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Upper Great Plains Wind Energy Programmatic Environmental Impact Statement

Final

Volume 2: Appendices A–F

U.S. Department of Energy
Western Area Power Administration

and

U.S. Department of the Interior
U.S. Fish and Wildlife Service

COVER SHEET

Lead Agencies: U.S. Department of Energy, Western Area Power Administration, and U.S. Department of the Interior, U.S. Fish and Wildlife Service

Cooperating Agencies: U.S. Department of the Interior, Bureau of Reclamation; U.S. Department of the Interior, Bureau of Indian Affairs; and U.S. Department of Agriculture, Rural Utility Services

Title: Upper Great Plains Wind Energy Final Programmatic Environmental Impact Statement

Location: States of Iowa, Minnesota, Montana, Nebraska, North Dakota, and South Dakota

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Abstract: Western Area Power Administration (Western) and the U.S. Fish and Wildlife Service (USFWS) have jointly prepared this programmatic environmental impact statement (PEIS) to identify environmental impacts associated with various environmental review processes that could be implemented to evaluate requests for interconnection of wind energy projects to Western's transmission system or requests for land exchanges to accommodate wind energy elements that may affect wetland or grassland conservation easements managed by the USFWS in Western's Upper Great Plains Customer Service Region. The PEIS assesses environmental impacts associated with wind energy development and identifies management practices to address impacts. The processes and management practices identified in the PEIS are intended to expedite site-specific National Environmental Policy Act of 1969 (NEPA) evaluations by providing a framework document from which other NEPA documents could tier. The PEIS provides information that will help developers know what will be expected when they apply for an interconnection or land exchange and will assist them with identifying and avoiding environmentally sensitive areas where permitting would be more difficult. Decisions regarding implementation of a programmatic process for environmental evaluations of requests for interconnection of wind energy projects to Western's transmission facilities or for land exchanges to accommodate wind energy that may affect easements managed by the USFWS will be issued following the final PEIS as Records of Decision for each agency.

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NOTATION

The following is a list of acronyms and abbreviations, chemical names, and units of measure used in this document. Some acronyms used only in tables may be defined only in those tables.

GENERAL ACRONYMS AND ABBREVIATIONS

AC	alternating current
ACEC	Area of Critical Environmental Concern
ACGIH	American Conference of Governmental Hygienists
ACHP	Advisory Council on Historic Preservation
ACP	advanced conservation practice
AGL	above ground level
AHPA	Archaeological & Historical Preservation Act
AIRFA	American Indian Religious Freedom Act
AOPA	Aircraft Owners and Pilots Association
AQRV	air-quality related value
Argonne	Argonne National Laboratory
ARM	Administrative Rules of Montana
ARPA	Archeological Resources Protection Act of 1979
ARRA	American Recovery and Reinvestment Act of 2009
ARS	Agricultural Research Service (USDA)
ASM	American Society of Mammalogists
ATC	Air Traffic Control
ATCBI	ATC Beacon Interrogator Radar
AWEA	American Wind Energy Association
BA	Biological Assessment
BACT	best available control technology
BBCS	Bird and Bat Conservation Strategy
BCR	Bird Conservation Region
BEPC	Basin Electric Power Cooperative
BERR	Department for Business Enterprise and Regulatory Reform
BGEPA	Bald and Golden Eagle Protection Act of 1940
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BLS	U.S. Bureau of Labor Statistics
BMP	Best Management Practice
BO	Biological Opinion
BO/BA	Biological Opinion/Biological Assessment
BPA	Bonneville Power Administration
BWEA	British Wind Energy Association
CanWEA	Canadian Wind Energy Association
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game

CDW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CI	critically imperiled
CNEL	Community Noise Equivalent Level
CRP	Conservation Reserve Program
CWA	Clean Water Act
CX	Categorical Exclusion
DHS	Department of Homeland Security
DISDI	Defense Installation Spatial Data Infrastructure Program
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
DSIRE	Database on State Incentives for Renewables and Efficiency
DTI	Department of Trade and Industry
EA	Environmental Assessment
ECP	Eagle Conservation Plan
EERE	Office of Energy Efficiency and Renewable Energy
EF	Enhanced Fujita Scale
EIA	Energy Information Administration
EIS	Environmental Impact Statement
ELF	extremely low-frequency
EMF	electric and magnetic fields
EMI	electromagnetic interference
E.O.	Executive Order
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 2005
EPRI	Electric Power Research Institute
ERCOT	Electric Reliability Council of Texas
ERO	Electric Reliability Organization
ESA	Endangered Species Act of 1973
ESRI	Environmental Systems Research Institute, Inc.
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impacts
FR	*Federal Register*
FY	fiscal year
GAP	Gap Analysis Program
GE	General Electric
GHG	greenhouse gas
GIS	geographic information system

GPWE HCP	Great Plains Wind Energy Habitat Conservation Plan
GWP	Global Warming Potential
HAP	hazardous air pollutant
HB	House Bill
HMA	Herd Management Area
IAC	Iowa Administrative Code
IBA	Important Bird Area(s)
ICUN	International Union for Conservation of Nature
IDNR	Iowa Department of Natural Resources
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IFG	Idaho Fish and Game
IM	Instruction Memorandum
IPCC	Intergovernment Panel on Climate Change
IRAC	Interdepartment Radio Advisory Committee
IUB	Iowa Utility Board
JEDI	NREL's Jobs and Economic Development Impact model
KOP	key observation point
L_{dn}	day-night average sound level
L_{eq}	equivalent sound pressure level
LFN	low frequency noise
LGI	Large Generator Interconnection
MAR	Minnesota Administrative Rules
MBTA	Migratory Bird Treaty Act of 1918
MCA	Montana Code Annotated
MDEQ	Montana Department of Environmental Quality
MDNR	Montana Department of Natural Resources
MEPA	Montana Environmental Policy Act
MGGRA	Midwest Greenhouse Gas Reduction Accord
Midwest ISO	Midwest Independent System Operator
MRO	Midwest Reliability Council
MSDS	Material Safety Data Sheets
MTFWP	Montana Fish, Wildlife & Parks
MTR	military training route
NAC	Noise Area Classification
NAAQS	National Ambient Air Quality Standards
NABCI	North American Bird Conservation Initiative
NAGPRA	Native American Graves Preservation Act
NAICS	North American Industry Classification System
NBII	USGS National Biological Information Infrastructure
NCDC	National Climatic Data Center

NCLS	National Landscape Conservation System
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDEQ	Nebraska Department of Environmental Quality
NDGFD	North Dakota Game and Fish Department
NDPRD	North Dakota Parks and Recreation Department
NDPSC	North Dakota Public Service Commission
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act of 1969
NERC	North American Electric Reliability Corporation
NEXRAD	next generation radar
NGPC	Nebraska Game and Parks Commission
NHPA	National Historic Preservation Act
NHS	National Historical Site
NIEHS	National Institute of Environmental Health Sciences
NIETC	National Interest Electric Transmission Corridors
NLCD	USGS National Land Cover Database
NLCS	National Landscape Conservation System
NM	National Monument
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NP	National Park
NPCC	Northern Power Coordinating Council
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRC	National Research Council
NRCS	National Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRI	National Resource Inventory
NRHP	National Register of Historic Places
NR/UR	not ranked or under review
NSBP	National Scenic Byways Program
NTIA	National Telecommunications and Information Administration
NWCC	National Wind Coordinating Committee
NWI	National Wetlands Inventory
NWRS	National Wildlife Refuge System
NWS	National Weather Service
O&M	operation and maintenance
OHV	off-highway vehicle
OSHA	Occupational Safety and Health Administration
PAD-US	Protected Areas Database of the United States
PCB	polychlorinated biphenyl
PE	Presumed Extinct
PEIS	programmatic environmental impact statement
P.L.	Public Law
PM	particulate matter

$PM_{2.5}$	particulate matter with a mean aerodynamic diameter of 2.5 µm or less
PM_{10}	particulate matter with a mean aerodynamic diameter of 10 µm or less
POD	plan of development
PPE	personal protective equipment
PPR	Prairie Pothole Region
PSC	Public Service Commission
PSC/MSU	Public Service Commission/Michigan State University
PSD	Prevention of Significant Deterioration
PSR	personal surveillance radar
PTC	Production Tax Credit
PUC	Public Utilities Commission
PWS	public water system
RAM	radar absorbing materials
RCRA	Resource Conservation and Recovery Act of 1976
RCS	radar cross section
RD&D	Research, Development, and Demonstration
Reclamation	U.S. Bureau of Reclamation
RETI	Renewable Energy Transmission Initiative
RFC	Reliability First Corporation
RLOS	radar line of sight
ROC	Radar Operations Center
ROD	Record of Decision
ROW	right-of-way
RPS	Renewable Energy Portfolio Standard
RRC	Regional Reliability Councils
SAAQS	State Ambient Air Quality Standards
SB	Senate Bill
SDCL	South Dakota Codified Laws
SDDENR	South Dakota Department of Environment and Natural Resources
SDDGFP	South Dakota Game, Fish & Parks
SDWA	Safe Drinking Water Act of 1974
Se	selenium
SERC	SERC Reliability Coordinating Council
SGI	Small Generator Interconnection
SHPO	State Historic Preservation Office(r)
SIAP	Smithsonian Institution Affiliations Program
SIP	State Implementation Plan
SPCC	Spill Prevention Control and Countermeasures (SPCC) Plan
SPLs	sound pressure levels
SPP	Southwest Power Pool, Inc.
SSA	sole source aquifer
SSR	secondary surveillance radar
SUA	Special Use Airspace
SWPPP	Storm Water Pollution Prevention Plan

THPO	Tribal Historic Preservation Offices
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act of 1976
TSDF	Treatment, storage and disposal facilities
UGP	Upper Great Plains
USACE	U.S. Army Corps of Engineers
USC	*United States Code*
USCB	United States Census Bureau
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAD	vibroacoustic disease
VdB	vibration impact level
VOC	volatile organic compound
WECC	Western Electricity Coordinating Council
Western	Western Area Power Administration
WEWAG	Wind Energy Whooping Crane Action Group
WGA	Western Governors' Association
WHO	World Health Organization
WindPACT	Wind Partnerships for Advanced Component Technologies
WinDS	Wind Deployment System
WRA	wind resource area
WRP	Wetlands Reserve Program
WSR	weather surveillance radar
WTGS	wind turbine generator system

CHEMICALS

CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	carbon dioxide equivalent
CO_4	methane
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
Pb	lead
SO_2	sulfur dioxide

UNITS OF MEASURE

ac	acre
ac-ft	acre-foot (feet)
ac-ft/yr	acre-foot (feet)/year
°C	degree(s) Celsius
cm	centimeter(s)
dB	decibel(s)
dBA	A-weighted decibel(s)
°F	degree(s) Fahrenheit
ft	foot (feet)
ft^2	square foot (feet)
gal	gallon(s)
GW	gigawatt(s)
GHz	gigahertz

h	hour(s)
ha	hectare(s)
Hz	hertz
in.	inch(es)
kg	kilogram(s)
kHz	kilohertz
km	kilometer(s)
km^2	square kilometer(s)
kWh	kilowatt hours
kV	kilovolt(s)
kV/m	kilovolts/meter
kW	kilowatt(s)
kWh	kilowatt-hour(s)
L	liter(s)
lb	pound(s)
m	meter(s)
m/sec	meters per second
m^2	square meter(s)
m^3	cubic meter(s)
mi	mile(s)
mi^2	square mile(s)
mph	mile(s) per hour
MW	megawatt(s)
ppm	part(s) per million
psi	pound(s) per square inch
rpm	revolution(s) per minute
s	second(s)
t	metric ton(s)
W	watt(s)
yd^3	cubic yard(s)
yr	year
µm	micrometer(s)
VdB	vibration impact level

ENGLISH/METRIC AND METRIC/ENGLISH EQUIVALENTS

The following table lists the appropriate equivalents for English and metric units.

Multiply	By	To Obtain
English/Metric Equivalents		
acres	0.4047	hectares (ha)
cubic feet (ft^3)	0.02832	cubic meters (m^3)
cubic yards (yd^3)	0.7646	cubic meters (m^3)
degrees Fahrenheit (ºF) –32	0.5555	degrees Celsius (ºC)
feet (ft)	0.3048	meters (m)
gallons (gal)	3.785	liters (L)
gallons (gal)	0.003785	cubic meters (m^3)
inches (in.)	2.540	centimeters (cm)
miles (mi)	1.609	kilometers (km)
pounds (lb)	0.4536	kilograms (kg)
short tons (tons)	907.2	kilograms (kg)
short tons (tons)	0.9072	metric tons (t)
square feet (ft^2)	0.09290	square meters (m^2)
square yards (yd^2)	0.8361	square meters (m^2)
square miles (mi^2)	2.590	square kilometers (km^2)
yards (yd)	0.9144	meters (m)
Metric/English Equivalents		
centimeters (cm)	0.3937	inches (in.)
cubic meters (m^3)	35.31	cubic feet (ft^3)
cubic meters (m^3)	1.308	cubic yards (yd^3)
cubic meters (m^3)	264.2	gallons (gal)
degrees Celsius (ºC) +17.78	1.8	degrees Fahrenheit (ºF)
hectares (ha)	2.471	acres
kilograms (kg)	2.205	pounds (lb)
kilograms (kg)	0.001102	short tons (tons)
kilometers (km)	0.6214	miles (mi)
liters (L)	0.2642	gallons (gal)
meters (m)	3.281	feet (ft)
meters (m)	1.094	yards (yd)
metric tons (t)	1.102	short tons (tons)
square kilometers (km^2)	0.3861	square miles (mi^2)
square meters (m^2)	10.76	square feet (ft^2)
square meters (m^2)	1.196	square yards (yd^2)

APPENDIX A

COMMENTS AND RESPONSES

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APPENDIX A

COMMENTS AND RESPONSES

A.1 INTRODUCTION

This appendix to the Upper Great Plains Wind Energy Final Programmatic Environmental Impact Statement contains public comments on the Draft programmatic environmental impact statement (PEIS) and the responses to those comments from Western Area Power Administration (Western) and the U.S. Fish and Wildlife Service (USFWS). Western and the USFWS prepared the Draft PEIS in accordance with the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) (*Code of Federal Regulations*, Title 40, Parts 1500–1508 [40 CFR Parts 1500–1508]). These procedures and requirements provide for a period of public comment on a Draft PEIS prior to publication of a Final PEIS.

The Notice of Availability (NOA) of the Draft PEIS was published in Volume 78, pages 17653–17656, of the *Federal Register* on March 22, 2013 (78 FR 17653–17656). This began a 60-day public review and comment period, which lasted from March 22 to May 21, 2013. Hearings to solicit public comment were held on April 30, May 1, and May 2, 2013, in Billings, Montana; Bismarck, North Dakota; and Sioux Falls, South Dakota, respectively. Fourteen comment documents containing 75 individual comments were received by the agencies.

The comment documents are presented in numerical order by assigned document number in section A.2. All public comments that were received via post, e-mail, the electronic comment form on the project Web site, or orally at public hearings have been included and were considered in preparing the Final PEIS. Each of the comment documents and the oral comment were assigned five-digit comment document identification numbers (IDs) (table A-1). Agency responses to individual comments contained within each comment document are presented in section A.3.

TABLE A-1 Index to Comment Documents Submitted on the Draft PEIS

Name(s)	Affiliation(s)	Comment Document ID
Comments submitted via post, e-mail, or project Web site		
RS[a]	None identified	50001
Gene F. Sentz	None identified	50002
CIS[a]	None identified	50003
Jeff M. Peters	Missouri River Energy Services	50004
Elaine Leslie (submitted by D. Trevino)	U.S. Department of the Interior, National Park Service	50005
W. William Weeks Kelly Fuller Virginie Roveillo	Conservation Law Center American Bird Conservancy	50006
Susan E. Bromm (submitted by M. Rountree)	U.S. Environmental Protection Agency	50007
Claire Olson	Basin Electric Power Cooperative	50008
Daly Edmunds	Audubon	50009
John Anderson Tom Vinson Chris Long Gene Grace	American Wind Energy Association	50010
Nancy D. Hilding	Prairie Hills Audubon Society	50011, 50012[b]
M. Jeff Hagener	Montana Fish, Wildlife, and Parks	50013
Comments submitted orally at public hearings		
Lyle Witham	Basin Electric Power Cooperative	50014

[a] Full name withheld at request of commenter.

[b] The same set of comments was submitted twice.

A.2 COMMENT DOCUMENTS

This section presents the comment documents pertaining to the Draft PEIS that were received by the agencies. Written comments that were submitted by reviewers via postal mail, e-mail, or using electronic comment forms associated with the project Web site are shown as scanned images. A single oral comment was received during the public hearings pertaining to the Draft PEIS; the text of the oral comment was extracted from the transcript of the public hearing prepared by a court reporter.

Comment Document 50001 (Name withheld)
I am totally against wind generation of power. I believe until the wind method of power generation can stand on it's own without public subsidy we cannot afford it. Coal and natural gas is the way to go for our power needs. It is time to recognize that alternative power is too costly. We need to cut back government spending not create more.

Comment Document 50002 (Gene F. Sentz)
Generally speaking, I favor alternative energy such as solar and wind. However, it's very important to me that large-scale wind farms be located in suitable sites and not in special places. My main comment is that no large-scale industrial-style wind farms should be sited close to Montana's Rocky Mountain Front, and not very far west of Interstate Hwy 15. Such facilities certainly should not be located anywhere west of Hwy 464, US Hwy 89, and US Hwy 287, between Babb, MT, and Wolf Creek, MT. That is arguably the most scenic area in the lower 48 states, and much of the area has been identified by the US Fish & Wildlife Service as prime wildlife habitat, including home for threatened grizzly bears. From those highways westward to the Rocky Mountain Front, please do not allow any large-scale industrial-style wind farms. Thank you.

Comment Document 50003 (Name withheld)
All "action" alternatives in an EIS must meet the purpose and need stated in Chapter 1. Alternative C appears to not meet this standard. Furthermore, Alternative C appears to have been offered as a "straw man" such that a greater range of alternatives could be presented. Alternative C should be removed, or it should be altered as needed to show that it is indeed a viable action alternative to meeting the purpose and need articulated in Chapter 1.

Comment Document 50004 (Jeff M. Peters; Missouri River Energy Services)

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To: John Hayse, Argonne National Laboratory

From: Jeff M. Peters, Director, Marketing and Development

Date: May 20, 2013

RE: Draft Wind Energy PEIS Comments

Thank you for the opportunity to provide comments on the draft Upper Great Plains Wind Energy Programmatic Environmental Impact Statement (PEIS).

Missouri River Energy Services (MRES) is a member-owned, not for profit joint action agency that provides electric energy and services to 61 communities that own and operate electric systems in the states of Iowa, Minnesota, North Dakota, and South Dakota. Fifty-nine of 61 MRES members are firm power supply customers of the Upper Great Plains Region (UGPR) of Western Area Power Administration (Western). Each of these communities receives a hydro power allocation from UGPR. In aggregate, these municipalities represent over 20 percent of UGPR firm allocations. Any needs in excess of the UGPR allocation are supplied by MRES.

MRES develops generation resources, including wind, to supply load to its communities. Of the 86 MW of wind used to serve MRES load, 19 MW is within the Western Integrated System balancing area with the remaining interconnected with the Midwest Independent Transmission System Operator. MRES also has held options to lease land for wind development in the Western footprint since 2005 and continues to look for opportunities to develop this resource in the future.

It is the understanding of MRES that Western and the U.S. Fish and Wildlife Service (Service) is proposing to streamline the environmental reviews for wind energy projects that will interconnect to Western's transmission facilities or would require consideration of an easement exchange to accommodate placement of project facilities on easements managed by the Service.

Four alternatives, including a No Action Alternative are evaluated in the draft PEIS. Western and the Service have selected Alternative 1 as the preferred alternative. According the draft PEIS:

> *"Under Alternative 1 both agencies would implement a standardized process for evaluating the environmental effects of wind energy projects. Western would*

> *establish standardized procedures for the environmental review when considering interconnection requests and would identify best management practices (BMPs) and mitigation measures to be applied by developers where specific resource conditions occur. The Service would continue to process requests for easement exchanges to accommodate wind energy structures on Service easements using current procedures, but would adopt a standardized approach for reviewing potential environmental impacts of easement exchanges".* [1]

MRES supports a balanced approach that streamlines the wind development process while maintaining the environmental protections afforded under the existing Federal, State and local laws. This is what MRES believes is the ultimate goal as stated in Executive Order 13212 as shown in the introduction of the draft PEIS (see below).

> *"The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people. In general, it is the policy of this Administration that executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy."*[2]

MRES is concerned that Alternative 1 may undermine the ultimate goal of the PEIS and that Alternative 3 is a better way to provide for more efficiencies in the review process. The following statement in the draft PEIS exemplifies MRES concern:

> *"The proposed approach under Alternative 3 would promote efficiency and consistency in the environmental evaluation of wind project interconnection requests by Western and in the way requests for easement exchanges to accommodate placement of wind energy facilities on easements managed by Service would be reviewed and resolved. While not changing the need for detailed National Environmental Policy Act environmental analyses at the project level, decisions and debate regarding which BMPs and mitigation measures would need to be undertaken at the project level might be resolved more quickly, because BMPs and mitigation measures to be addressed in project specific plans of development would be determined solely on the basis of existing Federal, State, and local requirements and would not require consideration of additional measures by Western or the Service. As a result, the time necessary to obtain approval of interconnection requests and requests for easement exchanges under Alternative 3 could be reduced compared to other alternatives, along with the associated costs to both the Agencies and industry."*[3]

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[1] Draft UGP Wind Energy PEIS, March 2013, page ES-2.
[2] Draft UPG Wind Energy PEIS, page 1-1.
[3] Draft UPG Wind Energy PEIS, page ES-46.

MRES believes that Alternative 1 actually opens the door to further environmental scrutiny beyond existing Federal, State and local laws. Thus Alternative 1 has the potential to provide more impediments to the development of wind energy in UPGR which is counter to what MRES believes is trying to be achieved by the PEIS.

The draft PEIS portrays that perhaps some of the efficiencies in Alternative 1 may be due to the BMPs which are not provided in Alternative 3. **MRES believes a better alternative is to select Alternative 3 and include with that the flexibility that the BMPs offer in Alternative 1. Alternative 3 will streamline the environmental review process while maintaining the protections afforded under current Federal, State and local laws.**

Lastly, MRES would like to call to your attention an inaccuracy to a quoted source in the document. According to MRES research, Executive Order 13212: Actions to Expedite Energy-Related Projects was signed by President George W. Bush on May 18, 2001 not President Barack Obama.

3

Comment Document 50005 (Elaine Leslie, U.S. Department of the Interior, National Park Service)

United States Department of the Interior

NATIONAL PARK SERVICE
Biological Resource Management Division
1201 Oakridge Drive, Suite 200
Fort Collins, CO 80525

IN REPLY REFER TO:
ER-13/0177

ELECTRONIC TRANSMISSION ONLY – NO HARD COPY TO FOLLOW
May 21, 2013

Mr. Mark Wieringa
Western Area Power Administration
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Mr. Lloyd Jones
U.S. Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501

Filed via website submittal at: http://plainswindeis.anl.gov/involve/index.cfm

Subject: NPS Comments the Upper Great Plains Wind Energy PEIS (ER-13/0177)

The National Park Service (NPS) appreciates the opportunity to review the Upper Great Plains Wind Energy Programmatic EIS (UGPWE PEIS).

As stewards of public lands, the NPS protects resources through a variety of internal programs, but also strives to be an active conservation partner with other federal and non-federal agencies and organizations. The NPS supports the Department of the Interior's efforts to be "smart from the start" in permitting renewable energy projects and related infrastructure and making every effort to ensure that they are constructed and operated in an environmentally responsible manner that serves the public interests, protects cultural and natural resources, and protects our treasured landscapes. While the NPS supports the development of alternative energies, we maintain that it can and should be done with the environmentally least impactful methods.

Moreover, federal and non-federal agencies should consider the existence and location of NPS resources and interests with regard to infrastructure sighting and development. In some instances, the NPS may be able to provide assistance by providing GIS mapping data. At this time the details of individual projects and related infrastructure development are not known. Therefore, the NPS cannot comment on impacts to specific interests and resources that fall within our jurisdiction. Instead we would like to provide the following general information, which may assist you in determining where potential impacts may be.

The NPS was created in 1916 to protect and manage the nation's national parks and monuments. The agency currently manages 401 sites, which includes national parks, national monuments, national seashores, national historic sites, national battlefields,

national historic trail, national scenic rivers, national recreational rivers, and national recreation areas. Additionally, the NPS administers the National Historic Landmark, National Natural Landmark and the National Heritage Areas Programs.

The NPS Organic Act of 1916 requires the NPS "…to conserve the scenery and the natural and historic objects and wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[1]

The two most significant amendments to the Organic Act lie in the 1970 National Park System General Authorities Act (Pub. L. 91-383) and the 1978 Redwoods National Park Expansion Act (Pub. L. 95-250). The General Authorities Act amendment declares that "though distinct in character, are united through their inter-related purposes and resources in one National Park System as cumulative expressions of a single national heritage."[2] This amendment provides that all of the nation's parks – whether they include natural, cultural or historic resources – are united under the mission, purpose and protection of the Organic Act.

The Redwoods Act also amended the Organic Act. The amended provision states that all park management activities shall be: "[C]onducted in light of the high public value and integrity of the National Park System and not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

This amendment reaffirms the mandate set forth in the Organic Act and directs the National Park Service to manage park lands in a manner that would not degrade park values.

The following provides information about NPS interests in general.

National Parks, Monuments, Recreation Areas, Historic Sites, & Recreational Rivers

The National Park System is comprised of over 401 areas throughout the U.S. and its territories. Management responsibility for each National Park unit lies with the Superintendent of that unit. For information about resources of concern specific to a National Park, it would be of benefit to contact the Superintendent early in the project scoping process, once more specific information is known about potential impacts.

