately 11 percent), a low population density within the site alternative area, and overall low expected impacts from constructing, operating, and decommissioning the Proposed Project Components. Potential impacts to minority residents, like any other resident, are expected to be less than significant. Income for 13.2 percent of the population of South Dakota is considered below the poverty level, whereas the percentage of the population below the poverty level	The Winner Alternative is characterized as approximately 84 percent White and 15 percent American Indian and Alaskan Natives. The Winner Alternative would be located in an area with a higher percentage of minority populations compared to the Crow Lake Alternative; however, disproportionately high and significant effects to minority populations are unlikely given that the low population density within the site alternative area and overall low expected impacts from constructing, operating, and decommissioning the Proposed Project. Potential impacts to minority residents, like any other resident, are expected to be less than significant. The percentage of the population below the poverty level ranges between approximately 19 to 21 percent in the vicinity of the Winner Alternative. The Proposed Project may generate	No impact.

Table S.2 Impact Summary by Alternative

Resource	Crow Lake Alternative	Winner Alternative	No Action Alternative
Environmental justice *(continued)*	ranges between approximately 11 to 21 percent in the vicinity of the Crow Lake Alternative. The Proposed Project Components may generate positive economic benefits to the local economy, including opportunities for lease agreements, employment, and earning potential for local individuals; therefore, the impacts to low-income populations would be less than significant. Developing Western's system modifications at Wessington Springs Substation would not be expected to disproportionately affect a minority, Native American, or low income subsistence population.	positive economic benefits to the local economy, including opportunities for lease agreements, employment, and earning potential for local individuals; therefore, the impacts to low-income populations would be less than significant. Developing Western's system modifications at Winner Substation would not be expected to disproportionately affect a minority, Native American, or low income subsistence population.	
Health and safety	The health and safety risks to area residents and the general public associated with the Proposed Project Components would be restricted to short periods during construction, operation and decommissioning at small, individual sites. The included BMPs and APMs would be employed during all ground disturbing activities. Due to the low voltage at which turbines and overhead and underground collector lines operate, and the setback distances from roads and residences, the potential impacts associated with exposure to electric and magnetic fields (EMF) would be minimal. Magnetic field exposure from the facilities would be minimal in close proximity, and both electric and magnetic fields would dissipate from the facility corridors. Further, the development of the Proposed Project Components would comply with applicable local, State and Federal regulations regarding handling, transport or containment of hazardous materials. For these reasons, impacts to human health and safety would result in less than significant impacts.		No impact.
Note: Quantified impacts include the 101 turbine locations required for the Proposed Project plus the ten additional turbine locations that may be utilized as contingent turbine locations for the Proposed Project if specific turbine locations are eliminated as a result of additional resource surveys and engineering siting; or they may be installed within the selected site at a later date, pending future load, transmission availability, and renewable production standard requirements. This approach is conservative because it identifies a greater amount of disturbance than what would be required for the Proposed Project. At this time, for the Crow Lake Alternative only, seven of these turbines would be for the Wind Partners' proposed development.			

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