National Trails System

The National Trails System is the network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement. The National Trails System Act made it Federal policy to recognize and promote trails by providing financial assistance, support of volunteers, coordination with States, and other authorities. As a result, 8 National Scenic Trails and 15 National Historic Trails have been established by act of Congress, and are administered by the National Park Service, the USDA Forest Service, and the Bureau of Land Management, depending on the trail, and over 800 national recreation trails have been designated through recognition by the Secretaries of Agriculture and Interior; and 2 side-and-connecting trails have also been certified. More detail and contact information for these trails can be found at http://www.nps.gov/nts/nts_trails.html.

[1] 16 U.S.C. 1
[2] 16 U.S.C. 1a-1

A state-by-state list of National Recreational Trails with contact information can be found at http://www.americantrails.org/nationalrecreationtrails.

National Historic Landmarks

National Historic Landmarks (NHLs) are nationally significant historic resources that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Information on NHLs can be found at http://www.nps.gov/nhl/. The primary contact regarding potential effects of your proposed project on NHLs is usually the State Historic Preservation Officer (SHPO). Contact information for SHPOs by state can be found at http://www.ncshpo.org/. If your project could have an effect on a NHL you should include the NPS Preservation Assistance Office/NHL Program Manager as an interested party and provide information regarding the issues that may affect NHLs.

National Natural Landmarks

The National Natural Landmarks Program recognizes and encourages the conservation of outstanding examples of our country's natural history in both public and private ownership. The National Park Service administers the National Natural Landmark Program and, if requested, assists National Natural Landmark owners and managers with the conservation of these important sites. A guide to National Natural Landmarks by state and contact information for National Natural Landmarks can be found at http://www.nature.nps.gov/nnl/.

National Heritage Areas

National Heritage Areas are places where natural, cultural, historic and recreational resources combine to form a cohesive, nationally distinctive landscape arising from patterns of human activity shaped by geography. National Heritage Areas may be managed by a State or local agency, a commission, or a private nonprofit corporation. The National Park Service provides technical and financial assistance for a limited time (usually 10-15 years) following designation. A list of National Heritage Areas and contact information can be found at http://www.cr.nps.gov/heritageareas/CNTC/INDEX.HTM.

The NPS offers the following specific comments to the UGPWE PEIS:
Overall, the NPS finds this draft PEIS to be a thorough, well organized and illustrated, and clearly written document.

Land Use:

Page	Paragraph	Text	Comments
4-7	Line 20	"These can be contradictory missions in some cases (Vincent 2004)"	The NPS rejects this notion of a contradictory mission. We are statutorily bound to prevent any "derogation to values and purposes for which" the various NPS areas have been established (16 U.S.C. 1a-1). As a steward of the Nation's natural and cultural heritage, the primary responsibility of the NPS is to preserve and protect park resources and values. This was first upheld in National Rifle Association v. Potter, where the court held: "In the Organic Act, Congress speaks of but a single purpose, namely, conservation". (National Rifle Association v. Potter, 628 F. Supp. 903, 910 (D.D.C. 1985).

Visual Resources:

Page	Paragraph	Text	Comments
5-166	Lines 13-15	…"a wind farm with wind turbines approximately 400 ft (122 m) in overall height could be visible from approximately 25 mi (40 km) or farther,…"	The PEIS does a good job of identifying sensitive visual resources but makes no recommendations for mitigation or avoidance. Because of the potential of a wind farm to be visible from 25 miles, the National Park Service requests that we be contacted early in the planning process for any proposed wind farm development within 25 miles of a NPS administered site, Natural National Landmark, National Historic Landmark, or National Heritage Area.

National Historic Trails:
We are particularly pleased at the careful attention given to the National Historic Trails (NHT's). Most of our comments are technical corrections and clarification of the NPS role as administrator of five of the NHTs that will be affected by projects developed under this PEIS. The latter points are particularly important as this office will wish to be consulted when specific projects affecting are proposed. For the Lewis and Clark NHT please contact Denise Nelson – 402-661-1812. For the Oregon, California, Mormon, Pioneer and Pony Express NHTs please contact Lee Kreutzer – 801-741-1012 x117.

Page	Paragraph	Text	Comments
4-15	Lines 21-37	National Trails System description	It would be useful to clarify that national scenic trails and national recreational trails consist of continuous right of way (trail tread) for public use, whereas national historic trails cross many jurisdictions, including privately owned lands and lands directly managed by federal, state and local governments. NHTs do not have continuous public right of way across these jurisdictions; access is granted only by permission of the land owner or manager. Each NHT has an appointed federal trail administrator (in most cases, NPS) to coordinate trail-wide planning, interpretation, auto tour routes, preservation, etc., across participating jurisdictions. The role of the federal administrator is not explicit in the current draft PEIS. As required by the National Trails System Act, the administering agencies also identify High Potential Sites and High Potential Segments, places of particular historical and/or interpretive importance, along the NHTs. These are many, but not all, of the places that should be protected from adverse impacts. Regarding the national historic trails that will be affected under this PEIS, the National Park Service administers the Oregon, California, Pony Express, Mormon Pioneer, and Lewis & Clark NHTs. NPS also administers the North Country NST. USDA Forest Service administers the Nez Perce NHT and the Continental Divide NST. The National Park Service requests consultation and in some cases cooperating agency status when undertakings have the potential to affect the national trails it administers.
4-17		Table 4.1.10	This table omits the California NHT, which largely (but not exclusively) shares corridor with the Oregon, Mormon Pioneer, and Pony Express NHTs across Nebraska.
4-167		Table 4.7-1	Are the entire corridors of each NHT considered sensitive visual resource areas? Judging from Figures 5.7-14 through 16, that appears to be the case. If so, please be aware that the state-by-state trail mileages listed in table 4.7-1 are not the designated trail mileages identified by the National Park Service (administrating agency for the Oregon, California, Mormon Pioneer and Pony Express NHTs) 1999

			four-trail Comprehensive Management Plan. The CMP shows 1,067 California NHT miles, 441 Pony Express NHT miles, 424 Oregon NHT miles, and 511 Mormon Pioneer NHT miles across Nebraska. (Only total NHT mileages across each state are listed in the CMP; NPS could help ascertain the mileage of Mormon Pioneer NHT in the affected area within Iowa.) Three of these NHTs, however, share the same corridor/routes across Nebraska, so the total mileage of designated NHT would be significantly less than the sum of the individual NHT mileages. The NPS would be pleased to provide a copy of the CMP for reference purposes. The following national historic landmarks associated with the Lewis and Clark NHT should be included as sensitive visual resource areas: Lemhi Pass and Three Forks of the Missouri. If it is not the intent of the preparers to identify the entire trail corridor for each NHT across the affected states as visually sensitive, please show graphically where the visually sensitive trail segments are located and explain how trail segments are determined to be visually sensitive. NPS trails administrators would appreciate an opportunity to review those determinations. It would be very helpful here to refer the reader ahead to Figure 5.7-13 through -16, which show where the trails are located.
4-186		Table 4.9-4	The range of historic resources listed for each state should include NHT-related sites.
4-192	Lines 11-14		Heritage tourism should be included among this listing.
5-8	Line 19		Please clarify by writing "*national* scenic and historic trails." Congressionally designated components of the National Trails System typically receive higher levels of protection than do non-designated scenic and historic trails. Overall, though, this is an excellent, clearly written assessment of potential effects to these resources.
Section 5.7			This is a very thoughtful and thorough discussion of visual resources, project siting, and mitigation measures, and the graphics are clear and easily understood, as well. It could serve as a model for other PEISes of this scope. We appreciate the consideration and effort that went into preparation of this section.

10-22	Lines 5-7		Recommend deletion of the phrase "on Federal land." The designated NHTs follow the historic routes of travel across all jurisdictions, although only the federal components are protected. It would be useful to add that Lewis & Clark, Oregon, California, Mormon Pioneer, and Pony Express NHTs are administered by the National Park Service.

We appreciate your attention to the NPS's concerns about this issue. If you have any questions about these comments, please do not hesitate to contact Dave Trevino at dave_trevino@nps.gov or at 970-267-2143.

Sincerely,

For EFL

Elaine Leslie
Division Chief
Biological Resource Management Division
cc:
Lee Kreutzer
Denise Nelson
Cheryl Eckert
Nick Chevance

Comment Document 50006 (W. William Weeks, Kelly Fuller, and Virginie Roveillo; Conservation Law Center; American Bird Conservancy)

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May 21, 2013

Western/FWS Draft Wind Energy Comments
c/o John Hayse
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne, IL 60439

RE: Comments on Upper Great Plains Wind Energy Draft Programmatic Environmental Impact Statement (DOE/EIS-0408)

Submitted via electronic public comment form at
http://plainswindeis.anl.gov/involve/comments/index.cfm

Dear Mr. Hayse:

Please find below our timely submitted comments on the Western Power Administration and U.S. Fish and Wildlife Service's Upper Great Plains Wind Energy Draft Programmatic Impact Statement (DOE/EIS-0408).

These comments are jointly submitted by the Conservation Law Center and American Bird Conservancy. The Conservation Law Center ("CLC") is a not-for-profit public interest law firm located in Bloomington, Indiana, and operates the Conservation Law Clinic under an agreement with Indiana University Maurer School of Law. The CLC represents non-profit environmental organizations and governmental entities in conservation matters and works to improve conservation law and policy. American Bird Conservancy ("ABC") is a not-for-profit membership organization whose mission is to conserve native birds and their habitats throughout the Americas. ABC acts across the full spectrum of threats to birds to safeguard the rarest bird species, restore habitats, and reduce threats, unifying and strengthening the bird conservation movement.

Wind power is one of the fastest developing sources of energy in the United States and could be an important part of the solution to climate change. However, wind farms can kill wildlife through collisions with turbines and associated structures. Wind farms can also harm wildlife by displacing species from habitat needed for survival, as well as by destroying, degrading, or fragmenting habitat. The CLC and ABC believe that wildlife and wind power can co-exist if wind projects are carefully designed, sited, studied, operated, monitored, and mitigated. Of these principles, careful siting is the most important.

We divide our comments below into the following nine parts:

1. Purpose and Need
2. Analysis of Impacts
3. Species-Specific Measures
4. Eagles
5. BMPs & Mitigation Measures
6. Easement Exchanges
7. Cumulative Impacts
8. ESA Section 7 Consultation
9. MBTA Take

PART 1: PURPOSE AND NEED

COMMENT 1.1. The Agencies' Statements of Purpose and Need Do Not Correlate to the Scope of the Proposed Action. The Statements Should Identify FWS's Role in Streamlining the ESA Section 7 Consultation Process.

Under NEPA's implementing regulations, an EIS must include a statement "briefly specify[ing] the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."[1] When "two or more agencies . . . have a decision to make for the same proposed action and responsibility to comply with NEPA or a similar statute, it is prudent to jointly develop a purpose and need statement that can be utilized by both agencies."[2] Rather than develop one joint purpose and need statement, Western and FWS have prepared separate and distinct purpose and need statements. Western's purpose is to streamline the environmental review process for interconnection requests by wind facility developers. It anticipates that between 58 and 200 wind projects will benefit from this PEIS and the associated Section 7 consultation.[3] FWS's purpose is specifically to streamline the environmental review process for wind projects seeking to build on easement lands. FWS anticipates that for purposes of the easement exchange program, this PEIS will serve approximately 8 projects by 2030.[4]

The scope of this PEIS goes well beyond FWS's stated purpose. The PEIS combines purposes and needs that do not rely one upon the other, other than that the PEIS purportedly offers consistency in the BMPs, minimization measures, and mitigation that the agencies will

[1] 40 C.F.R. § 1502.13.
[2] CEQ Exchange of Letters with Secretary of Transportation: Purpose and Need, May 2003, Part 2 (Letter from James L. Connaughton, Chairman of the CEQ, to Norman Y. Mineta, Secretary of the Dept. of Transp.) at 2 (2003), *available at* http://ceq.hss.doe.gov/nepa/regs/CEQPurpose2.pdf.
[3] PEIS, at 5-3.
[4] PEIS, at 7-7. It is unclear whether the estimate of 8 projects contemplates the additional 1 million acres of wetland and 10 million acres of grasslands that FWS seeks for the easement program. *See* PEIS, at 2-3.

require of developers. That said, FWS's decision to allow wind development on land it manages under wetland or grassland easements ought to be entirely independent of the process by which Western analyzes interconnection requests. Similarly, the manner in which Western reviews interconnection requests has no apparent congruence with the manner in which FWS reviews wind development requests on easement lands. Yet, the agencies have combined two independent processes into one joint PEIS. The disconnect is most apparent given the choice of alternatives. The combination (or pairing) of alternatives for the two actions is not helpful since neither depends on the other; indeed, absent the joint PEIS, the range of alternatives likely to have been proposed by FWS alone would surely have been different.

Although neither agency explicitly identifies it in either of the purpose and need statements, ESA Section 7 is the underlying link between the two actions. The executive summary explains that:

> [A] primary goal for development of the draft programmatic measures for protection of federally listed species and designated critical habitats was to identify *a set of measures that would limit the potential for adverse effects to species and critical habitats while still accommodating the majority of wind energy projects likely to occur within the UGP Region. This met one of the agencies' objectives of establishing programmatic processes that would facilitate environmental evaluations* for most of the requests for interconnection to Western's transmission system and for most of the requests to accommodate wind energy development on areas under Service easements.[5]

Accommodating the majority of wind projects is not an appropriate objective for FWS. FWS's mission is "to conserve, protect and enhance fish, wildlife, and plant and their habitats for the continuing benefit of the American people."[6] In terms of the Service's wetland and grassland easements, its responsibility is to administer the program to preserve migratory bird habitat, and to focus on ensuring healthy populations of wildlife. This is especially apparent given that

[5] PEIS, at ES-14, continued on ES-33 (emphasis added).
[6] FWS, Mission Statement, http://www.fws.gov/mission.html.

Service Region 6 and Service Region 3 do not currently have the same approach to easement exchanges, and neither allow exchanges for wetland easements. For those interconnection requests that do not involve land exchanges under the easement program, FWS's responsibility falls under ESA Section 7. FWS is required to "[f]ormulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat."[7] The emphasis is on protecting wildlife, not on accommodating projects.

If the agencies are to continue with a joint PEIS, the agencies should revise their purpose and need statements. At a minimum, the purpose and need statement(s) must identify that the agencies' collaboration exists because of ESA Section 7, not simply because each seeks to streamline its environmental review process for wind projects. Even if the agencies streamline the NEPA process, the ESA's consultation requirement will remain an obstacle for expediting wind requests unless the agencies simplify Section 7 requirements. As currently drafted, the PEIS does not explicitly acknowledge that the agencies are seeking to do just that, by completing formal consultation in the tier I NEPA review so as to avoid a site-specific ESA review. Further, it makes assumptions regarding an as yet uncompleted and, for purposes of this PEIS, an undocumented programmatic Section 7 consultation. This lack of candor appears throughout the document and must be addressed by the agencies. We offer comments on the manner in which the agencies seek to streamline the ESA Section 7 consultation requirement below in Part 8.

[7] 40 C.F.R. § 402.14.

PART 2: ANALYSIS OF IMPACTS

COMMENT 2.1. The PEIS Needs to Discuss How Takings of Listed Species Will Be Addressed.

The FWS Handbook on Section 7 consultation defines "is likely to adversely affect" as the "appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action . . . and the effect is not: discountable, insignificant, or beneficial . . . *If incidental take is anticipated to occur as a result of the proposed action, an 'is likely to adversely affect' determination should be made*. An 'is likely to adversely affect' determination requires the initiation of formal section 7 consultation."[8]

The Handbook defines the phrase "is not likely to adversely affect" as "the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. . . . Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur."[9]

For most of the listed species included in this PEIS, the agencies have determined in Table 2.3-2 that the proposed action is classified as "may affect, not likely to adversely effect." First, this implies that the agencies believe that the proposed action's effect on the species will be discountable, insignificant, or completely beneficial. Second, this suggests that the agencies do not anticipate any incidental take of those species; otherwise, as noted in the FWS Handbook, the determination should be "is likely to adversely affect." The PEIS does not indicate why the agencies are certain that the avoidance measures will eliminate the possibility

[8] FWS & NMFS, Endangered Species Consultation Handbook, at xv (Mar. 1998) (emphasis added) (hereinafter "FWS & NMFS, Consultation Handbook").
[9] FWS & NMFS, Consultation Handbook, *supra* note 8, at xv-xvi.

of incidental take or what data they rely on for that conclusion. Neither does the PEIS explain what will occur if any given wind project results in the incidental take of a listed species.

For a few species, the agencies' effect determination is "not likely to jeopardize the continued existence." That the agencies have articulated a jeopardy assessment for those species, rather than a negative adverse effect assessment, suggests that the agencies expect incidental take of those species, though not to a level that jeopardizes the continued existence of the population. If that is indeed the case and the agencies expect incidental take of a species, an "is likely to adversely effect" determination is required, along with initiation of formal consultation. We comment on formal consultation in Part 8.

COMMENT 2.2. The Agencies Have Not Included Mitigation Measures for Habitat Disturbance.

The PEIS discusses the adverse impacts of wind development on habitat, but there are no measures requiring compensatory mitigation for habitat fragmentation, alteration, and degradation, other than for a select few listed species. With the exception of Sprague's Pipit, the agencies have concluded that impacts on suitable habitat for listed species are either negligible or minor in Table 5.6-18.[10] In several other instances, however, the PEIS states that habitat fragmentation, alteration, and degradation can have long-term effects on wildlife, and especially so for threatened and endangered species.

The PEIS puts much emphasis on the amount of land permanently and temporarily affected by wind development (0.7 to 1.0 ac per turbine and 0.4 to 2.6 ac per turbine, respectively), concluding that the "footprint of permanent structures would be expected to occupy less than 1 percent of the overall project area."[11] Habitat disturbance is not adequately

[10] PEIS, at 5-143.
[11] PEIS, at 5-70.

expressed or described in terms of directly disturbed land area or vegetative cover. The agencies must account for indirect habitat loss, which the PEIS acknowledges "could be of greater consequence than a direct habitat loss."[12] In discussing impacts on habitat as a result of construction, the PEIS notes, for example, that "the loss of effective habitat (amount of habitat actually available to wildlife) was reported to be 2.5 to 3.5 times as great as the actual habitat loss due to roads."[13] In relation to operations, the PEIS notes that "[r]educed use and displacement of some birds probably occur in close proximity to turbines" and "possible effects on sensitive species may occur at distances greater than or equal to 1 mi (1.6 km) from the center of a wind farm . . ."[14] Table 5.6-4 notes that some species "may avoid areas surrounding the wind energy facility, including foraging and nesting habitats, due to fragmentation of habitat, placement of facilities, or increased human activities."[15] The agencies further note the impact that habitat fragmentation and habitat degradation have had on declining populations of Sage-Grouse species, as well concern over the Greater Prairie-Chicken and Sharp-Tailed Grouse.

Given the discussion on habitat disturbance and the interference wind facilities have on wildlife behavior, the agencies need to incorporate compensatory mitigation measures for habitat protection. Further, the PEIS needs a section analyzing the relation between a project's footprint (i.e., boundaries of full build-out) and the extent to which wildlife patterns are disturbed beyond those areas.

[12] PEIS, at 5-72.
[13] PEIS, at 5-72 to 5-73.
[14] PEIS, at 5-81.
[15] PEIS, at 5-79.

COMMENT 2.3. The Avian and Bat Mortality Estimates Need to Be Revised.

The avian and bat fatality estimates for the UGP region rely upon published data instead of using relevant data that FWS already has in its database. In the final PEIS, the agencies must address how much bird and bat mortality data FWS has from wind facilities for each of the six UGP states and must explain why relevant, credible data was not used in this draft PEIS. Wherever possible, actual data from the region should be incorporated into the final PEIS.

The avian and bat fatality estimates for the UGP region that use published data need to be revised and the calculations need to be expanded for the various development scenarios. Several estimates appear in Chapter 5, none of which are consistent with each other or the data assumptions, and none of which are completely explained.

The first estimate appears on page 5-104 under the Wildlife section of Common Impacts:

> Using estimates of 3.04 bird fatalities per megawatt per year in the United States (Erickson et al. 2003b) and 0.2 to 8.7 bat fatalities per megawatt per year in the Midwest (Arnett et al. 2007; Illinois DNR 2007), *it is estimated that fatality rates within the six States that include the UGP Region would be approximately 27,606 birds and 1,816 to 79,005 bats per year*. Although wind turbines are estimated to account for less than 0.01 percent of anthropogenically caused avian fatalities, it has been suggested that in certain areas wind facilities could be acting as population sinks for some species (Edkins 2008).
>
> It is predicted that the installed wind energy capacity within the United States by 2020 will be 72,000 MW (Kunz et al. 2007a), and possibly as high as 300,000 MW by 2030 (Edkins 2008). Absent any new bird or bat avoidance technologies, this could result in annual nationwide fatalities of nearly 220,000 birds by 2020 and more than 900,000 birds by 2030. Bat fatalities would be nearly three times as high.[16]

First, these sources use out-of-date figures. According to the American Wind Energy Association, there were already 60,007 MW of installed wind power by the end of 2012. Installed wind power in the United States grew by an average of 8,129 MW per year between

[16] PEIS, at 5-104.

2007 and 2012.[17] If wind power maintains that same growth rate until the end of 2020, there will be 65,032 MW of added generation, for a total of 125,039 MW, far above the estimate of 72,000 MW by 2020, thus making any bird and bat mortality estimates based on 72,000 MW too low. Second, the estimate of 900,000 bird fatalities is only the lower end of the range of an estimate of birds killed by 2020 that FWS has been using since 2007-2008. The full estimate is 900,000 to 1.8 million.[18] Please see Attachments A, B, and C for FWS documents so indicating.

To estimate avian fatality rates for the six states in the UGP region, the PEIS applies the *U.S.* estimate of 3.04 bird fatalities per MW per year.[19] First, the estimate for 3.04 bird fatalities per turbine is based on a 10-year old study from 2003 and needs to be updated.[20] Second, the agencies apply this estimate to the 9,081 MW of already *installed* wind power capacity in the six state UGP region to conclude that fatality rates within the six states *will be* approximately 27,606 birds.[21] This figure (27,606 birds) is an estimate of current fatalities (using 2011 MW figures), not future fatalities, and it is an estimate that uses the national average fatality rate rather than a regional (six state) average fatality rate. The same analysis applies to the bat mortality estimates, as bat fatalities are estimated using the *Midwest* fatality estimate of 0.2 to 8.7 bats per MW per year rather than a regional estimate. Given that wind facilities in certain areas "could be acting as population sinks for some species,"[22] the PEIS should apply a regional fatality estimate from the six UGP states rather than a U.S. or Midwest estimate in order to accurately assess collision mortality risk. Furthermore, the PEIS cannot rely on the 2011 figures for installed wind capacity to calculate future risk. The agencies need to include an estimate for expected avian mortality in

[17] *See* American Wind Energy Association, *Industry Statistics*, http://awea.org/learnabout/industry_stats/index.cfm (last accessed May 20, 2013). Total new installed capacity from 2007 through 2012 was 48,774 MW. The average (48,774 MW divided by 6 years) is 8,129 MW.
[18] *See* Attachments A, B, & C.
[19] PEIS, at 5-104.
[20] PEIS, at 5-104.
[21] PEIS, at 5-104.
[22] PEIS, at 5-104.

2030 for the region under the two applicable development scenarios. Table 2.4-1 projects 21,427 MW of installed capacity by 2030 under the first scenario (trend) and 53,310 MW of installed capacity by 2030 under the second scenario (20%).[23]

The second estimate appears on page 5-137, under the discussion of wildlife impacts for the No-Action Alternative. There the PEIS states:

> Using estimates of 3.04 bird fatalities per megawatt per year in the United States (Erickson et al. 2003b) and 0.2 to 8.7 bat fatalities per megawatt per year in the Midwest (Arnett et al. 2007; Illinois DNR 2007), *it is estimated that fatality rates within the six States that are part of the UGP Region would be approximately 18,362 birds and 1,208 to 52,548 bats per year.*

These estimates do not correspond to the initial estimates (27,606 birds, and 1,816 to 79,005 bats per year). It is unclear what project capacity estimates these calculations rely on. Further, the agencies do not provide similar mortality data for Alternative 1, other than to say that the impacts would be comparable to the No-Action Alternative. We therefore assume that the agencies expect that avian and bat mortality will be comparable to the No-Action Alternative.

The agencies must revise the mortality estimates. Using more recent fatality estimates and regional UGP data as much as possible, the final PEIS should provide the following range of estimates for expected mortality of birds and bats:

- 2010 Installed Capacity
- 2011 Installed Capacity
- Case 1 2030 Installed Capacity
- Case 2 2030 Installed Capacity
- 115 New Projects [UGP low estimate]
- 400 New Projects [UGP high estimate]
- 58 New Projects [Western low estimate]
- 200 New Projects [Western high estimate]

This range will allow the agencies and the public to more accurately quantify and understand the implications of wind energy development on bird and bat fatalities under the various scenarios

[23] PEIS, at 2-45.

presented in the PEIS. It will show baseline measures for 2010 to 2011 for "current" risk to birds and bats, the expected risk to birds and bats based on total installed capacity in 2030 under the Case 1 and Case 2 development scenarios, the incremental impact of new wind generation projects installed under Case 1 and Case 2, and the incremental impact of Western's anticipated 58 to 200 interconnection requests.

COMMENT 2.4. The PEIS Inadequately Addresses the Impact of Wind Facilities on Bird Behavior.

The PEIS does not adequately address the potential impacts of increased wind energy facilities in the Prairie Pothole region for waterfowl and other wetland and grassland dependent birds. The Prairie Pothole Region is the primary breeding grounds for ducks and waterfowl in North America. The continued use of prairie wetlands is critical to maintaining duck populations. Although the PEIS discusses collision risk, it only briefly mentions behavioral modification as an effect of development and does not address the possibility that land-based wind facilities may affect bird settling patterns, density, or distribution during the breeding season. The agencies must acknowledge the *indirect* impacts of wind development on breeding ducks and other wildlife, and better address the hypothesis that displacement of breeding ducks and other birds may affect population dynamics.

Recent research on dabbling ducks, for example, demonstrates that these species respond negatively to wind energy sites.[24] The studies showed decreasing densities of ducks on wetlands near wind sites, with a 4% to 56% reduction in breeding pairs. Given the importance of the Prairie Pothole Region as breeding grounds for birds, it is incumbent on the agencies to discuss what avoidance and reduced reproduction could mean for species populations. This analysis is

[24] Charles R. Loesch et al., Effect of Wind Energy Development on Breeding Duck Densities in the Prairie Pothole Region, The Journal of Wildlife Management 77(3):587-598 (Dec. 2012).

especially needed given that FWS's Conservation Strategy calls for an additional 1 million acres of wetlands and 10 million acres of grasslands "in order to sustain current levels of breeding waterfowl."[25]

[25] PEIS, at 2-3.

PART 3: SPECIES-SPECIFIC MEASURES

COMMENT 3.1. The Species-Specific Survey, Avoidance, and Conservation Measures Are Vague and the PEIS Does Not Adequately Convey the Level of Protection the Measures Will Provide When Implemented.

The PEIS's discussion of species-specific avoidance and conservation measures applies the following range of terms: avoid, do not, should, minimize, may, limit, and restrict. Each of these terms implies a different level of commitment from project developers. To understand the level of protection that these terms offer, the public needs an explanation of how FWS will determine whether a given project meets the applicable criteria. As currently drafted, it is unclear how the set of measures will be applied in a consistent, programmatic manner. If additional formal Section 7 consultation will be required for listed species for which developers are "unwilling or unable to implement" the measures, the agencies must identify what will constitute unwillingness or inability in the context of the applicable criteria.[26] Many of the measures use discretionary language like "may," "should," and "avoid" rather than mandatory terms such as "do not." The agencies have not explained how they will assess whether a developer is "unwilling" or "unable to implement" a measure that uses language suggesting that implementation is optional or flexible. The PEIS must explain how measures whose implementation is optional can be counted on to assure and achieve avoidance, minimization, and mitigation objectives and how such intended results can be quantified.

Below are multiple examples that illustrate our concern over the vague nature of the draft set of species-specific measures. Although we provide specific examples, we do not limit our concern to this list. The majority of the criteria for listed species display a pattern of vagueness.

[26] PEIS, at 2-11.

What does "avoid" require?

Prairie Bush Clover

For the Prairie Bush Clover, the PEIS states: "Do not site turbines, access roads, transmission line towers, or other project facilities within 100 ft (30.5 m) of suitable habitat containing prairie bush clover."[27] The use of the words "do not" implies that developers may not, under any circumstances (if the developer wants to take advantage of the tiered programmatic review and consultation), site turbines within 100 feet of habitat where Prairie Bush Clover is present. The second requirement, however, says to "avoid mowing along access roads or transmission line ROWs in areas containing suitable habitats" for the Prairie Bush Clover.[28] Does "avoid mowing" mean "do not mow"? The PEIS needs to explain if "avoid" is as strict of a requirement as "do not." If the agencies are in fact using "avoid" to offer discretion and flexibility to developers, the measure loses all meaning in terms of requiring certain action on the part of developers.

Piping Plover

For the Piping Plover, one of the conservation measures is to "avoid construction activities within 0.5 mi (0.8 km) of nesting areas during late April to August" if Piping Plovers nest in the project area during construction.[29] Is this a total prohibition on construction activities from April 1 to August 31, or does the word "avoid" mean that the developer has flexibility in determining the days or weeks within those months where construction can and cannot go forward? If the latter, how will FWS achieve consistent results from project to project?

Sprague's Pipit

The avoidance measure for Sprague's Pipit is to "avoid placement of turbines, access roads, and transmission lines on or within 1,000 ft of suitable native prairie tracts larger than 70 ac."[30] If "avoid" means a mandatory "do not locate," then the measure needs to be revised. Several of the measures for other birds in the species-specific list, such as the Whooping Crane, explicitly state "do not site." The PEIS needs to explain why the terms used for the various measures and species are not consistent where siting and location of wind projects are key considerations.

[27] PEIS, Table 2.3-2, at 2-21.
[28] PEIS, Table 2.3-2, at 2-21.
[29] PEIS, Table 2.3-2, at 2-31.
[30] PEIS, Table 2.3-2, at 2-32.

How restrictive is "restrict"?

Ute Ladies'-tresses

One of the measures for the Ute ladies'-tresses is to "restrict all herbicide use within 100 ft (30.5 m) of suitable habitat containing the species."[31] Here, does "restrict" mean the same as "do not use"? Or does "restrict" imply that a certain amount of herbicide use is permitted within 100 feet of the Ute ladies' tresses but not as much as beyond 100 feet? And if the latter is the case, is there a maximum amount of herbicides that FWS will permit? If not, is the burden on the developer to show that the restriction chosen is sufficient to meet this criterion?

Is "should" a requirement or a recommendation?

For the Greater Sage-Grouse, the first conservation measure states that "existing guy wires should be marked with recommended bird deterrent devices."[32] What does "should" mean in the context of this mandate? It is unclear whether the agencies are using "should be" to signal a mandatory requirement or to signal that the measure is suggested but not required. If existing guy wires must be marked, then the language needs to be revised to include a "must" and to clarify that this is a requirement.

If avoid, restrict, limit, and other such terms are meant to convey a mandatory prohibition (i.e., "do not, must, shall"), then the PEIS should so state. Absent this specificity, it is unclear how FWS will determine project compliance with the requirements. Because mandatory measures are directives as to what developers can and cannot do in order to take advantage of the tiered NEPA analysis and the programmatic consultation, the burden needs to be on the developer to show that it has complied with the criteria. If, on the other hand, terms such as avoid, restrict, and limit are meant to convey discretionary and optional implementation, the PEIS must show how the outcomes of such measures are to be counted toward conservation of species.

[31] PEIS, Table 2.3-2, at 2-22.
[32] PEIS, Table 2.3-2, at 2-30.

COMMENT 3.2. The Species-Specific Measures Will Not Necessarily Produce the Standardization or Consistency Sought by the Agencies.

One of the stated goals for the PEIS is to standardize a set of measures and BMPs that will be required of wind facilities in the UGP region. The objective for standardizing these avoidance and minimization techniques is to provide consistency in the environmental review process and in facility development. In theory, the draft set of species-specific measures included in the PEIS arguably achieves some consistency. In practice, however, the PEIS will not standardize the measures other than to provide flexible benchmarks for species and habitat protection.

Consider, for example, the case of the Indiana bat. One of the species-specific avoidance measures is to "increase turbine cut-in speeds at developments within the counties where the Indiana bat is listed."[33] While this requirement theoretically imposes a standard of increasing turbine cut-in speeds for facilities in counties where the Indiana bat is listed, there is no set requirement. The PEIS says nothing about the appropriate cut-in speed, the length of time the increased cut-in-speed is to operate, the time of year it must apply, or the time of day the increased cut-in speed should be activated. For instance, is a mere 0.5 m/s increase for one hour each night in the month of August sufficient to comply with this requirement or should the developer increase the cut-in speed to 6.5 m/s from dusk through dawn during the Indiana bat's spring and fall migration periods? How will FWS and project developers agree to the specific measures in the site-specific consultation? And will FWS impose the same increase on all facilities in those counties in which the Indiana bat occurs or will it vary from facility to facility?

Another example is the requirements for the Sprague's Pipit. One of the species-specific conservation measures is to "conserve or restore native prairie habitats to offset impacts on

[33] PEIS, Table 2.3-2, at 2-36.

native prairie caused by fragmentation, as determined in tiered site-specific consultation."[34] Without greater specificity, there is no assurance that restoration of native prairie habitat will in fact be consistent from facility to facility. At the very least, the measure should specify a proportionality requirement between the impacts caused to native prairie by a facility and the degree of restoration or conservation of native prairie habitat.

Accordingly, the PEIS should explain how FWS will guarantee that species-specific measures will be implemented consistently and programmatically, particularly for those measures that use terms like "should," "avoid," "limit," and "employ BMPs." If FWS intends to coordinate and negotiate these measures in site-specific consultations, the agency should articulate how it proposes to apply site-specific requirements in a standardized manner across all facilities. The PEIS should also set out the opportunities for public input to site-specific decisions. As currently drafted, the PEIS suggests that facility location, design, and operations will be tailored through a tiered consultation process in which the public's role is undefined or nonexistent.

COMMENT 3.3. Wind Turbines Should Not Be Located Within Indiana Bat Maternity Home Ranges.

Indiana bats may travel 5 miles or more between roosts and foraging areas, depending on factors like habitat and prey availability, and may forage across several miles.[35] Thus, roosting bats in an area 5 miles or less from a project's turbines may be impacted as a result of either physical harm or flight path disruption. FWS recommends in its 2011 *Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects* that an Indiana bat's home range should be delineated to include all suitable habitat within 5 miles of a capture location if only capture data

[34] PEIS, Table 2.3-2, at 2-32.
[35] FWS, *Indiana Bat Draft Recovery Plan: First Revision*, at 50 (Apr. 2007), *available at* http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf.

are available; all suitable habitat within at least 2.5 miles of a single documented maternity roost tree; all suitable habitat within at least 2.5 miles of the line drawn between two documented roost trees; and all suitable habitat within at least 2.5 miles of the center of the polygon created by connecting three or more documented roost trees.[36] The set of species-specific avoidance measures for the Indiana bat should therefore incorporate a requirement that project developers locate wind facility components outside Indiana bat maternity home ranges, as delineated above.

COMMENT 3.4. Wind Turbines Should Not Be Located in High-Quality Greater Sage-Grouse Habitat.

The PEIS makes recommendations for Greater Sage-Grouse protection based on core population areas.[37] However, the PEIS also states that "[w]ithin the UGP Region, core areas for the greater sage-grouse are only known from the State of Montana."[38] This means that there are no core areas determined for Greater Sage-Grouse within North and South Dakota or any of the other UGP states. Therefore, in order to provide protection for Greater Sage-Grouse outside Montana, the PEIS needs to be revised so that all of the recommendations for protection of Greater Sage-Grouse that refer to core areas instead refer to "core areas and other high-quality Greater Sage-Grouse habitat, especially in North and South Dakota, where Greater Sage-Grouse core areas have not been determined."

[36] FWS, *Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects, Revised*, at 8-13 (Oct. 26, 2011), *available at* http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inbaS7and10WindGuidanceFinal26Oct2011.pdf.
[37] *E.g.*, PEIS, at ES-26 ("Do not site turbines, access roads, transmission lines, or other project facilities within greater sage-grouse core population areas.").
[38] PEIS, at 5-141, footnote g.

PART 4: EAGLES

COMMENT 4.1. The PEIS Should Define "Eagle Use Areas."

The Service defines important eagle use areas as "an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feed, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding or sheltering eagles."[39] Additionally, the Service has noted that "migration corridors and migration stopover sites" are also important eagle use areas.[40]

The PEIS only lists "nesting, foraging, and winter roost areas" as eagle use areas. The agencies should provide a clearer statement of eagle use areas, as defined in 50 C.F.R. § 22.3. The PEIS should also include eagle migration corridors and migration stopover sites as eagle use areas.

COMMENT 4.2. ECPs Must Be Required for Projects Located Near Eagle Use Areas.

One of the Ecological Resources BMPs for Project Planning and Design states that if a developer determines that "eagle use areas occur within a 10-mi radius of a project footprint, the project developer *should* develop an Eagle Conservation Plan (ECP)."[41] Here, "should" suggests that developers have the choice whether or not to develop an ECP. In Chapter 2, however, the PEIS states that if eagle use areas occur in a 10 mile radius of a project's footprint, "the project developer *would need to* develop an Eagle Conservation Plan (ECP) in order to be able to tier off

[39] 50 C.F.R. § 22.3.
[40] FWS, *Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy, Version 2*, at 12 (Apr. 2013) (hereinafter "FWS, *ECP Guidance Module 1*"), *available at* http://www.fws.gov/migratorybirds/PDFs/Eagle%20Conservation%20Plan%20Guidance-Module%201.pdf.
[41] PEIS, at 5-126 (emphasis added).

of this Programmatic EIS."[42] This statement suggests that an ECP is a firm requirement rather than a recommendation. The BMPs section must be amended to reflect that an ECP will be required, not simply encouraged.

In the event that the ECP is merely a suggestion, the BMP should be revised to require an ECP. Although the ECP Guidance sets out steps that developers may voluntarily implement, the developers should be required to follow those steps in order to benefit from the tiered PEIS and the streamlined environmental review process. If developers do not wish to follow FWS's expert opinion as described in its ECP Guidance, they should not be permitted to expedite their projects' environmental reviews.

COMMENT 4.3. Developers Should Be Required to Follow the Service's *Eagle Conservation Plan Guidance* in Developing ECPs.

Under the Ecological Resources BMPs for Project Planning and Design, developers are encouraged to evaluate the potential for adverse impacts to bald and golden eagles "in a manner consistent with the draft *Eagle Conservation Plan Guidance* (Service 2011a)." Further, it is "highly recommended" that "[e]arly in the planning of transmission interconnection and wind farm location" developers coordinate with FWS with respect to the guidance.[43] This BMP needs to require, rather than merely encourage, developers to follow the five step consultation process in the guidance document. We note here that the Service has issued a final ECP Guidance document since the draft PEIS was made public.[44] The PEIS should at the very least explain why developers are not required to follow the recommendations. FWS's *Land-Based Wind Energy Guidelines* "strongly" encourages developers to refer to the ECP Guidance if eagles are identified at a project site. It describes the ECP Guidance as providing "a national framework

[42] PEIS, at 2-38 (emphasis added).
[43] PEIS, at 5-126.
[44] FWS, *ECP Guidance Module 1*, *supra* note 40.

for assessing and mitigating risk specific to eagles."[45] If the guidance reflects FWS's expert opinion on the best process for evaluating effects on eagles, that process should be required of developers given the scope of this PEIS.

COMMENT 4.4. Because No Take of Golden Eagles is Permitted East of the 100th Meridian, the PEIS Should Require Marking of All Line and Retrofitting of Power Poles in Golden Eagle Use Areas.

The PEIS explains that Golden Eagles are permanent residents of Montana and the western portions of the Dakotas and are non-breeding residents "throughout the rest of the UGP Region."[46] Under FWS regulations, no take of Golden Eagles east of the 100th Meridian is permitted. FWS has determined that east of the 100th Meridian the species "might not be able to sustain any additional unmitigated mortality."[47] Given that the UGP region extends east of the 100th Meridian and that Golden Eagles are non-breeding residents throughout that area, developers should be required to mark all transmission lines and retrofit power poles in areas near Golden Eagle use areas, and then BMPs and measures of the PEIS should include all other appropriate actions designed to lower to negligible the risks of eagle mortality at wind projects.

[45] FWS, *Land Based Wind Energy Guidelines*, at 3 (2012), *available at* http://www.fws.gov/windenergy/docs/WEG_final.pdf.
[46] PEIS, at 4-98.
[47] FWS, *ECP Guidance Module 1*, *supra* note 40, at iv.

PART 5: BMPs & MITIGATION MEASURES

COMMENT 5.1. The BMPs and Mitigation Requirements Are Overly Vague.

The agencies use the same range of imprecise terms for the general BMPs and Mitigation Measures sections of the PEIS as for the species-specific measures discussed in Part III. The agencies use "do not, should, avoid, to the extent practicable, may, can be" and other such phrases. Except for "do not," these terms and phrases do not identify with any specificity the extent to which individual BMPs must be implemented. More importantly, most of these terms offer no information as to the manner in which Western and FWS will assess whether any given developer has complied with the so-called requirements. Below are several examples to illustrate the ambiguous character of the BMPs "requirements." We do not limit the scope of our comments to these examples, but highlight them to illustrate the pattern of ambiguity apparent in the PEIS's language.

One of the "Land Use" BMPs is to "[a]void locating wind energy developments in areas of unique or important recreation, wildlife, or visual resources. When feasible, a wind energy development should be sited on already altered landscapes."[48] How will a developer prove to the agencies that it has "avoided" developing in an area of important wildlife resources? By what standards will the agencies judge implementation of this BMP so as to permit tiering? What does this BMP succeed in standardizing, and how? What determines feasibility in an area as large as the UGP region? Absent additional information on how the agencies will determine whether a unique area for wildlife has been sufficiently avoided, it is impossible for the public (and the agency decision makers) to understand the level of protection this BMP actually offers.

[48] PEIS, at 5-14.

Another BMP states that "transmission line support structures and other facility structures *should be* designed to reduce the likelihood of electrocution with proper spacing of components and by the use of line marking devices, *where warranted and appropriate*, to reduce the likelihood of collision."[49] Does "should be" in this context mean "must"? Who determines whether line marking devices are warranted and appropriate – the developer, FWS, or both together? What factors trigger a determination that line marking devices are warranted, if the developer chooses not to construct with regard to the APLIC recommendations? Here again, the BMP does not in and of itself reflect the level of protection it will provide to wildlife. The agencies need to articulate the standards by which terms such as "where warranted" and "as appropriate" will be measured.

A third example is a Decommissioning BMP that states that "[a]ll turbines and ancillary structures *should be* removed from the site."[50] Does this BMP require or recommend that all structures be removed? If removal of structures, such as turbines, turbine pads, etc., is required, the agencies should state it more directly. Rather than "should be," the PEIS should say all structures "must be" removed.

To summarize, the PEIS does not adequately address the baseline requirements and benchmarks that need to be met in order for developers to tier off the PEIS and Section 7 consultation. Much appears to be left to the discretion of developers. Unless the BMPs that use phrases like "where warranted, if appropriate, and should" are either further defined or revised, there is little to suggest that they will result in consistent application or in protection of wildlife and habitat.

[49] PEIS, at 5-126 (emphasis added).
[50] PEIS, at 5-129 (emphasis added).

COMMENT 5.2. The BMPs for Project Planning and Design Are Too General for Wildlife.

The PEIS acknowledges that proper siting and design are the best means for minimizing impacts to wildlife. The Ecological Resources BMPs for Project Planning and Design, however, do not appear to "require" any concrete steps or action. The introductory paragraph states that "the following measures *should be* incorporated" into the planning process.[51] "Should" is generally not synonymous with "must." The agencies should state that developers "must" implement the measures to benefit from tiering to the PEIS. The term "should" leaves room for interpretation as to the extent of required implementation.

The third BMP for developers is to review information on the species and habitats in the project area, to identify important, sensitive, or unique habitat in the project's vicinity, and then "design the project to avoid, minimize, *or* mitigate potential impacts on these resources."[52] The PEIS states that "[a]voidance is the preferred choice for minimizing impacts."[53] To start, projects should not be permitted to build in important, sensitive, or unique habitat, particularly in or near Important Bird Areas or Important Migratory Shorebird Stopover Sites (which the BMPs seem to permit).[54] ABC's understanding is that the Audubon Society has begun the process of designating Important Bird Areas. We encourage FWS to reach out to Audubon for its data and incorporate it into this PEIS, especially for birds of North and South Dakota. More importantly, the decision to avoid, minimize, or mitigate should not be left to the developer's choosing. Stating a mere preference for avoidance accomplishes little in the way of promoting consistency in environmental protection from project to project, nor does the preference serve to standardize any particular industry practice.

[51] PEIS, at 5-125 (emphasis added).
[52] PEIS, at 5-125 (emphasis added).
[53] PEIS, at 5-125.
[54] PEIS, at 5-125.

In the Operations and Maintenance section of BMPs for Wildlife, the introductory sentence states that a "variety of measures *may be* implemented to minimize the potential for impact to ecological resources during the operations phase of a wind energy project, including the following [listed BMPs]."[55] Again, "may" is not synonymous with "must." It appears, therefore, that none of the BMPs are strictly required. For example, one of the suggested BMPs is "[i]ncreasing turbine cut-in speeds . . . in areas of bat conservation concern during times when active bats may be at particular risk from turbines."[56] If this is a recommendation rather than a requirement, it is unlikely to be implemented by wind developers. If this is a requirement, the agencies should amend the language and eliminate the inference of suggestion. Further, if this is indeed a requirement, it should incorporate the information provided in the analysis section on effects to bats. In order to influence the planning process, the BMP needs to specify that increased cut-in speeds are required during the spring and fall migration periods, and from dusk until dawn. Ideally, the BMP will also specify the cut-in speed that must be implemented, otherwise it is likely to vary across projects and states depending on the result of the negotiations between project developers and the agencies.

The agencies incorporate a BMP in this section to evaluate bat use – including surveying for locations of roosts, colonies, and migration corridors – and requires that infrastructure locations "minimize impacts."[57] The statement, however, does not elaborate on how minimization is to occur. The PEIS should, for example, specify that turbines should not be sited closer than 5 miles from documented maternity roost trees unless the site-specific data show that a smaller distance would suffice.

[55] PEIS, at 5-129 (emphasis added).
[56] PEIS, at 5-129.
[57] PEIS, at 5-126.

To summarize, the wildlife BMPs need to be more clearly articulated and defined. The agencies' general recommendations and preferences are not strict requirements.

COMMENT 5.3. The PEIS Needs to Define "Mitigation."

The agencies must define the way they use the term "mitigation." Minimization and mitigation are distinct efforts, but the BMPs and mitigation measures seem to constitute efforts to *minimize* effects to the environment, not *mitigate* unavoidable effects. FWS's guidance on Habitat Conservation Plans describes actions that are considered mitigation. These include "preservation (via acquisition or conservation easement) of existing habitat; enhancement of restoration of degraded or a former habitat; creation of new habitats; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access."[58] Further, FWS's guidance on Section 7 Consultation emphasizes that "[m]itigation may or may not reduce the actual number of individuals the Services' anticipate to be taken as a result of project implementation."[59] Few of the BMPs or mitigation measures contemplate compensatory mitigation; most focus on project footprints with little emphasis on off-site measures that could, or will, be sought by FWS for habitat or species protection. The PEIS needs to identify contemplated mitigation standards and the specific situations to which the standards will apply.

COMMENT 5.4. The Information on Environmental Impacts to Birds Does Not Always Translate Into a Direct Minimization Measure or BMP.

There are several instances in which the PEIS provides information on a risk to birds, but the agencies have not drafted a BMP or mitigation measure to reflect that information and address that risk. For example, the PEIS explains that transmission lines within 400 meters of a wetland tend to result in higher bird fatalities than those located beyond 400 meters from the

[58] FWS, *Habitat Conservation Plans: Section 10 of the Endangered Species Act*, at 2 (Dec. 2005), *available at* http://www.fws.gov/endangered/esa-library/pdf/HCP_Incidental_Take.pdf.
[59] FWS & NMFS, Endangered Species Consultation Handbook, at 2-5 (Mar. 1998) (emphasis added).

water's edge.[60] Other than the broad, likely unenforceable and undefined requirement to "avoid" sensitive areas and important bird areas, there is no BMP to address this risk. The PEIS also notes that the tip-to-tip wingspans of certain birds exceed 60 inches, the recommended spacing between conductors, and thus, additional spacing between or additional insulation of conducting materials is recommended.[61] That recommendation is not reflected in the general BMPs or the species-specific measures.

COMMENT 5.5. The Agencies Should Require Developers to Follow the Various Guidance Documents Cited in the PEIS.

Rather than only recommend that developers follow the various agency and industry guidance documents for wind energy projects, the agencies should require that those guidance documents be followed. These documents include FWS's *Land-Based Wind Energy Guidelines*, FWS's *Eagle Conservation Plan Guidance*, APLIC's *Avian Protection Plan Guidelines*, and APLIC's other documents for avian protection on power lines. Given the procedural benefits that this PEIS offers to developers with respect to NEPA and ESA tiering, developers should be required to follow FWS's expert recommendations as well as implement known BMPs for power lines. If other approaches are compatible with FWS recommendations, the PEIS should state examples of approaches that show "consistency" with the guidance documents. Those approaches should be at least equivalent to the results that the Guidelines offer, if not better.

COMMENT 5.6. Monitoring Plans Must Be Required.

The PEIS is inconsistent as to whether monitoring is a standard requirement for all wind projects through all phases of development. Chapter 2's overview of FWS's proposed approach for easement exchanges notes that "operators *may be* required to develop monitoring programs,

[60] PEIS, at 5-85.
[61] PEIS, at 5-84.

as appropriate, to evaluate the environmental conditions at the site through all phases of development . . ."[62] In the PEIS's summary of BMPs, however, the agencies state that monitoring plans "*shall be* developed by the project developers so that environmental conditions are monitored during the construction, operation, and decommissioning phases."[63] Yet, in Chapter 5, the agencies mention that monitoring is a technique that "can be used,"[64] again implying that it is in the discretion of the developer to decide whether or not to implement a monitoring system. And specific to birds and bats, the agencies plan to require Bird and Bat Conservation Strategy Plans, but qualify that with the statement that "[p]ost-construction monitoring *may be needed* to validate the preconstruction risk assessment and allow the facility operators to implement adjustments based on identified problems."[65] There is no discussion in the PEIS as to which projects might "need" monitoring for avian and bat mortality or the factors that will trigger the need.

The agencies must require monitoring plans for any "environmental conditions" that may be impacted by wind energy development. And the scope of the phrase "environmental conditions" needs to be defined (i.e., wildlife mortality? change in lifecycle behavior?). The PEIS repeatedly emphasizes that information on wind energy impacts on environmental resources, especially listed species, remains in its early stages.[66] It will be impossible to review the effectiveness of the programmatic BMPs and mitigation measures and update and revise the set of requirements unless the agencies collect data on wind facility impacts.[67]

[62] PEIS, at 2-14 (emphasis added).
[63] PEIS, at 2-16 (emphasis added).
[64] PEIS, at 5-124.
[65] PEIS, at 5-125 (emphasis added).
[66] *E.g.*, PEIS, at 2-37, 5-147.
[67] PEIS, at 2-14.

The scope and duration of the PEIS demands that both developers and the agencies carefully monitor actual impacts. Monitoring is recommended by FWS in the *Land-Based Wind Energy Guidelines*, which should be followed as a mandatory requirement for tiering off this PEIS as noted above in Comment 5.5. Monitoring will assist the agencies in building a more comprehensive database of impacts to environmental resources. It will also permit the agencies to analyze and identify differences in predicted risk and actual risk, and thereby require adjustments in operations. Monitoring is also necessary in case adaptive management becomes necessary at any of these facilities, which is a real possibility given how little is known about the impacts of wind energy on threatened or endangered bird species such as Piping Plovers, Least Terns, and Whooping Cranes.

In the event that the agencies seek to require monitoring on a case-by-case basis, the agencies must identify for the public the factors that will trigger monitoring across the various environmental conditions discussed in this PEIS and the methodologies the agencies will require developers to implement.

COMMENT 5.7. Monitoring Protocols Should Be Consistent From Project to Project in Order to Accurately Evaluate Impacts.

The agencies should require uniform monitoring methods and metrics for the various environmental resources identified in the PEIS. This is especially important given that wind projects currently apply different surveying procedures, thus creating obstacles in data-gathering and application. The PEIS explains, for example, that the limitations to the sample of avian and bat fatality studies that have been conducted at wind facilities to date "may not be representative of the species that are killed and the level of actual mortality."[68] Those limitations result from the following: studies apply different methods; studies are not designed in a statistically rigorous

[68] PEIS, at 5-84.

manner; birds are not located when killed; and searcher efficiency.[69] While the PEIS notes that there are no universally accepted protocols for conducting post-construction mortality studies, it would seem possible to at least require studies to use similar methods and to design studies in a statistically rigorous manner.

To achieve consistency among facility monitoring plans, the agencies should establish the metrics against which monitoring observations can be measured and the protocols for incorporating results into operating procedures.[70] If each project develops its own metrics, protocols, and mitigation, the agencies will not create a standardized method through which data may be gathered. By developing uniform methodologies for surveying wildlife fatalities and impacts to environmental conditions at wind sites, the agencies will be better equipped to update the programmatic BMPs, minimization measures, and mitigation requirements. Monitoring is essential to evaluating whether the agencies' assumptions regarding harm prove accurate.

[69] PEIS, at 5-84.
[70] PEIS, at 2-14.

PART 6: EASEMENT EXCHANGES

COMMENT 6.1. The Process for Easement Land Exchanges Needs Clarification.

The agencies have not explained FWS's process for easement land exchanges in sufficient detail. The PEIS must elaborate on the baseline requirements that replacement land must meet in order to qualify for an exchange and the standards that FWS will apply in reviewing developers' replacement land proposals. The current draft of the PEIS only briefly summarizes the formal steps FWS takes in reviewing requests, which are presumably detailed in the Service's internal guidance document that the agencies mention in Chapter 2.[71] That guidance document does not appear to be incorporated by reference, and it is not available for public comment. In order to better understand the short-term and long-term environmental implications of the easement exchange program, the PEIS must explain the factors FWS considers in measuring the degree to which the original easement's conservation purpose *and* value are impacted and the factors FWS considers in terms of the replacement land's quality and quantity, the degree to which it serves the original easement's conservation purpose *and* conservation value, and the extent to which the replacement land mitigates the impact.

COMMENT 6.2. The Mitigation Requirements for Easement Exchanges Are Not Adequately Stated.

The PEIS applies three different standards for measuring impacts to easement lands: impacts to conservation purpose, conservation value, and "entire" conservation value. The degree to which replacement land must mitigate the impacts to each of these standards is unclear and needs elaboration.

[71] *See* PEIS, at 2-4. The References section refers to: Service, 2010a, *Administrative and Enforcement Procedures for FWS Easements (Wetland, Grassland, Tallgrass, and FmHA) within the Prairie Pothole States*, 2nd edition, revised Nov., Denver, CO: Mountain-Prairie Region.

The PEIS first notes that an easement exchange will not be permitted unless "the easement tract will still meet its intended conservation purpose."[72] Second, for wind projects seeking to build on easement land, "*replacement land would be required*, through an easement exchange *to offset the anticipated losses in conservation value* . . ."[73] This refers to the losses in conservation value of "permanently impacted land,"[74] with "permanent" presumably meaning the land upon which wind facility components are constructed. Third, the PEIS states that "mitigation measures on future projects *may* include offsets for impacts *on the entire conservation value of the habitat remaining on impacted easements* and not just the footprint of the disturbed area."[75] Thus, there is one baseline requirement for an exchange (the conservation purpose must still be met on the impacted easement) and two sets of mitigation standards – one that is *always* applicable (offset losses to conservation value of impacted land), and one that will *sometimes* be applicable (offset losses to entire conservation value of easement tract).

The PEIS needs to describe the following to adequately explain the way FWS measures impacts and what standards of mitigation are required for each level of impact:

> (1) how FWS measures impacts to the conservation purposes of easements;
> (2) how impacts to conservation purposes are factored in to mitigation requirements;
> (3) how FWS measures the conservation value of permanently impacted land versus the "entire" conservation value of easement land;
> (4) how FWS will determine whether proposed replacement land mitigates the lost conservation value; and
> (5) when and how FWS will determine that offsets are required for losses to the "entire" conservation value of an easement tract.

If replacement land is a firm requirement, then FWS also needs to explain its requirements for replacement land in terms of quantity and quality. What factors are considered in determining whether replacement land is "equal" to the impacted land? For example, does

[72] PEIS, at 2-4.
[73] PEIS, at 5-2 (emphasis added).
[74] PEIS, at 2-5, Step #5.
[75] PEIS, at 5-11 (emphasis added)

FWS contemplate a 1:1 ratio for impacted to replacement land? Or is the standard more qualitative than quantitative? How will "impacted" land be defined? "Impacted" surely must include more land than is actually displaced and ought to include all land in which wildlife behavior will be affected. This discussion is particularly lacking given that the PEIS acknowledges that habitat fragmentation and degradation occurs as a result of the easement land exchange program, and this fragmentation, together with wildlife avoidance of wind facilities, "reduces [an easement's] conservation value and the reason for which it was acquired."[76] A 1:1 land ratio does not effectively mitigate the long-term impacts to the conservation value of grassland and wetland easements. Replacement land should be a firm requirement, and it should be of equal or higher habitat quality than the replaced land.

COMMENT 6.3. FWS Must Explain Why FWS Region 3 and Region 6 Are Abandoning Their More Protective Approaches to Easement Lands.

The PEIS notes that FWS Region 3 does not currently consider requests to accommodate wind energy on wetland or grassland easements, and Region 6 considers requests to use land on grassland easements but not wetland easements.[77] The PEIS does not address the current differences in protection and approach between the two Service Regions, nor does it explain why the Service Regions have decided to abandon their more protective approaches. Further, the implication is that both Region 6 and Region 3 will now consider requests in all Region 3 and Region 6 states, not just in the states impacted by this PEIS (Montana, the Dakotas, Nebraska, Iowa, and Minnesota). The environmental consequences and cumulative impacts of expanding the easement exchange program to Regions 3 and 6 have not been adequately discussed by the agencies.

[76] PEIS, at 5-11.
[77] PEIS, at 5-11.

COMMENT 6.4. FWS Must Explain How Compensation to Landowners Is Affected By the Easement Exchange Program.

With respect to those wetland and grassland easements that prohibit the addition of structures but upon which FWS will agree to accommodate wind energy components, FWS should explain how the agency will be reimbursed for the loss of the restriction it purchased on the land (if at all) and for the taxpayer-funded cost of the time spent to assess and acquire the original easement.

COMMENT 6.5. Turbine Sub-Structures Must Be Removed From Easement Lands During De-Commissioning.

The PEIS needs to include an additional BMP for conservation easement lands that accommodate wind energy. Turbine substructures must be completely removed on FWS conservation easements in order for native prairie to grow back. Attachment D shows native prairie plant system root depths and illustrates why turbine foundations need to be removed from conservation easement lands.[78]

[78] *See* Attachment D.

PART 7: CUMULATIVE IMPACTS

COMMENT 7.1. The PEIS Does Not Take a Hard Look at Cumulative Impacts.

The CEQ regulations define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions."[79] The purpose of the cumulative effects analysis is to consider the full range of consequences of actions. This PEIS does not take a hard look at the cumulative impacts of Western's, FWS's, and other proposed actions on the various resources, and especially on ecological resources. The discussion is limited to general, conclusory statements with little to no supporting data on which to base the agencies' assessments. Of the 900-page document, the agencies reserve a mere 11 pages for cumulative impacts (from 6-27 to 6-38). This inadequate coverage is particularly acute in the wildlife and ecological resources sections, and is inexplicable in a programmatic EIS.

The cumulative impacts section must analyze each resource, quantify the impact of past, present, and reasonably foreseeable actions, and identify the incremental impact that will result from wind development under the PEIS. As currently drafted, the PEIS concludes for nearly every ecological resource that impacts will be small, minor, manageable, or reduced under the preferred Alternative without providing any data to support those statements. Whether impacts will be minimized under the mitigation measures and BMPs is arguable, and beside the point; these general assertions are entirely uninformative. The public needs to be able to review a rigorous assessment of what the impact will be *with* the PEIS's BMPs, mitigation, and minimization efforts in effect. Then, the PEIS needs to quantify and describe the magnitude of

[79] 40 C.F.R. § 1508.7.

that impact in light of the impact of other past, present, and reasonably foreseeable actions on ecological resources. The point of the cumulative impacts analysis is to assess the proposed action's impact on environmental resources together with other past, present, and future impacts so as to identify whether additional minimization or mitigation techniques are needed.

The cumulative impacts section for wildlife, for example, is merely a brief summary of the types of impacts the agencies expect from commercial, agricultural, industrial, and residential development – from direct injury to habitat disturbance to interference with behavioral activities to increased risk of invasive species.[80] This description gives no indication of what the impact of development will be on wildlife. How much wildlife mortality can be expected from development? How much habitat loss is predicted? How much grassland conversion do the agencies expect in the UGP region and what will that mean in terms of behavioral modification of birds? How close will we come to too much? How much is too much for affected resources? These questions must be addressed and answered. It is not sufficient to merely state what the general impacts of development are on wildlife species. To constitute a hard look at the issue, the agencies need to provide data and estimates as to the extent of the impacts.

The agencies cannot rely on site-specific NEPA analyses, either. The tier II analyses for cumulative impacts will look solely at the impacts of individual projects together with other projects and development within a relatively limited area much small than the programmatic region. The agencies must complete their own cumulative analysis for the development scenarios used throughout the PEIS. This PEIS is the only opportunity to review the broad, regional risks that accompany the streamlining of the environmental review process.

[80] PEIS, at 6-34.

PART 8: ESA SECTION 7 CONSULTATION

COMMENT 8.1. Neither the ESA Nor the ESA Regulations Explicitly Allow for Tiering Section 7 Consultations Without A Tier II Site-Specific Consultation.

Neither the ESA nor the statute's implementing regulations expressly permit a tiered Section 7 consultation system without a tier II site-specific consultation. Some courts have approved of tiered consultations, though others have expressed reservations on whether tiering meets the ESA's requirements. Even in those cases where tiered consultation has been deemed permissible, project-specific consultations were always required and biological opinions ensued. In those cases, FWS continued to serve as the final decision maker on whether project-specific actions would adversely affect listed species or critical habitat.

For example, the Ninth Circuit approved of FWS's tiering of site-specific biological opinions for forest contracts to the National Forest Plan ("NFP"). The court noted that "[b]ecause the NFP covered such a wide area, from Northern Washington to Northern California, involving virtually all of the federal government's forested land in this expansive area, the NFP BiOp explicitly declined to address the unique impacts of any particular action or implementation of the NFP."[81] A district court opinion in the Ninth Circuit, however, expressed concern with this decision. It explained:

> Tiered consultation . . . is not described anywhere in ESA or its implementing regulations. Allowing such a process in a procedural statute which requires no particular result makes staged analysis acceptable. ESA, however, is an action-forcing statute, turning on identified prohibited consequences of government action, both direct, indirect, and interrelated effects. Tiering . . . will tend to obscure the ability of the agency to identify the direct and indirect consequences of particular action, and thus tend to obscure when government action is prohibited.[82]

[81] Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1063-64 (9th Cir. 2004).
[82] Natural Resources Defense Council v. Rodgers, 381 F.Supp.2d 1212, 1228 n. 27 (E.D. Cal. July 28, 2005).

Similarly, a district court in the Sixth Circuit also had reservations regarding the tiered consultation systems that FWS and the Forest Service implemented for a Forest Plan fulfilled agency responsibilities under the ESA.[83] The court noted that the Ninth Circuit had justified its approval because the NFP had "already survived a legal challenge . . . and it was not an ordinary land management plan but rather a particularly thorough and complex one. Additionally, effectiveness monitoring . . . was also in effect."[84]

Here, the agencies apparently plan on approving projects under the tier I consultation, rather than conducting a tier II consultation on site-specific issues. Unlike in the NFP BiOp, which declined to address project-specific impacts, the agencies *are* addressing unique impacts in the tier I analysis by emphasizing that no additional consultation would be required for individual projects that implement the species-specific avoidance and conservation measures. Meanwhile, the agencies admit that "[i]nformation about wind energy impacts on listed species is in its early stages."[85] Whatever might be said about the legality of conducting tiered consultation, it is unwise, and should not be employed to address ESA obligations associated with wind development in the UGP.

COMMENT 8.2. The Agencies Must Conduct Site-Specific Formal Consultations For Any Projects That May Affect Critical Habitat or a Threatened or Endangered Species.

The PEIS needs to clarify the steps Western and FWS will take to fulfill consultation requirements under ESA Section 7. The agencies are preparing a programmatic consultation under ESA Section 7, and expect that "specific consultation requirements will be determined on

[83] Buckeye Forest Council v. U.S. Forest Service, 337 F.Supp.2d 1030, 1036 (S.D. Ohio, 2004).
[84] *Buckeye Forest Council*, 337 F. Supp. 2d at 1036.
[85] PEIS, at 2-37.

a project-by-project basis."[86] However, the agencies also state that "additional ESA Section 7 consultation beyond the programmatic consultation would not be required for projects for which the project developers commit to implementing the appropriate and applicable programmatic avoidance measures, minimization measures, and mitigation measures that would result in a determination that listed species are not likely to be adversely affected."[87] The agencies need to be more direct as to whether they expect to conduct site-specific consultations, and, if so, what the relationship of such consultations is to "additional Section 7 consultation."

Formal consultation is required under 50 C.F.R. § 402.14(a) when a Federal agency determines that an action "*may affect* listed species or critical habitat."[88] Many of the "Effect Determinations" in Table 2.3-2 indicate that where the species-specific avoidance and conservation measures are implemented, the project's effect determination will be "may affect, not likely to adversely affect." The "not likely to adversely affect" conclusion does not eliminate the requirement for the Service's concurrence under 50 C.F.R. § 402.14(b) at the time the project is reviewed by the reviewing agency (Western, FWS, or both). This means that even if a developer implements each avoidance measure for the Piping Plover, for example, the Service's concurrence is still required *at that time* to determine whether or not the implemented measures do in fact reduce the impact to "not likely to adversely affect."

Moreover, the apparent advance commitment to provide such a concurrence based only on the general and vague measures and BMPs provided in the PEIS is not proper. Western or the FWS (or both) will need to seek FWS concurrence that the project "is not likely to adversely affect." As described below in Comment 8.3, absent a written concurrence or separate biological

[86] PEIS, at 2-18.
[87] PEIS, at 2-18.
[88] 50 C.F.R. § 402.14(a), (b) (emphasis added).

opinion from FWS, the "not likely to adversely affect" determination will legally only constitute the Federal agency's or applicant's opinion, not FWS's final regulatory opinion.

COMMENT 8.3. The Agencies' Plan for Tier II Consultation Does Not Meet the Exceptions to the Formal Consultation Requirement.

The agencies' plan to document site-specific consultations with a letter to the appropriate Service office, providing details about the project location, the affected species, and the measures that the developer agrees to incorporate. This plan does not qualify for the exceptions that have been adopted to formal consultation requirements.

There are only two exceptions to the formal consultation requirement in 50 C.F.R. § 402.14: (1) if the agency determines as a result of either a biological assessment or informal consultation that the action is not likely to adversely affect any listed species *and receives the written concurrence of FWS*; or (2) if a preliminary biological opinion is issued after early consultation and *is later confirmed as the final biological opinion.*[89] Therefore, for each wind project that tiers to the agencies' programmatic consultation, FWS must memorialize its written concurrence that the project will not adversely affect any listed species or critical habitat identified in the project's action area. The PEIS currently contemplates that a tiered consultation's final document will simply be a letter from either Western or the Service (or a joint letter for interconnections involving easement lands) to the appropriate Service office. This is neither a formal consultation under 50 C.F.R. § 402.14(b) nor a qualified exception thereto.

If the agencies seek to benefit from the second exception to formal consultation, they must meet the requirements under 50 C.F.R. § 402.11 for early consultation. The first issue with characterizing the programmatic consultation as early consultation is that the regulation contemplates that the prospective applicant will be involved throughout the consultation

[89] 50 C.F.R. § 402.14(b).

process.[90] Early consultation is generally requested by the applicants, who certify to the applicable Federal agency that "it has a definitive proposal outlining the action and its effects and (2) that it intends to implement its proposal, if authorized."[91] This is clearly not the case with this PEIS. Finally, the preliminary biological opinion that results from early consultation must still be confirmed by FWS so as to finalize the biological opinion.[92] As explained above, the PEIS does not indicate that FWS will take any steps to confirm the results of a tiered consultation's documenting letter.

It is FWS's responsibility to determine whether a proposed action is likely to jeopardize the continued existence of a listed species or adversely modify designated critical habitat. Where a proposed Federal action *may affect* and *is likely to adversely affect* a listed species or designated critical habitat, then formal consultation is required.[93] As it stands, the PEIS does not adequately or legally articulate FWS's role in project specific consultations that will tier off the initial programmatic consultation.

COMMENT 8.4. The PEIS Must Clarify and Revise the Criteria for Reinitiation of Formal Consultation Under ESA Section 7.

The ESA regulations require that formal consultation be reinitiated in four situations:

(a) If the amount or extent of taking specified in the incidental take statement is exceeded;
(b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
(c) If the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
(d) If a new species is listed or critical habitat designated that may be affected by the identified action.[94]

[90] *See* 50 C.F.R. § 402.11(a).
[91] 50 C.F.R. § 402.11(b).
[92] 50 C.F.R. § 402.11(f).
[93] *See* FWS & NMFS, Consultation Handbook, *supra* note 8, at xvi.
[94] 50 C.F.R. § 402.16.

The PEIS only mentions two situations in which the agencies expect reinitiation to occur: for "(1) any listed species or critical habitat not considered in the programmatic consultation and (2) any listed species or critical habitat for which project developers are unwilling or unable to implement the programmatic avoidance, minimization, or mitigation measures applicable to a project."[95] This statement does not adequately cover the requirements stated above. It focuses on the initial interconnection requests by wind facilities but does not consider the implications that new information about facility operations or modifications of facilities might have on the consultation results. The PEIS must identify the other situations required under the ESA regulations as circumstances under which formal consultation will be reinitiated.

[95] PEIS, at ES-8.

PART 9: MBTA TAKE

COMMENT 9.1. The PEIS Needs to Address Liability for MBTA Take and Identify How Incidental Take of Migratory Birds Will Be Permitted.

The draft PEIS does not sufficiently address the potential for liability under the MBTA or the manner by which the agencies propose to regulate and monitor migratory bird deaths. Section 703 of the MBTA prohibits the unpermitted "taking" or "killing" of migratory birds "at any time, by any means or in any manner."[96] This broad prohibition includes incidental take of migratory birds, as occurs when migratory birds collide with wind turbines and power lines. Further, where federal plans incorporate third party activity, that activity must (absent specific legislation to the contrary) be managed so as to avoid the unpermitted taking of migratory birds. This PEIS is one such example of a federal plan incorporating third party development that will result in the unpermitted taking of migratory birds. The agencies must propose a permitting system in order to address liability for migratory bird deaths. Otherwise, the agencies are subject to injunction and developers remain liable for MBTA take.

Every interconnection request that Western plans to authorize under this PEIS will simultaneously constitute Western's authorization of MBTA take. Although the agencies seek to minimize take of migratory birds with the implementation of BMPs, species-specific measures, and mitigation requirements, thousands upon thousands of birds will still be killed as a result of wind energy development in the UGP Region. FWS is well-equipped to craft incidental take regulations, because it has extensive experience in promulgating and administering regulations that are responsive to the incidental take language in Sections 7 and 10 of the ESA.[97] FWS could, for example, prepare a programmatic MBTA take permit for wind developers that tier to

[96] 16 U.S.C. § 703; *see also* 50 C.F.R. § 21.11.
[97] *See* 16 U.S.C. §§ 1536, 1540.

the PEIS. The programmatic permit would specify the total number of migratory bird deaths permitted to be taken over the life of the PEIS, require monitoring and reporting of bird deaths at individual project sites, and require developers to implement all necessary measures to avoid migratory bird deaths.

In closing, thank you for considering our comments. Please add CLC and ABC to the notification list, using the names and contact information below.

Sincerely,

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CLC_ABC_Comments on UGP Draft PEIS

ATTACHMENT A

DATE: 24 October 2007

BRIEFING FOR THE REGIONAL DIRECTOR (FOIA pre-decisional)

PREPARED BY: Migratory Bird Office, Region 2

SUBJECT: TEXAS WIND ENERGY DEVELOPMENT ISSUES

PURPOSE OF THE BRIEFING DOCUMENT: To update concerns about impacts to birds at future wind turbine facilities in important avian concentration areas on the Texas Gulf Coast.

ISSUES: Wind-generated electricity is environmentally clean and renewable, but has potentially significant downsides. Some issues and concerns relating to migratory bird populations:

- Birds (raptors, passerines, and others) and bats collide with rotor blades, towers, wires, and associated structures leading to potentially significant mortality rates. Taller, larger turbine designs probably increase risk. A national mortality estimate of 900,000 to 1.8 million birds annually is projected by 2030 due to collisions with turbines.
- Most R2 wind turbine facilities are on private land, therefore no Federal nexus and little or no FWS involvement in planning, site evaluation, or mortality surveys occurs.
- Texas currently leads all states in total number of existing wind turbines. There are no published reports of environmental studies conducted prior to GLO permit issuance.
- 500-600 wind turbines are proposed for construction on lands administered by the Kenedy Trust and Kenedy Foundation in south Texas (the Kenedy Ranch). The project area lies within one of the most biologically diverse regions of the U. S.
- Millions of birds concentrate in coastal south Texas during migration. For example, raptor counts at Corpus Christi average over 800,000 birds each fall - the highest of any U.S. site by a factor of 8. These birds are migrating south along the coast to wintering areas in Mexico and South America. It is reasonable to assume that a major turbine field at the Kenedy Ranch might take a large number of them during migration.
- The 2007 special redhead survey counted over 688,000 of these ducks in the coastal area between Baffin Bay and Port Mansfield. Large redhead concentrations are frequent in the project area. Also, about 9% (average) of Central Flyway pintails use this area with occasional large local winter concentrations. Pintails and redheads rely on inland fresh water sources as they feed on sea grasses and invertebrates in the hyper-saline Laguna Madre. Their night feeding activity would likely increase collisions with turbines as the birds commute between the Laguna Madre and freshwater ponds on the Ranch.

MAIN DECISION OR MESSAGE: Region 2 supports renewable energy development, but careful planning and placement is crucial for avoiding serious consequences to birds and bats. The need is to prevent Altamont, CA scenarios, where 1000 raptors are killed annually. Greatest concerns in Region 2 are impacts of turbine fields located offshore (to trans-Gulf neotropical migrant birds), on ridge lines and coasts where migrants concentrate, and in grasslands inhabited by prairie grouse.

BUREAU PERSPECTIVE: The Service continues to partner with industry and is very active on the Wildlife Workgroup of the National Wind Coordinating Committee. We continue to encourage voluntary industry compliance with FWS turbine siting guidelines for reducing migratory bird and bat take and minimizing habitat fragmentation.

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CLC_ABC_Comments on UGP Draft PEIS

ATTACHMENT B

DATE: 4 April 2008

BRIEFING FOR THE REGIONAL DIRECTOR (FOIA pre-decisional)

PREPARED BY: Migratory Bird Office and Corpus Christi Ecological Services Field Office, Region 2

SUBJECT: TEXAS WIND ENERGY DEVELOPMENT ISSUES

PURPOSE OF THE BRIEFING DOCUMENT: To update concerns about impacts to birds at future wind turbine facilities in important avian concentration areas on the Texas Gulf Coast.

ISSUES: Construction of two wind turbine facilities (totaling 500-600 turbines) is occurring on lands administered by the Kenedy Trust and the Kenedy Foundation near Sarita in Kenedy County, Texas. Wind-generated electricity is environmentally clean and renewable, but has potentially significant downsides. The Service is concerned about possible impacts of wind energy installations on migratory birds and other species

Birds (raptors, passerines, and others) and bats collide with rotor blades, towers, wires, and associated structures leading to potentially significant mortality rates. Taller, larger turbine designs probably increase risk. A national mortality estimate of 900,000 to 1.8 million birds annually is projected by 2030 due to collisions with turbines. Texas leads the nation in total number of existing wind turbines. Most R2 wind turbine facilities are on private land, therefore no Federal nexus and little or no FWS involvement in planning, site evaluation, or mortality surveys occurs.

Kenedy County is one of the most biologically diverse regions of the U.S. Millions of birds concentrate in coastal south Texas during migration. For example, raptor counts at Corpus Christi average over 800,000 birds each fall - the highest of any U.S. site by a factor of 8. These birds are migrating south along the coast to wintering areas in Mexico and South America. The Texas Colonial Waterbird survey records approximately 175,000 breeding colonial waterbirds (herons, egrets, gulls, terns and skimmers) on the Texas coast each year. It is reasonable to assume that a major turbine field at the Kenedy Ranch might take a large number of raptors and waterbirds during migration.

The 2007 special redhead survey counted over 868,000 of these ducks in the coastal area between Baffin Bay and Port Mansfield. This amounts to approximately 95% of their continental breeding population as counted in the traditional survey area in the 2006 breeding season. Large redhead concentrations are frequent in the area of the two wind turbine facilities. Also, about 9% (average) of Central Flyway pintails use this area with occasional large local winter concentrations. Pintails and redheads rely on inland fresh water sources as they feed on sea grasses and invertebrates in the hyper-saline Laguna Madre. Duck night feeding activity would likely increase collisions with turbines as the birds commute between the Laguna Madre and freshwater ponds on the Ranch.

We are informed that the developers of both projects plan to avoid jurisdictional wetlands; however, the Coastal Habitat Alliance, which is associated with the neighboring King Ranch, recently raised the issue of indirect effects on subsurface water flow to the Lower Laguna Madre with the U.S. Army Corps of Engineers.

Developers of both projects indicate they believe there will be no take of endangered species associated with construction and operation of their projects. PPM, the developer for the Kenedy Trust property, provided documented multiple seasons of site survey data which indicate no significant migratory bird presence in anticipated rotor swept areas. However, their studies have not concluded nor are they peer reviewed. Babcock and Brown, the developer for the Kenedy Foundation property has not provided documentation regarding potential impacts for migratory birds, but asserts that multiple seasons (3 fall migrations and 2 spring migrations) of 24/7 radar data over their site indicate no significant avian presence.

The Service requested written confirmation of these endangered species and migratory bird justifications from both companies, and although the developers are under no obligation to produce such records, current indications are that documentation is forthcoming. Also, the companies have expressed serious interest in preparing avian protection plans and MOUs with the Service that include strategies to monitor bird migration with radar and shut down rotors in case of significant avian events.

MAIN DECISION OR MESSAGE: Region 2 supports renewable energy development, but careful planning and placement is crucial for avoiding serious consequences to birds and bats. The need is to prevent Altamont, CA scenarios, where 1000 raptors are killed annually. Greatest concerns in Region 2 are impacts of turbine fields located offshore (to trans-Gulf neotropical migrant birds), on ridge lines and coasts where migrants concentrate, and in grasslands inhabited by prairie grouse.

BUREAU PERSPECTIVE: The Service continues to partner with industry and is very active on the Wildlife Workgroup of the National Wind Coordinating Committee. We continue to encourage voluntary industry compliance with FWS turbine siting guidelines for reducing migratory bird and bat take and minimizing habitat fragmentation.

CONTACT: Jeff Haskins, Chief, Migratory Bird Office; Jeff_Haskins@fws.gov; 505-248-6639 or Brian Millsap, Acting ARD Ecological Services; 505-248-6671.

CLC_ABC_Comments on UGP Draft PEIS

ATTACHMENT C

April 14, 2008

INFORMATION MEMORANDUM FOR THE DEPUTY SECRETARY

FROM: **Director, Fish and Wildlife Service**

TELEPHONE #: **(202) 208-4545**

SUBJECT: **Penascal Project and Texas Wind Energy Development Issues**

I. SUMMARY

Two wind turbine facility projects currently under construction – the PPM Energy/Iberdrola Penascal Wind Project and the Babcock & Brown Gulf Wind Energy Project – present concerns about important avian concentration areas on the Texas Gulf Coast and potential bird impacts. These facilities (up to 600 turbines) are on lands administered by the Kenedy Trust and the Kenedy Foundation in Kenedy County, TX. Road construction and pad site clearing at Penascal Phase I (84 turbines and 38 miles of access roads) has begun on the 191,000-acre Kenedy Charitable Trust Ranch site. Babcock and Brown's Phase I (118 turbines and 65 miles of access roads) is constructing turbine pads on the 235,000-acre Kenedy Memorial Foundation Ranch site. The turbines will each be approximately 425 ft. tall. Rotors will sweep an area from approximately 250 ft. to 420 ft. above ground level (over 3 acres). Blade tip speeds will be 170 mph at operating capacity. The Fish and Wildlife Service (Service) worked with both developers on Phase I to scope concerns about possible impacts to migratory birds, other species, and their habitats. Wind-generated electricity is environmentally clean and renewable, but has potentially significant downsides. The Service is concerned about the impacts of these two facilities on migratory birds and other species.

II. DISCUSSION

Potential Impacts to Migratory Birds and other Trust Resources

Mortality Mechanisms: Birds and bats collide with rotor blades, towers, and wires, leading to potentially significant mortality rates. Taller, larger turbine designs probably increase risk. A national mortality estimate of 900,000 to 1.8 million birds annually is projected by 2030 due to collisions with turbines. Texas leads the nation in total number of existing wind turbines. Most are on private land, have no Federal nexus and minimal FWS involvement in planning, evaluation, or mortality surveys.

Avian Resources of the Project Area: Kenedy County is one of the most biologically diverse regions of the U.S. Hundreds of millions of birds concentrate in coastal south Texas during migration to and from wintering areas in Latin America. Many other species overwinter along the Texas coast or breed there. Raptor counts at Corpus Christi average over 800,000 birds each fall; the highest of any U.S. site by a factor of eight. The Texas Colonial Waterbird survey records approximately 175,000 breeding colonial waterbirds (herons, egrets, gulls, terns and skimmers) on the Texas coast annually. A 2007 survey counted over 868,000 redheads (ducks) in the coastal area between Baffin Bay and Port Mansfield. This is approximately 95 percent of their continental breeding

population in 2006 and large concentrations are frequent in the project area. About 9 percent of Central Flyway northern pintails use the area with occasional large winter concentrations. Pintails and redheads rely on inland fresh water sources as they feed on sea grasses and invertebrates in the hyper-saline Laguna Madre. Night-feeding activity would likely increase collisions with turbines as the ducks move between the Laguna Madre and freshwater ponds in the project area.

It is reasonable to assume that a major turbine field at the Kenedy Ranch might take a large number of raptors, waterbirds, and neotropical migratory songbirds during migration, especially if inclement weather occurs when birds are migrating through the area. Breeding and wintering populations may also be at risk.

Analysis of Avian Impacts: PPM Energy, the developer for the Kenedy Trust property, provided multiple seasons of site survey data indicating no significant migratory bird presence in anticipated rotor-swept areas. However, the data and reports have not been peer-reviewed. After preliminary review, the Service has concerns about the robustness and design of the studies. For example, we are uncertain if surveys included periods of inclement weather coinciding with migration, assessments of take-offs and landings by diurnal and nocturnal migrants, and adequate seasonal length for monitoring.

Babcock and Brown has not yet provided documentation to the Service regarding potential impacts for migratory birds, but asserts that multiple seasons (three fall migrations and two spring migrations) of 24-hour radar data over their site indicate no significant avian presence.

The companies have expressed serious interest in voluntarily preparing avian protection plans and memoranda of understanding with the Service. For example, PPM Energy plans post-construction monitoring with radar, and intends to prepare an avian protection plan with strategies to monitor bird migration with radar and to stop rotors ("feather" the blades) in the event of significant avian presence at the site. The Service has yet to discuss thresholds for "feathering" or durations necessary to minimize risk and take under the MBTA.

To assess risk at the sites, an independent site ranking and scoring process using the Service's potential impact index (PII) scoring was conducted by EDM International for the Coastal Habitat Alliance. Scores for both the Penascal and Babcock and Brown sites were very high, within 100 points of the score for the reference site at Aransas National Wildlife Refuge (i.e. the worst location to site a wind facility).

Threatened and Endangered Species Impacts: Developers of both projects indicate they believe there will be no take of endangered species associated with construction and operation of their projects.

Impacts to Bats: The Service does not believe that potential impacts to bats have been assessed at either site.

Service Involvement
The Service supports renewable energy development, but careful planning and placement is crucial to avoid serious consequences to birds and bats such as at Altamont, CA where 1000 raptors are killed annually. Greatest concerns in Region 2 are impacts of offshore turbines to trans-Gulf neotropical migrants, on ridge lines and coasts where migrants concentrate, and in grasslands inhabited by prairie grouse.

The Service continues to partner with industry and is very active on the Wildlife Workgroup of the National Wind Coordinating Committee. We continue to encourage voluntary industry compliance with FWS turbine siting guidelines for reducing migratory bird and bat take and minimizing habitat fragmentation.

At the Kenedy County sites, as elsewhere, the Service encourages compliance with Service turbine siting guidelines to reduce migratory bird and bat take and minimize habitat fragmentation. However, based on consideration of our windpower guidelines and the recent PII scoring, the sites are of significant concern to the Service.

To address effects of infrastructure needed to support the facilities, the Service has coordinated with American Electric Power separately on a new substation and power lines on private lands in the area of the wind facilities. They worked to incorporate avoidance and minimization strategies in project plans and believe they will not take any listed species or harm migratory birds.

Clean Water Act / Rivers and Harbors Act issues
The Service is informed that the developers of both projects plan to avoid jurisdictional wetlands. However, the Coastal Habitat Alliance, in association with the neighboring King Ranch and represented by attorney James Blackburn, recently raised the issue of indirect effects on subsurface water flow to the Lower Laguna Madre via letter to the U.S. Army Corps of Engineers, asking that they assert jurisdiction over the projects under authority of the Clean Water Act and the Rivers and Harbors Act. Mr. Blackburn's letter states that the projects will alter subsurface flows to the Gulf Intracoastal Waterway, a water subject to Section 10 of the Rivers and Harbors Act. If an activity outside the navigable waterway affects the navigable capacity of that waterway, it may be subject to Section 10. The Service has not reviewed such information, if available, and is not aware of the Corps' or EPA's response to Mr. Blackburn's letter, if any. The Corps remains the decision-making agency with respect to these issues and further detail should come from them. However, we are aware that they have had significant involvement in the projects, making site visits to verify the proponents' jurisdictional wetland delineations and have assurances that the projects are not being built in jurisdictional waters.

PREPARED BY: Assistant Director, Fisheries and Habitat Conservation
DATE: 4/14/08

Fisheries and Habitat Conservation
Division of Habitat and Resource Conservation
Note to Reviewers

- This briefing paper was requested by the Counselor to the Deputy Secretary, Dan Jorjani, to prepare Deputy Secretary Lynn Scarlett for a teleconference the evening of April 14, 2008, at 6:00 pm concerning the Penascal Energy Project in Kenedy County, Texas. (see email behind NTR)

- The Division of Habitat and Resource Conservation coordinated this response with Region 2, and the Division of Migratory Bird Management.

Preparer: Jason Miller, Division of Habitat and Resource Conservation, (703) 358-2161
Date: April 14, 2008

CLC_ABC_Comments on UGP Draft PEIS

ATTACHMENT D

Roadside Vegetation Q&A

Why is the DOT replacing plants that seem to be healthy and look nice?

The DOT is in the process of replanting all the roadsides on state primary highways to native grasses and wildflowers. While the existing vegetation may look nice, it is not functioning as well as needed for roadside purposes such as erosion control, water infiltration or weed competition. The DOT currently spends nearly $3 million each year to clean ditches, remove silt, and spray and mow weeds. The DOT believes the native vegetation, once established, will provide sufficient benefits and reduced maintenance costs to warrant replacing the existing vegetation.

What makes roadside planting a good investment?

Iowa's Primary Road Fund is where the DOT gets money for these projects. This money comes from the taxes collected on fuel, the sale of motor vehicles, and other tax sources related to transportation. Iowa law mandates this fund be spent only on highway improvements. The DOT has determined this investment will provide long-term cost savings to the citizens of Iowa.

What are the benefits of native vegetation?

The benefits of native vegetation include:

- increased water infiltration due to more extensive root systems;
  - *minimized stormwater runoff*
  - *reduced pollution to streams*
- improved erosion control, after native vegetation has established;
- improved habitat for birds, butterflies, skippers and other wildlife;
  - *roadsides function as corridors between larger natural areas*
  - *for pollination, some native species require a specific insect or skipper species found in roadside corridors*

- enhanced motorist safety;
  - *reduced blowing snow, which interferes with visibility*
  - *reduced snow glare because many native species remain standing in the winter, breaking up the snow's reflective surface*
  - *greater visual stimulation for drivers from variation in colors, sizes and textures, which helps reduce sleepiness from "highway hypnosis"*
- a more aesthetically pleasing roadside; and
- reduced long-term maintenance costs.
  - *less fertilizing, mowing and spraying needed*
  - *captured snow that might otherwise blow or drift onto the road*

What is special about native plants?

The plants being used for roadside revegetation are prairie species native to Iowa. These species are well adapted to Iowa's climate, insects and diseases, having evolved in this region. Many of the species are warm-season, which means they have a special mechanism to keep growing during the hot Iowa summers when cool-season plants go into dormancy. The native species have deep root systems that help them tolerate drought and compete for soil nutrients. It is these characteristics that provide many of the benefits to roadsides.

(Above) Monarch butterflies on Rough Blazingstar; (below) Big Bluestem

For more information contact:

Iowa Department of Transportation

Highway Division
Office of Design
Roadside Development
800 Lincoln Way
Ames, IA 50010
515-239-1424

PM 889 4-15-04

What is the process to replant the roadsides?

The first phase eliminates existing, competing vegetation. This is done by mowing, then spraying the regrowth with glyphosate herbicide. While this process leaves the roadside looking barren for one season, it is necessary for the long-term establishment of new plants. Once the competing plants have been eliminated, the roadsides are seeded with native grasses and wildflowers. On each revegetation project, the DOT is using anywhere from three to 10 grass species, mixed with a variety of forb species. Each project will have seed mixes designed specifically for the conditions of that project. For the first two years these roadsides will be mowed periodically to reduce weed competition, promote germination and develop deeper root systems for healthier vegetation. After the third year of planting, minimal maintenance should be required.

Can I be assured that the new seedings will not bring invasive weeds?

The native grass and wildflower seed is tested for purity in the same way any other commercial seed is tested in Iowa. This process is regulated by the Iowa Department of Agriculture and Land Stewardship and Iowa Crop Improvement Association. The DOT inspects the seed tags to make sure the testing was done.

Does the DOT have jurisdiction over all Iowa roadsides?

The Iowa DOT has jurisdiction only over the state's primary highways and interstates, including the roadsides. Counties and cities have jurisdiction over the county and city roads and roadsides.

What is our "good neighbor" philosophy?

The DOT approach to roadside management is underscored by a "good neighbor" philosophy directed toward our adjoining landowners. If the right-of-way in front of your home or business is currently being maintained as a lawn, it will not be revegetated. Because of liability concerns, the Iowa Code requires a permit to be obtained to mow, hay or perform other activities in the state's right-of-way. In some instances, where it is determined by the department to be beneficial to plant growth, the DOT will issue permits for occasional mowing or haying of well-established revegetated areas.

Iowa Department of Transportation

Roadside Vegetation

Q&A

Answers to your questions about the Iowa Department of Transportation's roadside vegetation program

Comment Document 50007 (Susan E. Bromm; U.S. Environmental Protection Agency)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MAY 2 1 2013

John Hayse
Western/FWS Draft Wind Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne, IL 60439

Dear Mr. Hayse:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the Department of Energy, Western Area Power Administration (Western) and the U.S. Department of Interior, Fish and Wildlife Service's (Service) Upper Great Plains Wind Energy Draft Programmatic Environmental Impact Statement (PEIS) (CEQ # 20130070). To better address environmental concerns associated with increased development of wind energy production, Western and the Service are considering the implementation of environmental evaluation procedures and mitigation strategies for wind development projects in Western's Upper Great Plains (UGP) Customer Service Region.

Based on our review, EPA has no objections to the proposed action and we have rated the draft PEIS as "Lack of Objections" (LO) (see enclosed "Summary of EPA Rating System"). We do have comments for your consideration based on EPA's ongoing efforts to seek opportunities to facilitate the reuse of contaminated properties for renewable energy projects, and we also offer comments/suggestions regarding the discussions about best management practices, mitigation, and monitoring.

We appreciate the opportunity to review the draft PEIS. The staff contact for the review is Marthea Rountree and she can be reached at (202) 564-7141.

Sincerely,

Susan E Bromm

Susan E. Bromm
Director
Office of Federal Activities

Enclosures (2): Detailed Comments
Summary of EPA Rating System

2

Upper Great Plains Wind Energy
Programmatic Environmental Impact Statement
EPA Detailed Comments

Highlighting Contaminated Lands and Mine Sites

EPA encourages Western and the Service to highlight the potential of these sites in the final PEIS. Current references to contaminated sites are linked to construction and liability considerations (3.9.5 Existing Contamination). However, these sites represent a unique opportunity for future wind development given historic uses. To this end, EPA recommends adding the second paragraph below to encourage this reuse opportunity and providing a list of identified potential sites as an appendix to the PEIS:

> **3.9.5 Existing Contamination** It is possible that wind energy projects would be proposed for areas at which other industrial activities had previously taken place (or are ongoing). In those situations, industrial contamination may be encountered during site development, especially during foundation and cable trench excavations. Once identified, all such contamination would need to be characterized, and a separate plan to remove contamination or stabilize it in place would need to be developed. Additional agreements may be needed to negotiate specific responsibilities for characterizing and remediating contamination.
>
> *Due to historical uses, potentially or formerly contaminated lands or mine sites may present unique opportunities for wind energy redevelopment. Potential advantages may include, but are not limited to, leveraging existing utility and transportation infrastructure, mitigating impacts on open space, and reducing land costs. To date, US EPA has identified seven (7) wind energy projects (with a cumulative capacity of 55 MW) installed on these types of sites, including the 35-MW Steel Winds project (NY) at a former steel mill site and the 16.5-MW Chevron Casper Wind Farm (WY) at a former refinery site. These projects may serve as models for future development at contaminated lands and mine sites identified by the EPA's RE-Powering America's Land Initiative or other State cleanup programs in the Upper Great Plains service territory.*

As part of the RE-Powering Initiative, EPA has pre-screened 220 contaminated sites, landfills or mine sites in the Upper Great Plain Wind Energy study area, using criteria developed in collaboration with DOE's National Renewable Energy Laboratory (NREL) (below). The EPA-NREL screening uses:

- Site location and acreage information from EPA
- 50-m and 80-m wind data from NREL
- Infrastructure location data from Dept of Homeland Security

	Estimated RE Project Capacity Range	Renewable Energy Resource Availability	Acreage (acres)	Distance to Transmission (miles)	Distance to Graded Roads (miles)		# Sites with Positive Screening Results	Estimated Capacity
Utility scale	> 20 MW	5.5 m/s at 80 m	≥ 100	≤ 10	≤ 10		**63**	> 1,260 MW
Large scale	> 10 MW	5.5 m/s at 80 m	40 - 100	≤ 10	≤ 10		50	> 500 MW
1-2 Turbine sites	> 1 MW turbine	5.5 m/s at 80 m	≥ 2	≤ 1	≤ 1		185	185 – 370 MW

Based on preliminary screening, there are many contaminated sites with significant development potential for wind energy. Please see attached file (Western Wind Sites.xlsx) for more detailed information on the sites that met the criteria for utility scale, large scale and 1-2 turbine sites. This list includes potentially contaminated lands, landfills, and mine sites in the Upper Great Plains and flags those within the definite service territory (Column I). The associated map (study area.jpg) illustrates the location of these candidate sites within the geography of the study area. These screening results reflect updated criteria and wind energy resource data developed in collaboration with NREL. This update will be posted to the RE-Powering Mapping Tool website at: http://www.epa.gov/renewableenergyland/rd_mapping_tool.htm.

For sites with greater than 9,500 acres, as described in Section 5 Environmental Consequences, EPA identified the following sites with very large-scale development potential (> 75 utility-scale turbines).

SITENAME	CITY	ST	Wind Speed at 80 m (m/s)	ACRES
BASIN MINING AREA	BASIN	MT	6.50	50,013
HASTINGS GROUND WATER CONTAMINATION	HASTINGS	NE	8.00	48,907
UPPER TENMILE CREEK MINING AREA	HELENA	MT	7.50	33,920
DICKINSON ELKS BUILDING	DICKINSON	ND	8.00	28,174
CARPENTER SNOW CREEK MINING DISTRICT	NEIHART	MT	7.00	18,000
OMAHA LEAD	OMAHA	NE	7.00	16,576
CORNHUSKER ARMY AMMUNITION PLANT	GRAND ISLAND	NE	8.00	11,936
BARKER HUGHESVILLE MINING DISTRICT	MONARCH	MT	8.00	9,670

Add Incentives to Further Encourage Redevelopment of Contaminated Lands

EPA recommends adopting incentives specific to contaminated lands, similar to those outlined in the DOE-BLM Solar Energy Zones PEIS. This approach highlights the potential and also provides incentives for developers to prioritize these lands.

Potential incentives for land revitalization may include:

- Facilitating Streamlined Permitting:
  - Where applicable, permitting review may take into account historical data collection and environmental review associated with historical activities at a potentially or formerly contaminated site to assess, investigate, and respond to contamination.

2

- If applicable, documentation that the proposed project will be located in, or adjacent to, previously contaminated or disturbed lands such as brownfields identified by the EPA's RE-Powering America's Land Initiative (http://www.epa.gov/renewableenergyland) or a State cleanup program; mechanically altered lands such as mine-scarred lands and fallowed agricultural lands; idle or underutilized industrial areas; lands adjacent to urbanized areas and/or load centers; or areas repeatedly burned and invaded by fire-promoting non-native grasses where the probability of restoration is determined to be limited.

- Environmental Mitigation: Where applicable, remediation activities to address contamination at a site will be considered in reviewing the overall environmental impact of the wind energy development at a given site.

Best Management Practices

According to the draft PEIS, the obligation to decommission the facility and perform reclamation as required by the landowners and appropriate land management agencies or jurisdictional authorities. EPA recommends the final PEIS include examples of BMPs typically used for this type of project. This information would provide the decision makers a better understanding of the actions that could be employed to reduce impacts.

Mitigation and Monitoring

We recommend that the final PEIS include additional information about how Western and the Service will ensure implementation and monitoring of BMPs. We also recommend that that the PEIS identify responsible entities and schedules for monitoring compliance. Examples of contractual agreements or a description of how the contracting strategy would ensure full implementation of all BMPs and mitigation measures associated with the ROD's selected alternative could be an effective means of disclosure.

Financial Assurance

The draft PEIS indicates the typical life of a wind park in the UGP will most likely be 20-30 years. An obligation to decommission the facility and perform reclamation as required by the landowners and appropriate land management agencies or jurisdictional authorities was discussed in detail. However, no information regarding financial assurance for decommissioning and reclamation was identified. EPA recommends that the final PEIS include financial assurance strategies for decommissioning and reclamation. The projected lifespan should be used to ascertain the correct financial instruments and project future rates of decommissioning that could be used for financial assurance calculations.

SUMMARY OF EPA RATING SYSTEM

Rating the Environmental Impact of the Action

- **LO (Lack of Objections)** The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.

- **EC (Environmental Concerns)** The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.

- **EO (Environmental Objections)** The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental objections can include situations:

    1. *Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;*
    2. *Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;*
    3. *Where there is a violation of an EPA policy declaration;*
    4. *Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives; or*
    5. *Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.*

- **EU (Environmentally Unsatisfactory)** The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:

    1. *The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;*
    2. *There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or*
    3. *The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.*

Adequacy of the Impact Statement

- **Category 1 (Adequate)** The draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

- **Category 2 (Insufficient Information)** The draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the final EIS.

- **Category 3 (Inadequate)** The draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS.

Comment Document 50008 (Claire Olson; Basin Electric Power Cooperative)

BASIN ELECTRIC POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503-0564
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May 21, 2013

Western/FWS Draft Wind Energy PEIS Comments
c/o John Hayse
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne, IL 60439

Dear Administrator Gabriel, Director Ash, and Administrative Staff:

Basin Electric supports the preferred alternative as described in the Draft Programmatic Environmental Impact Statement (Programmatic EIS) developed by the Western Area Power Administration and the U.S. Fish and Wildlife Service (Service). This proposal will help energy development in the region and protect the environment. We previously provided oral testimony in favor of the Draft Programmatic EIS in Bismarck, and respectfully submit these additional comments for the record.

Basin Electric is a regional, consumer-owned, power supplier formed in 1961 to provide supplemental power to a consortium of electric distribution cooperatives. Basin Electric supplies 136 rural electric member cooperative systems with wholesale electricity power who in turn serve approximately 2.85 million customers in a nine-state area. In the Upper Great Plains, our service territory overlaps significantly with much of the area covered by the Programmatic EIS.

Our cooperative currently has more than 700 megawatts of wind-generated electricity on its system. During permitting and development of our most recent wind farms in North and South Dakota, Basin Electric's environmental and engineering staff worked closely with Western and the Service to evaluate potential environmental impacts from these projects. In particular, we worked with the Service to mitigate lost acreage to grassland and wetland easements, and have committed to reclaim these sites when the wind farms are decommissioned. Should the preferred alternative be adopted, it will streamline future wind projects by focusing on site specific concerns, rather than requiring duplicate environmental reviews for every wind project in the region.

In short, Basin Electric believes that this Programmatic EIS will provide a win-win for wind developers, landowners, Western, and the Service. Wind projects will move more quickly since they won't be mired down in duplicative environmental review. Landowners will gain assurances that their lands with high wind potential won't automatically be overlooked by developers just because the land is also enrolled in a grasslands or wetlands easement program. Finally, Western and the Service will be able to meet their obligations under NEPA in a more timely fashion.

Again, Basin Electric supports the preferred alternative. Thank you for your consideration of these comments.

Sincerely,

Claire M. Olson

Claire Olson
Sr. Vice President & General Counsel

A Touchstone Energy® Cooperative

Equal Employment Opportunity Employer

Comment Document 50009 (Daly Edmunds; Audubon)

May 21, 2013

Western/FWS Draft Wind Energy PEIS Comments
c/o John Hayse
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne, IL 60439

RE: *Important Bird Areas*

The National Audubon Society's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. Our staff is engaged in a variety of activities, including education, habitat conservation and public policy advocacy. For more than a century, Audubon has built a legacy of conservation success by mobilizing the strength of its more than one million members, network of Chapters, Audubon Centers, state offices and dedicated professional staff to connect people with nature and the power to protect it.

Audubon strongly believes the value of the proposed area's wildlife resources that could be impacted by wind energy development and associated transmission lines, thus warrant the BLM's serious consideration of the information below. The states of Iowa, Minnesota, Montana, and Nebraska all contain designated Important Bird Areas. North Dakota and South Dakota are currently in the process of identifying and considering proposed areas within the state as Important Bird Areas

Important Bird Areas Program – Reflecting Critical Avian Habitat
Important Bird Areas ("IBAs") are part of an international program to identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. In the United States, this program is managed by the National Audubon Society. A site is recognized as an IBA only if it meets certain criteria, which are internationally agreed, standardized, quantitative and scientifically defensible. Scientists identify locations that provide essential habitat to one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). The selection of IBAs has been a particularly effective way of identifying conservation priorities. **The identification of such critical habitats is an important consideration in generation and transmission development, as these areas should be avoided due to their ecological value.**

The goals of the IBA Program are to i*dentify* the most essential areas for birds, *monitor* those sites for changes to birds and habitat, and c*onserve* these areas for long-term protection of biodiversity. IBA criteria are divided into four categories based on vulnerability, responsibility, and the fragility of certain species occurring at certain sites or because of a species unique natural history. IBA classifications are determined by panels of state and national experts within a tiered categorization system to reflect differences in importance across different geographical scales (i.e., state, continental and globally significant sites). The IBA identification process provides a data-driven means for cataloging the most important sites for birds throughout the country and the world.

The influential Western Electricity Coordinating Council's ("WECC") Environmental Data Task Force ("EDTF") ultimately included Important Bird Areas as a preferred data set when evaluating potential transmission alternatives. According to the EDTF, "high voltage transmission lines have a relatively small

direct footprint on the ground; however, large interstate transmission lines can also indirectly and cumulatively impact wildlife, cultural and historical features and water resources" (WECC 2011)[1]. Thus, "the anticipated benefit of incorporating environmental and cultural information upfront in the transmission planning process is to reduce the potential for conflict with these resources during subsequent siting, permitting, and constructions" (WECC 2011).

To access a map and information about the Important Bird Areas in each state, please go to http://netapp.audubon.org/IBA/IBA .

Audubon's Avian Concerns

Research has shown the negative impacts of human activities and infrastructure development (such as those associated with energy development and transmission lines) on various avian species. These impacts include change in habitat use patterns (use of lower quality habitats), avoidance, increase in invasive species, death due to collision and electrocution, habitat fragmentation, cumulative impacts, and creation of travel routes for land predators.

In conclusion, the states of Iowa (86 state level IBAs), Minnesota (49 state and 5 global IBAs), Montana (27 state level, 1 continental, and 12 global IBAs), and Nebraska (24 state and 3 global IBAs) all contain designated Important Bird Areas. North Dakota and South Dakota are currently in the process of identifying and considering proposed areas within the state as Important Bird Areas. We strongly encourage dialogue with individual state Audubon offices to identify areas of conflict with specific avian species or where there is critical habitat, such as IBAs. If you need any assistance in this matter going forward, please do not hesitate to contact me.

Audubon stresses avoidance to the greatest degree possible, such as where IBAs are located, followed by minimizing practices to reduce impacts. Finally, as a last resort, careful mitigation may be appropriate in certain situations. We thank you for your time and look forward to future opportunities to discuss the Upper Great Plains Wind Energy PEIS.

Respectfully submitted,

Daly Edmunds
Regional Policy Coordinator
Audubon Rockies
dedmunds@audubon.org

[1] Western Electricity Coordinating Council (WECC). 2011. Final Report of the Environmental Data Task Force: Environmental Recommendations for Transmission Planning. http://www.wecc.biz/committees/BOD/TEPPC/SPSG/EDTF/Shared%20Documents/Environmental_Recommendations_for_Transmission_Planning/Final_Recommendations_Report/Environmental%20Recommendations%20for%20Transmission%20Planning%20-%20Revised%2005-27-2011.pdf

Comment Document 50010 (John Anderson, Tom Vinson, Chris Long, and Gene Grace; American Wind Energy Association)

May 21, 2013

American Wind Energy Association
1501 M Street, NW, Suite 1000
Washington, DC 20005

John Hayse
Argonne National Laboratory
9700 S. Cass Avenue—EVS/240
Argonne, IL 60439

RE: Upper Great Plains Wind Energy Draft Programmatic Environmental Impact Statement

Dear Mr. Hayse:

On Friday March 22, 2013, the Western Area Power Administration ("Western") and U.S. Fish and Wildlife Service ("Service," collectively with Western, the "Agencies") published a Notice of Availability of Draft Environmental Impact Statement and Notice of Public Hearings for the Upper Great Plains ("UGP") Wind Energy Draft Programmatic Environmental Impact Statement ("PEIS"). The Agencies prepared the draft PEIS to identify environmental impacts associated with their proposed programmatic process for environmental evaluations of requests for interconnection of wind energy projects to Western's transmission facilities or for placement of wind energy facilities on easements managed by the Service. The draft PEIS potentially affects wind development in Iowa, Minnesota, Montana, Nebraska, North Dakota, and South Dakota.

The American Wind Energy Association ("AWEA")[1] appreciates this opportunity to submit comments on the draft PEIS. AWEA also appreciates the time and effort of the Agencies to create a process to streamline review of utility-scale wind projects in the Upper Plains region. AWEA has reviewed the draft PEIS and below identifies several issues that it brings to the attention of the Agencies. AWEA thanks the Agencies for their consideration of these comments and hopes they will help them achieve the goal of the draft PEIS to streamline the environmental review process for wind energy projects.

I. The actual benefits of the PEIS are unclear.

AWEA understands that the Agencies have endeavored to create a streamlined protocol for the processing of interconnection requests for wind energy projects on Western's facilities and for the placement of wind energy facilities on easements managed by the Service. However, from the draft PEIS, it is difficult to see where this streamlining will actually come into play and realize associated benefits.

First, the draft PEIS does not discuss whether a project eligible for tiering could potentially achieve NEPA compliance through preparation of an environmental assessment ("EA") or a categorical exclusion ("CatEx") instead of an environmental impact statement ("EIS"). One would think that the implementation of the extensive measures required to tier off the PEIS would, in many, if not most, cases, allow a project to proceed with a site-specific EA or CatEx. Even if the Agencies cannot guarantee this on the programmatic level, there ought to be some discussion of the "downstream"

[1] AWEA is the national trade association representing a broad range of entities with a common interest in encouraging the deployment and expansion of wind energy resources in the United States. AWEA members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates.

advantages that implementing the PEIS measures would create. While the PEIS does discuss streamlining generally as it relates to tiering, there should be a more detailed and tangible discussion of what this may mean from a NEPA document preparation and processing standpoint. Given the breadth of measures that the draft PEIS would require of a project in order for it to tier off of the PEIS, even a tiered EIS, would seemingly present scant or no discernible benefit to a developer over current practices.

Further, the way many of the best management practices ("BMPs") and measures are currently written, it would be difficult for a developer to know whether it is sufficiently meeting such a measure to avail itself of the benefits of tiering. The draft PEIS states: "If a developer does not wish to implement the evaluation process, BMPs, or mitigation measures identified for this alternative, a separate NEPA evaluation that does not tier off the analyses in the PEIS would be required."[2] Similarly, project-specific Endangered Species Act ("ESA") Section 7 consultations would tier off programmatic consultation conducted for this PEIS, as long as developers agree to implement the appropriate avoidance measures, mitigation measures, and monitoring requirements identified during the programmatic consultation.[3]

The BMPs and measures contained in the PEIS, as written, are lacking in specificity and, in some instances, are so vague that a developer would not be able to ascertain confidently whether it is implementing the measure. As such, it would be difficult for a developer to gauge whether it could avail itself of the advantages of the streamlining.

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[2] ES-6.
[3] *Id.*

In other instances, the measures are simply not practicable. For example, under Noise Impacts, one of the measures required in section 5.5.2.1, is to "take advantage of topography and the distance to nearby sensitive receptors when positioning potential sources of noise." Given the lack of parameters in this measure, it would be difficult for a developer to know what exactly would be required to demonstrate implementation of this measure. In another example taken from the BMPs and Mitigation Measures for Water Resources section (Section 5.3.2), a measure calls for the avoidance of crossing streams and wetlands. However, the draft PEIS does not make mention of a qualifier such as "to the extent reasonably practicable." This in turn raises the question of whether a developer who chooses to pursue authorization under Section 404 of the Clean Water Act for a stream crossing would be disqualified from tiering because it did not apply that mitigation measure. As with this example, the PEIS appears to create many other "gotchas" that could disqualify the developer from being eligible for the tiering process. (Section II of this letter provides additional examples of some of the problems created by the impracticability and vagueness of specific BMP measures.)

Moreover, the amount of regulation and guidance for wind development in the Upper Plains region is already quite voluminous. The draft PEIS tacitly acknowledges this in its multiple references to other regulations and guidance. The draft also requires (for tiering purposes) that a developer adhere to the Land-Based Wind-Energy Guidelines ("WEG") and the Eagle Conservation Plan Guidance ("ECPG"), in addition to state and local measures, when establishing BMPs and mitigation measures. It is unclear why another layer of measures in the form of those in the draft PEIS is required for a project to go forward, especially given this process recommends adherence to the other existing measures that are sufficient. This point is perhaps even more pronounced given that the Agencies view the draft

PEIS as applying to the entire project even though the federal actions triggering the PEIS are truly only the interconnection and/or easement exchange.

While many developers do voluntarily follow the WEG, it is also worth noting that the federal advisory committee that developed the WEG was adamant in making the WEG voluntary and the Service agreed. Moreover, the WEG itself is a guidance document and, therefore, by its very nature voluntary.[4] By requiring that a developer follow the WEG in order to avail itself of tiering, the draft PEIS makes adherence to the WEG mandatory and this was never intended by the advisory committee or the Service.[5] Similarly, the ECPG is also a voluntary document and given the issues that have been raised since its issuance and not fully addressed in version 2 (published April 2013), should clearly remain so. In short, neither of these documents should be turned into mandatory requirements.

Finally, in addition to all of the existing regulation and guidance in the Upper Plains region, the Great Plains Wind Energy Habitat Conservation Plan ("GPWE HCP") and Midwest Wind Energy Multi-Species Habitat Conservations Plan ("MWE MSHCP") are well under development and together cover the Upper Plains region. It is anticipated that the GPWE HCP effort will be completed in the second quarter of 2014, and the MWE MSHCP sometime thereafter. Once the GPWE HCP is approved and take authorization issued, a developer's authorization under and adherence to the GPWE HCP or MWE MSHCP should be more than sufficient to meet both NEPA and Endangered Species Act section 7 requirements for a given interconnection or easement. In other words, since those HCPs will already provide BMPs that are equally effective , or even superior, at avoiding or reducing the impacts of an interconnection or easement exchanges on specific environmental resources than the standardized

[4] WEG at vi ("These voluntary Guidelines provide a structured, scientific process for addressing wildlife conservation concerns at all stages of land-based wind energy development.").
[5] *Id.* at vii ("Adherence to the Guidelines is voluntary.").

BMPs in the draft PEIS,[6] it would be duplicative for the Agencies to also require adherence to the measures set forth in the programmatic draft PEIS's BMPs as well as those in the HCPs and counter to the purposes of that document to streamline the environmental review process and NEPA compliance for wind energy projects. Accordingly, AWEA encourages the Agencies to allow HCP participants to tier based on their compliance with these HCPs, but also to qualify as a CatEX under NEPA and to excuse a project from the programmatic BMPs in the draft PEIS, as they will be required to follow the BMPs in these HCPs. Such an action would consistent with other instances in which CatEXs were granted if there were already adequate measures in place to minimize the impacts. [7]

II. The measures are too vague to be a determining factor for tiering.

As mentioned in Section I above, AWEA believes many of the BMPs and other measures called for in the draft PEIS would be difficult for a developer to implement. These types of measures tend to be either too vague or impracticable. Below are examples of some of the BMPs that fall into these two categories. Please note that this is not an exhaustive list. These examples best elucidate the issues common to many of the measures provided in the PEIS. In many instances it appears that the Agencies have gone well beyond what is truly necessary and are proposing a "wish list." Given that eligibility for tiering is dependent on implementing these measures, such a wish list is inappropriate for the PEIS. We urge the Agencies to reconsider which measures are truly necessary for this PEIS and to reduce the measures to only those that are clear and reasonable.

[6] Specifically, the HCPs' BMPs will be just as effective at ensuring compliance with the relevant statutory and regulatory requirements, minimizing local impacts of siting decisions and design, promoting post-construction stabilization of impacts, maximizing post-construction restoration of habitat conditions, minimizing cumulative impacts, and promoting economically feasible development of wind projects.

[7] *Cf. Jones v. Gordon*, 792 F.2d 821, 829 (9th Cir. 1986) ("conditions mitigating the environmental consequences of an action may justify an agency's decision not to prepare an environmental impact statement.").

- In 2.3.2.2, the draft PEIS specifies that surveys prepared for listed species will be shared with the Service's Ecological Services Field Office. It should not be mandatory for this process that surveys conducted by developers in evaluating a wind project site be turned over to the Service. That choice and risk assessment is solely within the purview of the developer.

- In 2.3.2.2, the draft PEIS provides a measure stating "meteorological towers shall not be located in sensitive habitats or in areas where resources known to be sensitive to human activities (e.g. wetlands, cultural resources, and listed species are present). . . ." Given many of the listed species occurring in the Upper Plains region are migratory species, a developer cannot say with certainty that a meteorological tower will be placed somewhere where no listed species are ever present.

- In 5.5.2.1 (Noise Impacts), a measure requires that a developer "take advantage of topography and the distance to nearby sensitive receptors when positioning potential sources of noise." This measure does not have parameters that a developer can follow in order to address this issue. If using the streamlined process requires following the measures, they should be clear.

- In 5.5.2.3 (Noise Impacts), a measure requires that noisy construction be limited to the least noise-sensitive times of the day, specifying between 7am and 7pm on weekdays. For projects being built in very remote areas (which is not unlikely in the Upper Plains region), developers should have the flexibility to construct around the clock—seven days a week should that be the most economical and efficient approach.

- There is inconsistency when referring to the development of an eagle conservation plan ("ECP"). The statements regarding the development of an ECP range from "should develop"[8] to "would need to develop."[9] This inconsistency leaves it unclear what the expectation is for the project developers with respect to whether they must develop an ECP. Adding to this confusion, there are references that suggest that project developers are not required to use the recommended ECP procedures.[10] Regardless, and as discussed above, the ECPG is voluntary and the decision to develop an ECP or not develop and ECP should be the developer's and not a condition to eligibility for tiering.

- In 5.6.2.3 (Ecological Resources), a measure requires that a developer establish buffer zones around known raptor nests, bat roosts, and biota and habitats of concern if site evaluation shows that proposed construction activities would pose a significant risk to avian or bat species of concern. Nothing more is provided as to the size of buffers or what constitutes a significant risk. Moreover, this is in effect repetitive of a recommendation to follow the WEG. This is another example of why the GPWE HCP or MWE MSHCP terms should dictate the entirety of measures that should be implemented at a project site.

- In 5.6.2.3 (Ecological Resources), measures require that access roads and utility and transmission line corridors be regularly monitored for the establishment of invasive species and that weed control measures be implemented immediately upon discovery of invasive species. This same section also requires that fill materials not originate from areas with known invasive vegetation species. It is not practicable for a developer to have monitors along these areas for

[8] PEIS at 5.6.2.1.
[9] *Id.* at ES-34 line 9-11; 2-38.
[10] *Id.* at 2-39; 5-116.

the purpose of invasive species. Not only is this not economically feasible in most cases, in many cases landowner agreements restrict developer access and rights to these areas.

- In 5.6.2.4 (Ecological Resources), the monitoring of access roads and utility and transmission line corridors, and tower site areas is again required for invasive species. Again, this is not practicable.
- In 5.6.2.4. (Ecological Resources), a measure requires "increasing turbine cut-in speeds in areas of bat conservation concern during times when active bats may be at particular risk from turbines." No further parameters are given to know what type of cut-in speeds would be required or when exactly these measures would be required. This is open to too much interpretation and could have a devastating effect on the economics of a project. Further, simply increasing cut-in speed of turbines may not have the desired effect without feathering of the turbine blades below certain wind speed to minimize risk to bats. Again, this is yet another example of where the MWE MSHCP terms should dictate the entirety of measures that should be implemented at a project site.
- In Section 5.6.2.4. (Ecological Resources), what is meant by "long-term" in reference to mortality studies?[11] This is also open to interpretation and could have substantial economic effects on projects.
- The summary table (presented as ES 5-2 and 2.3-2) provides species-specific survey requirements, avoidance measures, and conservation measures. The measures presented are generally consistent with what was included in other large wind development environmental impact analyses. However, the table contains some inconsistencies, such as species having the

[11] *Id.* at 5-129,

identical potential impacts, identical species-specific survey requirements and avoidance measures, yet different conservation measures and effect determinations. Without more detail regarding the table it is unclear how the measures were determined and why they are inconsistent.

- In 5.7.1.3 (Visual Impacts), a measure provides that facilities, structures, roads, and other project elements should match and repeat the form, line, color, and texture of the existing landscape. Again, there is no qualifier such as using language such as "to the extent reasonably practicable" and it is unclear how this would be achievable for a wind project. Additionally, we are unaware of any other industry that is held to such a standard. We do not dispute that visibility can be an issue with wind energy projects but overwhelmingly it is an issue related to turbines which could not meet any of these conditions. Nor is it clear that these conditions provide measurable ecological, biological, archaeological or other environmental benefits of significance.

- In 5.7.1.3 (Visual Impacts), a measure requires that "grouped structures should all be painted the same color to reduce visual complexity and color contrast." While we understand that it might be desirable to keep everything uniformly colored, it hardly seems that this process is the vehicle by which to require it as a prerequisite for tiering. This type of measure (and several others in Visual Impacts) defeats the utility of the PEIS to streamline projects.

- In 5.7.1.3 (Visual Impacts), a measure requires that "the geometry of road ditch design should consider visual objectives; rounded slopes are preferred to V-shaped and U-shaped ditches." Using this type of measure as a prerequisite to tiering is unreasonable. If the BMPs and

measures are required for tiering, then the Agencies should keep the measures and BMPs to those that are reasonably related to addressing the issue at hand.

- In 5.7.1.3 (Visual Impacts), a measure requires that soil disturbance should be minimized in areas with highly contrasting subsoil color. This is beyond the scope of the Agencies and should not be included in this document. This measure this measure is generally inappropriate, but particularly in remote areas. Developers have to consider a wide array of factors when siting a wind facility and the difference in color of subsoil should not be added to this list without more justification.

- In 5.12.1.4 (Hazardous Materials), a measure requires the preparation of a hazardous materials and waste management plan. The components of this plan are rather extensive. Developers are already required to comply with federal, state, and local requirements with regards to hazardous materials and waste management. There is no reason to require that developers develop plans in addition to those already required.

In summary, the measures provided as examples above highlight the issues with many of the measures provided in the draft PEIS. Moreover, even though not following the measures disqualifies a developer from being eligible to tier, several of the measures are far too vague or onerous for a developer to feel any sense of certainty that it is successfully implementing them. Many of these measures also go well beyond any federal, state, or local regulation, and it is not clear at all why this draft PEIS should essentially result in establishing a broad set of new de facto regulations. NEPA is not a regulatory statute. The draft PEIS should only include measures with clear parameters that address clear potential impacts and account for the economic realities of siting a wind project. It is unclear

why the Agencies are pursuing an approach that requires anything beyond what is already required by the broad and detailed regulations and guidance already in existence.

III. Western's discussion of wildlife needs to conform to those being developed in the GPWE HCP and MWE MSHCP.

The wildlife measures provided in the draft PEIS go well beyond what is appropriate for the Agencies' review. First, the ESA requires minimization and mitigation of impacts to listed species, but it does not require avoidance. Several measures speak to avoidance. Wind developers must consider several other factors when evaluating the economics of a project. In some cases, avoidance is not practicable and minimization and mitigation measures must be implemented where impacts are not avoided. In light of the fact that the ESA does not, the draft PEIS should not require avoidance in order for a developer to be eligible for tiering.

Second, the draft PEIS did not include the draft biological assessment prepared under Section 7 of the ESA. The wildlife measures required by the draft PEIS for tiering should not extend beyond those that are required in the final Biological Opinion prepared for the draft PEIS. Without having reviewed these documents, the justification for the measures provided in the draft PEIS is unclear and any related conclusions are premature.

Generally speaking, the draft PEIS is in effect a "foundational" programmatic document that proposes changes to the NEPA process in an effort to streamline efforts required by Western and the Service. As such, the draft PEIS provides little quantitative analysis relating to projected development but instead merely provides a lengthy discussion regarding the potential impacts from hypothetical wind development scenarios. However, without an adequate understanding of the likely projected

wind development, which the draft PEIS seemingly does not have, very little in the way of accurate projections can be concluded about the potential scope of impacts.

The draft PEIS also does not include the programmatic Biological Assessment. As such, evaluation of the Threatened, Endangered and Sensitive ("TES") analysis in the draft is difficult, if not impossible, to make and, as discussed above, is rife with inconsistencies that leave developers with uncertainty and pose potential substantial adverse economic effects for their projects. For instance, there are several BMPS, avoidance measures, and other measures associated with the TES in the draft PEIS[12] that are standard items and have been used in similar large scale environmental impact analyses. However, quantitative measures that would provide certainty, such as specific buffer distances, were not discussed and should be set forth in greater detail in the Biological Assessment, which should be made available for public review and comment.

In comparison with the ongoing programmatic wind HCP efforts discussed herein, the draft PEIS does not provide an adequate evaluation of how developers may be subjected to variable requirements. For instance, the draft states:

> As an adaptive management measure, it is the intent of this PEIS to adopt most or all of the BMPs and mitigation measures from the GPWE HCP when it is finalized for any subsequent wind development occurring under this PEIS. This will serve the dual purpose of having one consistent set of guidelines for the four species of concern (three of which are in the UGP Region) and will also incorporate the most recent and studied measures into future activities conducted under this PEIS.[13]

[12] Draft PEIS, ES.5-2; 2.3-2.
[13] *Id.* at 6-35.

We agree that the HCPs should serve as the basis for minimization and mitigation measures with respect to wind projects and TES species under the PEIS. However, in the draft PEIS, it appears as if this approach is to be incorporated as an adaptive management measure on top of other existing measures. In light of the fact, as discussed above, that the wind HCPs will already provide BMPs that are equally, or more, effective at avoiding or reducing the impacts of an interconnection or easement exchanges on specific environmental resources than the standardized BMPs in the draft PEIS, it would be duplicative for the Agencies to also require adherence to the measures set forth in the programmatic draft PEIS's BMPs in addition to those in the HCPs.

IV. Western should be careful not to overestimate the potential development of wind energy in the UGP region.

The draft PEIS provides predictions on development and the rationale behind its assumptions. Specifically, in order to evaluate potential impacts associated with the alternatives for the draft PEIS, two standardized wind energy development scenarios were developed for the UGP Region and considered for the analyses of impacts. The development time frame chosen is from the present to 2030 in order to be consistent with the modeling conducted by the Department of Energy. Two estimates for wind energy development within the region were used to bound analyses of potential natural resource impacts:

1. Projected wind energy development based on extrapolation of the levels of development within the UGP Region States from 2000 through 2010; and

2. Projected wind energy development based on modeling conducted by the National Renewable Energy Laboratory ("NREL") to identify how 20 percent of the Nation's electrical generation could be produced by wind energy by the 36 year 2030.[14]

With respect to the development predictions in the draft PEIS, we think they are generally within the reasonable range of the predictions developed by AWEA and member companies in the GPWE HCP. We caution, however, that any projections for wind energy's growth are often inaccurate and the number of new projects in this region will likely be considerably less than estimated. For instance, data from the Department of Energy's 20 percent Wind Energy by 2030 report ("20 Percent Report") should not be viewed as a reliable predictor of wind project development that is likely to occur in the region in the foreseeable future.

It is important to understand that this report was not intended to be a projection but more of an aspirational goal under the particular scenario considered at the time. The 20 Percent Report assumed that electricity demand would grow by 1-2.2 percent annually, driving significant demand for new wind generation, when in reality electricity demand growth has been negative over the nearly 5-year time period since the report was released, and most forecasts call for electricity demand growth to remain well below the level assumed in the report. As a result, it would require significantly fewer MW of wind today to obtain 20 percent of the nation's electricity needs from wind than were previously identified in the report.

AWEA has dedicated significant resources to developing reliable and well-reasoned estimates of potential development. In fact, the GPWE HCP and MWE MSHCP both require a prediction of wind development over the term of the incidental take permit. Based on those projections, the UGP region

[14] DOE 2008.

(IA, MN, MT, ND, NE, and SD) currently represents 19.5% of all installed wind capacity in the U.S. (11,690 MW of 60,007 MW). These 11,690 MW of wind capacity in the UGP region were built over a period of 25 years.[15] Between 2010 and 2012, 4,192 MW of new wind capacity was installed in the UGP region or 16.8% of all the new wind installed between 2010 and 2012 in the U.S. Across the 6-state region, 35% of the UGP wind installed between 2010 and 2012 was in Iowa, 28.8% in MN, 11.4% in ND, 11.2% in SD, 7.3% in NE and 6.4% in MT.[16]

Although the 2010 to 2012 period encompasses the largest annual wind capacity installation in U.S. history, it should not serve as a benchmark for future annual installations in the U.S. Indeed, annual wind capacity installations in the coming years are not forecasted to reach the historic high levels of 2012, which was 13,000 MW.[17] The average annual installation between 2010 and 2012 in the UGP region was 1,397 MW per year. Applying this benchmark figure to future growth for the UGP region would represent 25,149 MW of additional wind capacity installed in the UGP region by 2030. This level of installation would represent a tripling of installed wind capacity in the region over the next 17 years. This level of installation would be sufficient and far exceed the capacity needed to meet RPS requirements in the region.

The average turbine size today is 2.0-MW suggesting the 25,149 MW would represent 12,574 turbines. However, the average size of a turbine is increasing from a 1.5-MW average in only 2005.[18] Assuming the average turbine size remains 2.0-MW through 2020 then increases to 2.5-MW in the 2020-2030 timeframe, the 25,149 MW of additional wind would consist of 10,479 additional wind turbines.

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[15] AWEA, 2013.
[16] *Id.*
[17] *See* EIA, MAKE Consulting, CERA-IHS Emerging Energy Research or Bloomberg New Energy Finance.
[18] AWEA U.S. Wind Industry Annual Market Report 2012.

V. Conclusion

AWEA appreciates that the Agencies have invested considerable time and effort into developing a streamlined process specifically for the wind industry. Unfortunately, we do not believe that the draft PEIS meets that purpose. As we have commented above, we see little opportunity for developers to qualify for this process and, if they do, for the process to offer significant streamlining possibilities. While AWEA is grateful to have the opportunity to comment, we are perplexed why our expertise was not tapped during the process of preparing the draft PEIS. We hope that the Agencies will give the comments above serious consideration so that the Agencies and the industry have a workable product to facilitate compliance with NEPA and the ESA. Please do not hesitate to contact us should you have any questions regarding these comments.

Sincerely,

John Anderson
Director of Siting Policy

Tom Vinson
Senior Director of Federal
Regulatory Affairs

Chris Long
Manager of Offshore Wind and Siting Policy

Gene Grace
Senior Counsel

Comment Document 50011 (Nancy D. Hilding; Prairie Hills Audubon Society)
We wish to attach the American Bird Conservancy and Conservation Law Center's joint comments on the Upper Great Plains Wind Energy Draft Programmatic Environmental Impact Statement. We concur with them and incorporate their comments by reference.

We hope both agencies will work aggressively to protect our biodiversity of the great plains and all at-risk species

Thank you,

Nancy Hilding
President
Prairie Hills Audubon Society

NOTE: Refer to Comment Document 50006 to view the attachment referred to in the comment.

Comment Document 50012 (Nancy D. Hilding; Prairie Hills Audubon Society)
We wish to attach the comments submitted by Daly Edmunds , Regional Policy Coordinator for Audubon Rockies on the Upper Great Plains Wind Energy Draft PEIS. We concur and incorporate these comments by reference.

Thanks,

Nancy Hilding
President
Prairie Hills Audubon Society

NOTE: Refer to Comment Document 50009 to view the attachment referred to in the comment.

Comment Document 50013 (M. Jeff Hagener; Montana Fish, Wildlife, and Parks)

Montana Fish, Wildlife & Parks

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406-444-3186
FAX: 406-444-4952
Ref: DO208-13
May 21, 2013

Western/FWS Draft Wind Energy PEIS Comments
c/o John Hayse
Argonne National Laboratory
9700 S. Cass Avenue – EVS 240
Argonne, IL. 60439

Dear Mr. Hayse,

Montana Fish, Wildlife and Parks (FWP) appreciates the opportunity to comment on the Western/FWS Draft Wind Energy PEIS. FWP has reviewed the four alternatives presented and supports the preferred alternative with some reservations. FWP, like other organizations that provided comments, would like the preferred alternative to state a commitment to interagency consultation. In addition, the PEIS should provide for additional research on the impacts to wildlife from wind energy developments.

The PEIS, while providing stipulations for winter ranges, nesting, and calving/birthing impacts, does not describe the potential negative impacts nor address how these impacts might be avoided. The PEIS should state that state wildlife agency be contacted for site specific natural resource issues and impacts.

Montana Fish, Wildlife and Parks understands the need for alternative energy development and wind energy development in the State. As the management agency for Montana's fish and wildlife resources the Agency would like to see an EIS that balances the needs of energy development with the conservation of the State's fish and wildlife resources.

Sincerely,

M. Jeff Hagener
Director

c: Rob Brooks

Comment Document 50014 (Lyle Witham, Basin Electric Power Cooperative)
"Yes, my name is Lyle, L-Y-L-E, Witham, W-I-T-H-A-M. I'm the Environmental Manager for Basin Electric Power Cooperative. We provide supplemental wholesale power to a large part of the Upper Great Plains Region that is covered by this Programmatic EIS. We were formed to provide that supplemental power, and are part of the integrated system, or IS, and work with Western on a lot of projects.

We have built two wind projects in the last few years, went through an EA on one of them and an EIS on the other. We had wetland and grassland easements on both of those projects. We encouraged both Western and Fish and Wildlife Service to go through this process. I have been lucky enough to have had a chance to review the EIS, and there's a tremendous amount of work that has gone into this review. Fish and Wildlife Service, in our particular projects, as John mentioned, was very reasonable on the -- on the wind turbines that we located on grassland easements and wetland easements. We worked with them to locate them in places which would have the least impact on those easements, and on the edges of the easements, and then we did mitigation in terms of buying additional properties, and as John mentioned in his -- his testimony, we also arranged so when they -- when the period of use is over we'll restore that grassland or wetland easement to its original state.

So I think I want to thank all of the people that were involved in this. We do support the preferred alternative that was presented here tonight. I think this whole process will streamline the process in the future for additional projects as -- as our national policy is set on greenhouse gases, it is likely that more renewable wind energy projects will be needed by power companies to meet their obligations, and this will allow that to go forward.

As a couple of John's slides showed, there are both grassland and -- and especially wetland easements all over the Upper Great Plains, and the Prairie Pothole Region especially, and you really could not build a wind project without having some impact on those areas, so now that there's a policy in place that's going to make a -- it easier to locate wind farms and -- and move forward with projects, so I think this is an important process, and we really thank you for doing it, and we -- we will probably submit some brief additional written comments, but we really appreciate you having this hearing and the whole -- the whole years of work that you've put into this whole process, so thank you."

A.3 AGENCY RESPONSES TO COMMENTS

Table A-2 provides agency responses to individual comments contained in the comment documents presented in section A.2. Responses to comments are associated with the comment documents in section A.2 by comment document ID. Individual comments within each comment document were identified and sequentially numbered by agency reviewers. Specific individual comments are identified using a combination of the comment document ID and the sequential comment number ID (e.g., 50001-01 represents the first individual comment in comment document 50001).

TABLE A-2 Agency Responses to Comments on the Draft PEIS

Comment ID	Comment	Response
50001-01	I am totally against wind generation of power. I believe until the wind method of power generation can stand on its own without public subsidy we cannot afford it. Coal and natural gas is the way to go for our power needs. It is time to recognize that alternative power is too costly. We need to cut back government spending not create more.	The commenter's viewpoint is noted. However, the comment is considered to be outside the scope of the proposed action. No text changes were made to the PEIS in response to this comment.
50002-01	Generally speaking, I favor alternative energy such as solar and wind. However, it's very important to me that large-scale wind farms be located in suitable sites and not in special places. My main comment is that no large-scale industrial-style wind farms should be sited close to Montana's Rocky Mountain Front, and not very far west of Interstate Hwy 15. Such facilities certainly should not be located anywhere west of Hwy 464, US Hwy 89, and US Hwy 287, between Babb, MT, and Wolf Creek, MT. That is arguably the most scenic area in the lower 48 states, and much of the area has been identified by the US Fish & Wildlife Service as prime wildlife habitat, including home for threatened grizzly bears. From those highways westward to the Rocky Mountain Front, please do not allow any large-scale industrial-style wind farms. Thank you	Western and the USFWS do not site wind energy generation projects. Wind energy projects are developed by the private sector, and neither agency has regulatory authority over developers or where they plan their projects. The location of proposed projects is typically governed by where developers have been able to secure lease options, and developers are very interested in obtaining options in areas with favorable wind conditions that are near transmission paths with available capacity. In general, the area the commenter would like to protect has less suitable wind conditions and terrain, has more Federal land, and is more problematic for development. Thus the agencies do not expect to see much large-scale wind energy development in western Montana. No text changes were made to the PEIS in response to this comment.
50003-01	All "action" alternatives in an EIS must meet the purpose and need stated in Chapter 1. Alternative C appears to not meet this standard. Furthermore, Alternative C appears to have been offered as a "straw man" such that a greater range of alternatives could be presented. Alternative C should be removed, or it should be altered as needed to show that it is indeed a viable action alternative to meeting the purpose and need articulated in Chapter 1.	Alternative C does meet the minimal requirements of the purpose and need identified in the PEIS. With a programmatic NEPA document of this type there are a wide variety of possible alternatives; Alternative C represents a lower boundary to the range of reasonable alternatives for the proposed action. No text changes were made to the PEIS in response to this comment.
50004-01	MRES supports a balanced approach that streamlines the wind development process while maintaining the environmental protections afforded under the existing Federal, State and local laws. This is what MRES believes is the ultimate goal as stated in Executive Order 13212 as shown in the introduction of the draft PEIS (see below). *"The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people. In general, it is the policy of this Administration that executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the Production, transmission, or conservation of energy."* [2] DEIS page 1-1	The agencies are indeed promoting the goals identified in E.O. 13212 by preparing this PEIS that will allow both agencies to streamline their NEPA processes while still meeting their legal mandates. The comment appears to focus on the "increased production and transmission of energy" part of the E.O. language, while discounting the requirement for agencies such as Western and the USFWS to accomplish this "in an environmentally sound manner" that is "consistent with applicable law." The commenter contends that Alternative 3 best meets the goals of wind energy developers, in that anything beyond the bare minimum of regulatory compliance will delay development and/or increase costs. The PEIS acknowledges that Alternative 3 could conceptually result in reduced approval times. However, this alternative also represents a

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	MRES is concerned that Alternative 1 may undermine the ultimate goal of the PEIS and that Alternative 3 is a better way to provide for more efficiencies in the review process. The following statement in the draft PEIS exemplifies MRES concern: *"The proposed approach under Alternative 3 would promote efficiency and consistency in the environmental evaluation of wind project interconnection requests by Western and in the way requests for easement exchanges to accommodate placement of wind energy facilities on easements managed by Service would be reviewed and resolved. While not changing the need for detailed National Environmental Policy Act environmental analyses at the project level, decisions and debate regarding which BMPs and mitigation measures would need to be undertaken at the project level might be resolved more quickly, because BMPs and mitigation measures to be addressed in project specific plans of development would be determined solely on the basis of existing Federal, State, and local requirements and would not require consideration of additional measures by Western or the Service. As a result_ the time necessary to obtain approval of interconnection requests and requests for easement exchanges under Alternative 3 could be reduced compared to other alternatives, along with the associated costs to both the Agencies and industry."* [3] page ES-46 MRES believes that Alternative 1 actually opens the door to further environmental scrutiny beyond existing Federal, State and local laws. Thus Alternative 1 has the potential to provide more impediments to the development of wind energy in UPGR which is counter to what MRES believes is trying to be achieved by the PEIS. The draft PEIS portrays that perhaps some of the efficiencies in Alternative 1 may be due to the BMPs which are not provided in Alternative 3. MRES believes a better alternative is to select Alternative 3 and include with that the flexibility that the BMPs offer in Alternative 1. Alternative 3 will streamline the environmental review process while maintaining the protections afforded under current Federal, State and local laws.	process with an increased risk of resulting in issues with other affected agencies, tribes, NGOs, and the public. Resulting challenges could delay approvals for individual projects far longer than under a more holistic process such as that outlined for Alternative 1. In addition, adherence to only legally mandated minimum requirements would likely not be in the best interests of the agencies, public policy, or natural resource stewardship. Any proposed project will be subject to scrutiny beyond existing laws and regulations, as landowners, the public, NGOs, and other affected agencies have interests in large-scale wind energy development projects and their potential effects. These interests will exist regardless of the alternative selected by Western and the USFWS. The process identified for Alternative 1 acknowledges these interests and accommodates them at a programmatic level. As identified in Chapter 2 of the PEIS, only those BMPs that are considered suitable and applicable given the site-specific conditions would be requested for any specific proposed project. The agencies' intent was to identify BMPs that have been found effective and that could be selected to reduce anticipated environmental impacts should site-specific conditions warrant. The BMPs are not proposed as a list of requirements to be imposed on every project. Rather, they are an assemblage of actions that have been found, through past experience, to be effective in reducing environmental impacts. Some mix of the identified BMPs would be selected to achieve the environmental protection desired given the conditions present on a proposed project site. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
50004-02	Lastly, MRES would like to call to your attention an inaccuracy to a quoted source in the document. According to MRES research, Executive Order 13212: Actions to Expedite Energy- Related Projects was signed by President George W. Bush on May 18, 2001 not President Barack Obama.	The attribution has been corrected.
50005-01	While the NPS supports the development of alternative energies, we maintain that it can and should be done with the environmentally least impactful methods. Moreover, federal and non-federal agencies should consider the existence and location of NPS resources and interests with regard to infrastructure sighting and development. In some instances, the NPS may be able to provide assistance by providing GIS mapping data. At this time the details of individual projects and related infrastructure development are not known. Therefore, the NPS cannot comment on impacts to specific interests and resources that fall within our jurisdiction. Instead we would like to provide the following general information, which may assist you in determining where potential impacts may be. **National Parks, Monuments, Recreation Areas, Historic Sites, & Recreational Rivers** The National Park System is comprised of over 401 areas throughout the U.S. and its territories. Management responsibility for each National Park unit lies with the Superintendent of that unit. For information about resources of concern specific to a National Park, it would be of benefit to contact the Superintendent early in the project scoping process, once more specific information is known about potential impacts. **National Trails System** The National Trails System is the network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement. The National Trails System Act made it Federal policy to recognize and promote trails by providing financial assistance, support of volunteers, coordination with States, and other authorities. As a result, 8 National Scenic Trails and 15 National Historic Trails have	Western and the USFWS appreciate the information contributed by the NPS. One of the uses the agencies envision for the PEIS is as a guide for potential developers that will educate them on the many requirements for a successful project, while at the same time encouraging them to avoid siting projects in areas with sensitive resource issues. Siting in areas with fewer potential environmental issues will expedite the environmental clearance process and reduce time and costs, while helping to minimize overall and cumulative impacts to environmental resources. The project-specific NEPA process will include a public and agency scoping process where the public and agencies will be invited to come learn about the proposed project. The NEPA process is typically conducted early in a project's development and would provide opportunities for agencies to comment and note areas of interest early in the process. Also, most wind developers in the UGP Region are quite aware of visible areas of interests such as National Park properties, National Trails, National Historic Landmarks, National Natural Landmarks, and National Heritage Areas that are close to their planned developments and have a good track record of contacting the NPS early in their development process. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

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	been established by act of Congress, and are administered by the National Park Service, the USDA Forest Service, and the Bureau of Land Management, depending on the trail, and over 800 national recreation trails have been designated through recognition by the Secretaries of Agriculture and Interior; and 2 side-and-connecting trails have also been certified. More detail and contact information for these trails can be found at http://www.nps.gov/nts/nts trails.html. A state-by-state list of National Recreational Trails with contact information can be found at http://www.americantrails.org/nationalrecreationtrails. **National Historic Landmarks** National Historic Landmarks (NHLs) are nationally significant historic resources that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Information on NHLs can be found at http://www.nps.gov/nhl/. The primary contact regarding potential effects of your proposed project on NHLs is usually the State Historic Preservation Officer (SHPO). Contact information for SHPOs by state can be found at http://www.ncshpo.org/. If your project could have an effect on a NHL you should include the NPS Preservation Assistance Office/NHL Program Manager as an interested party and provide information regarding the issues that may affect NHLs. **National Natural Landmarks** The National Natural Landmarks Program recognizes and encourages the conservation of outstanding examples of our country's natural history in both public and private ownership. The National Park Service administers the National Natural Landmark Program and, if requested, assists National Natural Landmark owners and managers with the conservation of these important sites. A guide to National Natural Landmarks by state and contact information for National Natural Landmarks can be found at http://www.nature.nps.gov/nnl/. **National Heritage Areas** National Heritage Areas are places where natural, cultural, historic and recreational resources combine to form a cohesive, nationally distinctive	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	landscape arising from patterns of human activity shaped by geography. National Heritage Areas may be managed by a State or local agency, a commission, or a private nonprofit corporation. The National Park Service provides technical and financial assistance for a limited time (usually 10-15 years) following designation. A list of National Heritage Areas and contact information can be found at lhttp://www.cr.nps.govlheritageareas/CINTC/INDEX.HTM.	
50005-02	4-7 / Line 20: "These can be contradictory missions in some cases (Vincent 2004)" The NPS rejects this notion of a contradictory mission. We are statutorily bound to prevent any "derogation to values and purposes for which" the various NPS areas have been established (16 U.S.C. 1a-1). As a steward of the Nation's natural and cultural heritage, the primary responsibility of the NPS is to preserve and protect park resources and values. This was first upheld in National Rifle Association v. Potter, where the court held: "In the Organic Act, Congress speaks of but a single purpose, namely, conservation". (National Rifle Association v. Potter, 628 F. Supp. 903, 910 (D.D.C. 1985).	The sentence that was the subject of the comment has been deleted.
50005-03	5-166 / Lines 13-25: ". . .a wind farm with wind turbines approximately 400 ft (122m) in overall height could be visible from approximately 25 mi (40 km) or farther,…" The PEIS does a good job of identifying sensitive visual resources but makes no recommendations for mitigation or avoidance. Because of the potential of a wind farm to be visible from 25 miles, the National Park Service requests that we be contacted early in the planning process for any proposed wind farm development within 25 miles of a NPS administered site, Natural National Landmark, National Historic Landmark, or National Heritage Area.	A BMP has been added to the text in section 2.3.2.2 requesting developers to consult with Federal and State land management agencies early in the planning stages in order to identify important visual resources in the vicinity of the project area and to obtain input on ways to reduce potential effects to visual resources.
50005-04	**National Historic Trails:** We are particularly pleased at the careful attention given to the National Historic Trails (NHT's). Most of our comments are technical corrections and clarification of the NPS role as administrator of five of the NHTs that will be affected by projects developed under this PEIS the latter points are particularly important as this office will wish to be consulted when specific projects affecting are proposed. For the Lewis and Clark NHT please contact Denise Nelson- 402-661-1812.	Comment noted. Wind energy developers considering proposed projects near NPS properties are encouraged to contact Federal and State land management agencies (including the NPS) as early in the development process as possible. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	For the Oregon, California, Mormon, Pioneer and Pony Express NHTs please contact Lee Kreutzer-801-741-1012 x117.	
50005-05	4-15 / Lines 21-37: National Trails System description It would be useful to clarify that national scenic trails and national recreational trails consist of continuous right of way (trail tread) for public use, whereas national historic trails cross many jurisdictions, including privately owned lands and lands directly managed by federal, state and local governments. NHTs do not have continuous public right of way across these jurisdictions; access is granted only by permission of the land owner or manager. Each NHT has an appointed federal trail administrator (in most cases, NPS) to coordinate trail-wide planning, interpretation, auto tour routes, preservation, etc., across participating jurisdictions. The role of the federal administrator is not explicit in the current draft PEIS. As required by the National Trails System Act, the administering agencies also identify High Potential Sites and High Potential Segments, places of particular historical and/or interpretive importance, along the NHTs. These are many, but not all, of the places that should be protected from adverse impacts. Regarding the national historic trails that will be affected under this PEIS, the National Park Service administers the Oregon, California, Pony Express, Mormon Pioneer, and Lewis & Clark NHTs. NPS also administers the North Country NST. USDA Forest Service administers the Nez Perce NHT and the Continental Divide NST. The National Park Service requests consultation and in some cases cooperating agency status when undertakings have the potential to affect the national trails it administers.	The description of the National Trails System in section 4.1.2 of the PEIS has been updated to include the suggested information.
50005-06	4-17 / Table 4.1-10 This table omits the California NHT, which largely (but not exclusively) shares corridor with the Oregon, Mormon Pioneer, and Pony Express NHTs across Nebraska.	Table 4.1-10 in the PEIS has been modified to include the information provided.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
50005-07	4-167 / Table 4.7-1 Are the entire corridors of each NHT considered sensitive visual resource areas? Judging from Figures 5.7-14 through 16, that appears to be the case. If so, please be aware that the state-by-state trail mileages listed in table 4.7-1 are not the designated trail mileages identified by the National Park Service (administrating agency for the Oregon, California, Mormon Pioneer and Pony Express NHTs) 1999 four-trail Comprehensive Management Plan. The CMP shows 1,067 California NHT miles, 441 Pony Express NHT miles, 424 Oregon NHT miles, and 511 Mormon Pioneer NHT miles across Nebraska. (Only total NHT mileages across each state are listed in the CMP; NPS could help ascertain the mileage of Mormon Pioneer NHT in the affected area within Iowa.) Three of these NHTs, however, share the same corridor/routes across Nebraska, so the total mileage of designated NHT would be significantly less than the sum of the individual NHT mileages. The NPS would be pleased to provide a copy of the CMP for reference purposes. The following national historic landmarks associated with the Lewis and Clark NHT should be included as sensitive visual resource areas: Lemhi Pass and Three Forks of the Missouri. If it is not the intent of the preparers to identify the entire trail corridor for each NHT across the affected states as visually sensitive, please show graphically where the visually sensitive trail segments are located and explain how trail segments are determined to be visually sensitive. NPS trails administrators would appreciate an opportunity to review those determinations. It would be very helpful here to refer the reader ahead to Figure 5.7-13 through -16, which show where the trails are located.	As noted in section 4.7 of the PEIS, table 4.7-1 summarizes a selection of scenic resources and many other scenic resources exist within the UGP, and as such is not fully inclusive. In order to ensure that the most recent information regarding possible resources of concern in the vicinity of a specific project has been identified, developers are encouraged to contact Federal and State land management agencies (including the NPS) as early in the development process as possible. No text changes were made to the PEIS in response to this comment.
50005-08	4-186 / Table 4.9-4 The range of historic resources listed for each state should include NHT-related sites.	The table has been modified to include historic trails among the range of historic resources.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
50005-09	4-192 / Lines 11-14 Heritage tourism should be included among this listing.	As suggested, heritage tourism has been added to the listed recreational resources in section 4.10.1.10.
50005-10	5-8 / Line 19 Please clarify by writing *"national* scenic and historic trails." Congressionally designated components of the National Trails System typically receive higher levels of protection than do non-designated scenic and historic trails. Overall, though, this is an excellent, clearly written assessment of potential effects to these resources.	The requested text was inserted in section 5.1.1.2.
50005-11	Section 5.7 This is a very thoughtful and thorough discussion of visual resources, project siting, and mitigation measures, and the graphics are clear and easily understood, as well. It could serve as a model for other PEISes of this scope. We appreciate the consideration and effort that went into preparation of this section.	Comment noted. Western and the USFWS thank the NPS for their compliment! No text changes were made to the PEIS in response to this comment.
50005-12	10-22 / Lines 5-7 Recommend deletion of the phrase "on Federal land." The designated NHTs follow the historic routes of travel across all jurisdictions, although only the federal components are protected. It would be useful to add that Lewis & Clark, Oregon, California, Mormon Pioneer, and Pony Express NHTs are administered by the National Park Service.	The suggested modification was made to the text of the Glossary.
50006-01	**COMMENT 1.1. The Agencies' Statements of Purpose and Need Do Not Correlate to the Scope of the Proposed Action. The Statements Should Identify FWS's Role in Streamlining the ESA Section 7 Consultation Process.** Under NEPA's implementing regulations, an EIS must include a statement "briefly specify[ing] the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."1 When "two or more agencies . . . have a decision to make for the same proposed action and responsibility to comply with NEPA or a similar statute, it is prudent to jointly develop a purpose and	As the commenter notes, section 1502.13 states that "The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." In this case, Western and the USFWS have different agency rationales for taking action. More importantly, specific future wind energy projects within the UGP Region may involve both agencies, only one of the agencies, or neither agency. Preparing a joint purpose and need statement may be desirable in certain circumstances, for example where two land management agencies have similar mandates and similar actions to contemplate, but such an approach is impractical in this instance, and is not required in any case.

TABLE A-2 (Cont.)

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	need statement that can be utilized by both agencies."2 Rather than develop one joint purpose and need statement, Western and FWS have prepared separate and distinct purpose and need statements. Western's purpose is to streamline the environmental review process for interconnection requests by wind facility developers. It anticipates that between 58 and 200 wind projects will benefit from this PEIS and the associated Section 7 consultation.3 FWS's purpose is specifically to streamline the environmental review process for wind projects seeking to build on easement lands. FWS anticipates that for purposes of the easement exchange program, this PEIS will serve approximately 8 projects by 2030.4 1 40 C.F.R. § 1502.13. 2 CEQ Exchange of Letters with Secretary of Transportation: Purpose and Need, May 2003, Part 2 (Letter from James L. Connaughton, Chairman of the CEQ, to Norman Y. Mineta, Secretary of the Dept. of Transp.) at 2 (2003), *available at* http://ceq.hss.doe.gov/nepa/regs/CEQPurpose2.pdf. 3 PEIS, at 5-3. 4 PEIS, at 7-7. It is unclear whether the estimate of 8 projects contemplates the additional 1 million acres of wetland and 10 million acres of grasslands that FWS seeks for the easement program. *See* PEIS, at 2-3.	The commenter recognizes the differences between the agencies later in the comment. It is true that if a specific action involves both agencies, they will take different actions that are not all that related to each other. That is not an issue; the USFWS will be able to use the collected body of programmatic level data compiled in this PEIS to help streamline its decision process regarding easements. Western is using the same body of data for different decisions regarding environmental evaluations of interconnection requests. Section 7 consultation is not the underlying link that connects the two actions. The agency actions are related only in that a specific proposed project may (or may not) precipitate the need for Federal action for both agencies. If Federal action is needed, then Section 7 comes into play, and the advantage of a programmatic Section 7 consultation for both agencies is similar to that of the PEIS – i.e., to the extent that information can be collected and impacts identified at the programmatic level, specific project NEPA documents can be more concise and expeditiously prepared. In addition to the core missions of every Federal agency, the current Administration has charged all agencies with promoting renewable energy development.
	The scope of this PEIS goes well beyond FWS's stated purpose. The PEIS combines purposes and needs that do not rely one upon the other, other than that the PEIS purportedly offers consistency in the BMPs, minimization measures, and mitigation that the agencies will require of developers. That said, FWS's decision to allow wind development on land it manages under wetland or grassland easements ought to be entirely independent of the process by which Western analyzes interconnection requests. Similarly, the manner in which Western reviews interconnection requests has no apparent congruence with the manner in which FWS reviews wind development requests on easement lands. Yet, the agencies have combined two independent processes into one joint PEIS. The disconnect is most apparent given the choice of alternatives. The combination (or pairing) of alternatives for the two actions is not helpful since neither depends on the other; indeed, absent	As discussed above, commenter is incorrect that Section 7 links the agencies or is the need for collaboration. Future specific projects may involve: (1) just Western if an interconnection is requested and USFWS easements are unaffected; (2) may involve only the USFWS if easements are impacted but no Western interconnection is needed; or (3) may involve both agencies. In the case of USFWS easement involvement, the Refuges branch of the USFWS would use the programmatic Section 7 consultation to expedite consultation with the appropriate USFWS Ecological Services Office. Since the Biological Assessment (BA) was not complete at the time the Draft PEIS was made public, all of the provisions of the BA were not known, but were summarized to the extent possible. The BA is now completed, and additional detail is included in this Final EIS. The

TABLE A-2 (Cont.)

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	the joint PEIS, the range of alternatives likely to have been proposed by FWS alone would surely have been different Although neither agency explicitly identifies it in either of the purpose and need statements, ESA Section 7 is the underlying link between the two actions. The executive summary explains that: [A] primary goal for development of the draft programmatic measures for protection of federally listed species and designated critical habitats was to identify *a set of measures that would limit the potential for adverse effects to species and critical habitats while still accommodating the majority of wind energy projects likely to occur within the UGP Region*. *This met one of the agencies' objectives of establishing programmatic processes that would facilitate environmental evaluations* for most of the requests for interconnection to Western's transmission system and for most of the requests to accommodate wind energy development on areas under Service easements.5 5 PEIS, at ES-14, continued on ES-33 (emphasis added). Accommodating the majority of wind projects is not an appropriate objective for FWS. FWS's mission is "to conserve, protect and enhance fish, wildlife, and plant and their habitats for the continuing benefit of the American people."[6] In terms of the Service's wetland and grassland easements, its responsibility is to administer the program to preserve migratory bird habitat, and to focus on ensuring healthy populations of wildlife. This is especially apparent given that Service Region 6 and Service Region 3 do not currently have the same approach to easement exchanges, and neither allow exchanges for wetland easements. For those interconnection requests that do not involve land exchanges under the easement program, FWS's responsibility falls under ESA Section [7]. FWS is required to "[f]ormulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat."7 The emphasis is on protecting wildlife, not on accommodating projects. 6 FWS, Mission Statement, http://www.fws.gov/mission.html.	programmatic BA does not eliminate the need to consider listed species and critical habitats that could be affected by each project, but provides information on each listed and candidate species (and associated critical habitat) and identifies conservation measures for wind energy developers to agree to in order to avoid adverse effects and protect the species. Consultation will be completed at the programmatic level. If the developer agrees to the conservation measures developed under the programmatic consultation, site-specific Section 7 consultation would be acknowledged by the agencies by completing documentation that states the developer's commitment is consistent with the required conservation measures in the programmatic BA. The site-specific document would be an electronic consistency form. This protocol is described in section 2.3.2.2 and appendix D of the Final PEIS and in the programmatic BA. See also the response to Comment 50006-06, below. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	7 40 C.F.R. § 402.14. If the agencies are to continue with a joint PEIS, the agencies should revise their purpose and need statements. At a minimum, the purpose and need statement(s) must identify that the agencies' collaboration exists because of ESA Section 7, not simply because each seeks to streamline its environmental review process for wind projects. Even if the agencies streamline the NEPA process, the ESA's consultation requirement will remain an obstacle for expediting wind requests unless the agencies simplify Section 7 requirements. As currently drafted, the PEIS does not explicitly acknowledge that the agencies are seeking to do just that, by completing formal consultation in the tier I NEPA review so as to avoid a site-specific ESA review. Further, it makes assumptions regarding an as yet uncompleted and, for purposes of this PEIS, an undocumented programmatic Section 7 consultation. This lack of candor appears throughout the document and must be addressed by the agencies. We offer comments on the manner in which the agencies seek to streamline the ESA Section 7 consultation requirement below in Part 8.	
50006-02	**COMMENT 2.1. The PEIS Needs to Discuss How Takings of Listed Species Will Be Addressed** The FWS Handbook on Section 7 consultation defines "is likely to adversely affect" as the "appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action . . . and the effect is not: discountable, insignificant, or beneficial . . . *If incidental take is anticipated to occur as a result of the proposed action, an 'is likely to adversely affect' determination should be made*. An 'is likely to adversely affect' determination requires the initiation of formal section 7 consultation." [8] The Handbook defines the phrase "is not likely to adversely affect" as "the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. . . . Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. " [9]	No incidental takes of listed, proposed, or candidate species are anticipated to occur and no adverse effects to designated critical habitat are anticipated as part of the proposed action. Species-specific narratives within the programmatic BA provide discussion, information, and citations pertaining to the species-specific avoidance, minimization and mitigation measures listed in table 2.3-2 in the PEIS. The information presented in the programmatic BA supports the effects determinations in the PEIS (see appendix D of the PEIS). No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	[8] FWS & NMFS, Endangered Species Consultation Handbook, at xv (Mar. 1998) (emphasis added) (hereinafter "FWS & NMFS, Consultation Handbook"). [9] FWS & NMFS, Consultation Handbook, *supra* note 8, at xv-xvi. For most of the listed species included in this PEIS, the agencies have determined in Table 2.3-2 that the proposed action is classified as "may affect, not likely to adversely effect." First, this implies that the agencies believe that the proposed action's effect on the species will be discountable, insignificant, or completely beneficial. Second, this suggests that the agencies do not anticipate any incidental take of those species; otherwise, as noted in the FWS Handbook, the determination should be "is likely to adversely affect." The PEIS does not indicate why the agencies are certain that the avoidance measures will eliminate the possibility of incidental take or what data they rely on for that conclusion. Neither does the PEIS explain what will occur if any given wind project results in the incidental take of a listed species. For a few species, the agencies' effect determination is "not likely to jeopardize the continued existence." That the agencies have articulated a jeopardy assessment for those species, rather than a negative adverse effect assessment, suggests that the agencies expect incidental take of those species, though not to a level that jeopardizes the continued existence of the population. If that is indeed the case and the agencies expect incidental take of a species, an "is likely to adversely effect" determination is required, along with initiation of formal consultation. We comment on formal consultation in Part 8	
50006-03	**COMMENT 2.2. The Agencies Have Not Included Mitigation Measures for Habitat Disturbance.** The PEIS discusses the adverse impacts of wind development on habitat, but there are no measures requiring compensatory mitigation for habitat fragmentation, alteration, and degradation, other than for a select few listed species. With the exception of Sprague's Pipit, the agencies have concluded that impacts on suitable habitat for listed species are either negligible or minor in Table 5.6-18. [10] In several other instances, however, the PEIS states that habitat fragmentation,	Both Western and USFWS fully disclose adverse impacts as required by NEPA. Mitigation of specific types of habitat disturbance is discussed where appropriate in the PEIS. Although the PEIS acknowledges that overall projected levels of wind energy development in the UGP Region has a potential to disturb a portion of suitable habitat that is high enough to consider it a major potential impact on habitat for some species (e.g., prairie bush clover in table 5.6-18), it also specifies that appropriate siting of project structures to avoid sensitive habitats and implementation of appropriate BMPs and mitigation measures would reduce the identified impact levels (e.g., see footnote d for table 5.6-18).

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	alteration, and degradation can have long-term effects on wildlife, and especially so for threatened and endangered species. [10] PEIS, at 5-143. The PEIS puts much emphasis on the amount of land permanently and temporarily affected by wind development (0.7 to 1.0 ac per turbine and 0.4 to 2.6 ac per turbine, respectively), concluding that the "footprint of permanent structures would be expected to occupy less than 1 percent of the overall project area." [11] Habitat disturbance is not adequately expressed or described in terms of directly disturbed land area or vegetative cover. The agencies must account for indirect habitat loss, which the PEIS acknowledges "could be of greater consequence than a direct habitat loss." [12] In discussing impacts on habitat as a result of construction, the PEIS notes, for example, that "the loss of effective habitat (amount of habitat actually available to wildlife) was reported to be 2.5 to 3.5 times as great as the actual habitat loss due to roads." [13] In relation to operations, the PEIS notes that "[r]educed use and displacement of some birds probably occur in close proximity to turbines" and "possible effects on sensitive species may occur at distances greater than or equal to 1 mi (1.6 km) from the center of a wind farm . . ." [14] Table 5.6-4 notes that some species "may avoid areas surrounding the wind energy facility, including foraging and nesting habitats, due to fragmentation of habitat, placement of facilities, or increased human activities." [15] The agencies further note the impact that habitat fragmentation and habitat degradation have had on declining populations of Sage-Grouse species, as well concern over the Greater Prairie-Chicken and Sharp-Tailed Grouse. [11] PEIS, at 5-70 [12] PEIS, at 5-72. [13] PEIS, at 5-72 to 5-73. [14] PEIS, at 5-81. [15] PEIS, at 5-79. Given the discussion on habitat disturbance and the interference wind facilities have on wildlife behavior, the agencies need to incorporate compensatory mitigation measures for habitat protection. Further, the	For projects that would be considered for tiering under the PEIS, implementation of the identified BMPs, avoidance measures, minimization measures, and mitigation would result in either "no effect" or "not likely to adversely affect" determinations for purposes of ESA Section 7 consultation as described fully in the programmatic BA. Regarding specific species identified in the comment, the potential for adverse impacts to sage-grouse are minimized by excluding projects in the most important habitat (core areas) for that species and impacts to sharp-tailed grouse are minimized through the implementation of requested BMPs. The potential for indirect habitat loss is discussed in the PEIS, although there is currently no way to accurately assess the overall potential at a programmatic level. Additional analyses may be needed for specific projects as part of the site-specific NEPA evaluations that will be required under the process identified in the PEIS. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

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	PEIS needs a section analyzing the relation between a project's footprint (i.e., boundaries of full build-out) and the extent to which wildlife patterns are disturbed beyond those areas.	
50006-04	COMMENT 2.3. The Avian and Bat Mortality Estimates Need to Be Revised. The avian and bat fatality estimates for the UGP region rely upon published data instead of using relevant data that FWS already has in its database. In the final PEIS, the agencies must address how much bird and bat mortality data FWS has from wind facilities for each of the six UGP states and must explain why relevant, credible data was not used in this draft PEIS. Wherever possible, actual data from the region should be incorporated into the final PEIS. The avian and bat fatality estimates for the UGP region that use published data need to be revised and the calculations need to be expanded for the various development scenarios. Several estimates appear in Chapter 5, none of which are consistent with each other or the data assumptions, and none of which are completely explained The first estimate appears on page 5-104 under the Wildlife section of Common Impacts: Using estimates of 3.04 bird fatalities per megawatt per year in the United States (Erickson et al. 2003b) and 0.2 to 8.7 bat fatalities per megawatt per year in the Midwest (Arnett et al. 2007; Illinois DNR 2007), it is estimated that fatality rates within the six States that include the UGP Region would be approximately 27,606 birds and 1,816 to 79,005 bats per year. Although wind turbines are estimated to account for less than 0.01 percent of anthropogenically caused avian fatalities, it has been suggested that in certain areas wind facilities could be acting as population sinks for some species (Edkins 2008). It is predicted that the installed wind energy capacity within the United States by 2020 will be 72,000 MW (Kunz et al. 2007a), and possibly as high as 300,000 MW by 2030 (Edkins 2008). Absent any new bird or bat avoidance technologies, this could result in annual nationwide fatalities of nearly 220,000 birds by 2020 and more than 900,000 birds by 2030.	Information pertaining to mortality of birds and bats associated with wind energy facilities has been updated with more recent estimates from the literature and the range of estimated mortality estimates under the two build-out scenarios for the UGP Region are presented. The text in section 5.6.1.2 of the PEIS has been updated.

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	Bat fatalities would be nearly three times as high.16 16 PEIS, at 5-104. First, these sources use out-of-date figures. According to the American Wind Energy Association, there were already 60,007 MW of installed wind power by the end of 2012. Installed wind power in the United States grew by an average of 8,129 MW per year between 2007 and 2012. 17 If wind power maintains that same growth rate until the end of 2020, there will be 65,032 MW of added generation, for a total of 125,039 MW, far above the estimate of 72,000 MW by 2020, thus making any bird and bat mortality estimates based on 72,000 MW too low. Second, the estimate of 900,000 bird fatalities is only the lower end of the range of an estimate of birds killed by 2020 that FWS has been using since 2007-2008. The full estimate is 900,000 to 1.8 million.18 Please see Attachments A, B, and C for FWS documents so indicating. 17 See American Wind Energy Association, Industry Statistics, http://awea.org/learnabout/industry_stats/index.cfm (last accessed May 20, 2013). Total new installed capacity from 2007 through 2012 was 48,774 MW. The average (48,774 MW divided by 6 years) is 8,129 MW. 18 See Attachments A, B, & C. To estimate avian fatality rates for the six states in the UGP region, the PEIS applies the U.S. estimate of 3.04 bird fatalities per MW per year. 19 First, the estimate for 3.04 bird fatalities per turbine is based on a 10-year old study from 2003 and needs to be updated. 20 Second, the agencies apply this estimate to the 9,081 MW of already installed wind power capacity in the six state UGP region to conclude that fatality rates within the six states will be approximately 27,606 birds. 21 This figure (27,606 birds) is an estimate of current fatalities (using 2011 MW figures), not future fatalities, and it is an estimate that uses the national average fatality rate rather than a regional (six state) average fatality rate. The same analysis applies to the bat mortality estimates, as bat fatalities are estimated using the Midwest fatality estimate of 0.2 to 8.7 bats per MW per year rather than a regional estimate. Given that wind facilities in certain areas “could be acting as population sinks for some	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	species," 22 the PEIS should apply a regional fatality estimate from the six UGP states rather than a U.S. or Midwest estimate in order to accurately assess collision mortality risk. Furthermore, the PEIS cannot rely on the 2011 figures for installed wind capacity to calculate future risk. The agencies need to include an estimate for expected avian mortality in 2030 for the region under the two applicable development scenarios. Table 2.4-1 projects 21,427 MW of installed capacity by 2030 under the first scenario (trend) and 53,310 MW of installed capacity by 2030 under the second scenario (20%). 23 19 PEIS, at 5-104. 20 PEIS, at 5-104. 21 PEIS, at 5-104. 22 PEIS, at 5-104 23 PEIS, at 2-45. The second estimate appears on page 5-137, under the discussion of wildlife impacts for the No-Action Alternative. There the PEIS states: Using estimates of 3.04 bird fatalities per megawatt per year in the United States (Erickson et al. 2003b) and 0.2 to 8.7 bat fatalities per megawatt per year in the Midwest (Arnett et al. 2007; Illinois DNR 2007), it is estimated that fatality rates within the six States that are part of the UGP Region would be approximately 18,362 birds and 1,208 to 52,548 bats per year. These estimates do not correspond to the initial estimates (27,606 birds, and 1,816 to 79,005 bats per year). It is unclear what project capacity estimates these calculations rely on. Further, the agencies do not provide similar mortality data for Alternative 1, other than to say that the impacts would be comparable to the No-Action Alternative. We therefore assume that the agencies expect that avian and bat mortality will be comparable to the No-Action Alternative. The agencies must revise the mortality estimates. Using more recent fatality estimates and regional UGP data as much as possible, the final PEIS should provide the following range of estimates for expected mortality of birds and bats:	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	• 2010 Installed Capacity • 2011 Installed Capacity • Case 1 2030 Installed Capacity • Case 2 2030 Installed Capacity • 115 New Projects [UGP low estimate] • 400 New Projects [UGP high estimate] • 58 New Projects [Western low estimate] • 200 New Projects [Western high estimate] This range will allow the agencies and the public to more accurately quantify and understand the implications of wind energy development on bird and bat fatalities under the various scenarios presented in the PEIS. It will show baseline measures for 2010 to 2011 for "current" risk to birds and bats, the expected risk to birds and bats based on total installed capacity in 2030 under the Case 1 and Case 2 development scenarios, the incremental impact of new wind generation projects installed under Case 1 and Case 2, and the incremental impact of Western's anticipated 58 to 200 interconnection requests.	
50006-05	**COMMENT 2.4. The PEIS Inadequately Addresses the Impact of Wind Facilities on Bird Behavior.** The PEIS does not adequately address the potential impacts of increased wind energy facilities in the Prairie Pothole region for waterfowl and other wetland and grassland dependent birds. The Prairie Pothole Region is the primary breeding grounds for ducks and waterfowl in North America. The continued use of prairie wetlands is critical to maintaining duck populations. Although the PEIS discusses collision risk, it only briefly mentions behavioral modification as an effect of development and does not address the possibility that land-based wind facilities may affect bird settling patterns, density, or distribution during the breeding season. The agencies must acknowledge the *indirect* impacts of wind development on breeding ducks and other wildlife, and better address the hypothesis that displacement of breeding ducks and other birds may affect population dynamics. Recent research on dabbling ducks, for example, demonstrates that these species respond negatively to wind energy sites. [24] The studies	The agencies believe that the potential impacts of increased wind energy facilities within the UGP Region have been adequately described in the PEIS. The upfront requirements for BMPs and other conservation measures pertaining to siting and operation of wind energy facilities should reduce the potential for negative impacts to migratory birds from projects that are reviewed under the purview of the proposed action. Overall, the proposed action is not expected to increase the development of wind energy within the UGP Region compared to the development of wind energy facilities that would occur under the No Action Alternative. Rather, the proposed action deals with the environmental review process and environmental requirements for wind energy projects requesting interconnection to Western's transmission systems or requesting placement of wind energy facilities on USFWS easements within the UGP Region. Additional discussion of the potential for behavioral displacement of some birds due to development of wind energy facilities is presented in section 5.6.1.2. Information derived from the provided reference has also been added.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	showed decreasing densities of ducks on wetlands near wind sites, with a 4% to 56% reduction in breeding pairs. Given the importance of the Prairie Pothole Region as breeding grounds for birds, it is incumbent on the agencies to discuss what avoidance and reduced reproduction could mean for species populations. This analysis is especially needed given that FWS's Conservation Strategy calls for an additional 1 million acres of wetlands and 10 million acres of grasslands "in order to sustain current levels of breeding waterfowl."[25] [24] Charles R. Loesch et al., Effect of Wind Energy Development on Breeding Duck Densities in the Prairie Pothole Region, The Journal of Wildlife Management 77(3):587-598 (Dec. 2012). [25] PEIS, at 2-3.	
50006-06	**COMMENT 3.1. The Species-Specific Survey, Avoidance, and Conservation Measures Are Vague and the PEIS Does Not Adequately Convey the Level of Protection the Measures Will Provide When Implemented.** The PEIS's discussion of species-specific avoidance and conservation measures applies the following range of terms: avoid, do not, should, minimize, may, limit, and restrict. Each of these terms implies a different level of commitment from project developers. To understand the level of protection that these terms offer, the public needs an explanation of how FWS will determine whether a given project meets the applicable criteria. As currently drafted, it is unclear how the set of measures will be applied in a consistent, programmatic manner. If additional formal Section 7 consultation will be required for listed species for which developers are "unwilling or unable to implement" the measures, the agencies must identify what will constitute unwillingness or inability in the context of the applicable criteria. [26] Many of the measures use discretionary language like "may," "should," and "avoid" rather than mandatory terms such as "do not." The agencies have not explained how they will assess whether a developer is "unwilling" or "unable to implement" a measure that uses language suggesting that implementation is optional or flexible. The PEIS must explain how measures whose implementation is optional can be counted on to assure and achieve avoidance, minimization, and mitigation objectives and how such intended results can be quantified.	The use of the identified terms has been reviewed and, in some cases, modified in response to the comment. In general, the BMPs, avoidance criteria, minimization measures, and mitigation measures for the listed species identified in table 2.3-2 should be considered requirements when applied to specific projects if the environmental evaluation of the project will be tiered from the PEIS and the programmatic Section 7 consultation. Species-specific narratives within the programmatic BA provide discussion, information, and citations pertaining to the species-specific avoidance, minimization and mitigation measures listed in table 2.3-2 in the PEIS. The information presented in the programmatic BA supports the effects determinations in the PEIS (see appendix D of the PEIS). Compliance with ESA Section 7 consultation for individual projects that are addressed under the programmatic consultation will be documented through the use of Project Consistency and Species Consistency Evaluation Form(s) to certify the action is consistent with the programmatic Biological Assessment (BA) and the tiered approach identified in the USFWS's voluntary *Land-Based Wind Energy Guidelines*. Interconnection project proponents must complete the appropriate forms and submit them to the Western and/or the USFWS depending upon which agency is the lead Federal agency for the project being evaluated. The lead agency will review the completed forms to verify compliance with the conservation measures identified in the programmatic BA and will submit the information to the appropriate

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	[26] PEIS, at 2-11. Below are multiple examples that illustrate our concern over the vague nature of the draft set of species-specific measures. Although we provide specific examples, we do not limit our concern to this list. The majority of the criteria for listed species display a pattern of vagueness. ***What does "avoid" require?*** *Prairie Bush Clover* For the Prairie Bush Clover, the PEIS states: "Do not site turbines, access roads, transmission line towers, or other project facilities within 100 ft (30.5 m) of suitable habitat containing prairie bush clover." [27] The use of the words "do not" implies that developers may not, under any circumstances (if the developer wants to take advantage of the tiered programmatic review and consultation), site turbines within 100 feet of habitat where Prairie Bush Clover is present. The second requirement, however, says to "avoid mowing along access roads or transmission line ROWs in areas containing suitable habitats" for the Prairie Bush Clover. [28] Does "avoid mowing" mean "do not mow"? The PEIS needs to explain if "avoid" is as strict of a requirement as "do not." If the agencies are in fact using "avoid" to offer discretion and flexibility to developers, the measure loses all meaning in terms of requiring certain action on the part of developers. [27] PEIS, Table 2.3-2, at 2-21. [28] PEIS, Table 2.3-2, at 2-21. *Piping Plover* For the Piping Plover, one of the conservation measures is to "avoid construction activities within 0.5 mi (0.8 km) of nesting areas during late April to August" if Piping Plovers nest in the project area during construction. [29] Is this a total prohibition on construction activities from April 1 to August 31, or does the word "avoid" mean that the developer has flexibility in determining the days or weeks within those months	USFWS ES office, as described in the programmatic BA, to document that the requirements of the programmatic ESA consultation have been met. Projects for which proponents cannot or choose not to implement the identified avoidance, minimization, and mitigation measures will not be eligible for tiering under the programmatic consultation that was conducted. This does not necessarily mean that such projects will be denied interconnection to Western's transmission system or that placement of wind energy facilities from such projects cannot be accommodated through easement exchanges. Rather, the agencies would initiate project-specific ESA-Section 7 consultation for such projects in order to determine what measures may be required to avoid jeopardy to listed species and to protect designated critical habitats.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	where construction can and cannot go forward? If the latter, how will FWS achieve consistent results from project to project? [29] PEIS, Table 2.3-2, at 2-31. *Sprague's Pipit* The avoidance measure for Sprague's Pipit is to "avoid placement of turbines, access roads, and transmission lines on or within 1,000 ft of suitable native prairie tracts larger than 70 ac."[30] If "avoid" means a mandatory "do not locate," then the measure needs to be revised. Several of the measures for other birds in the species-specific list, such as the Whooping Crane, explicitly state "do not site." The PEIS needs to explain why the terms used for the various measures and species are not consistent where siting and location of wind projects are key considerations. [30] PEIS, Table 2.3-2, at 2-32. ***How restrictive is "restrict"?*** *Ute Ladies'-tresses* One of the measures for the Ute ladies'-tresses is to "restrict all herbicide use within 100 ft (30.5 m) of suitable habitat containing the species." [31] Here, does "restrict" mean the same as "do not use"? Or does "restrict" imply that a certain amount of herbicide use is permitted within 100 feet of the Ute ladies' tresses but not as much as beyond 100 feet? And if the latter is the case, is there a maximum amount of herbicides that FWS will permit? If not, is the burden on the developer to show that the restriction chosen is sufficient to meet this criterion? [31] PEIS, Table 2.3-2, at 2-22. ***Is "should" a requirement or a recommendation?*** For the Greater Sage-Grouse, the first conservation measure states that "existing guy wires should be marked with recommended bird deterrent	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	devices." [32] What does "should" mean in the context of this mandate? It is unclear whether the agencies are using "should be" to signal a mandatory requirement or to signal that the measure is suggested but not required. If existing guy wires must be marked, then the language [32] PEIS, Table 2.3-2, at 2-30. If avoid, restrict, limit, and other such terms are meant to convey a mandatory prohibition (i.e., "do not, must, shall"), then the PEIS should so state. Absent this specificity, it is unclear how FWS will determine project compliance with the requirements. Because mandatory measures are directives as to what developers can and cannot do in order to take advantage of the tiered NEPA analysis and the programmatic consultation, the burden needs to be on the developer to show that it has complied with the criteria. If, on the other hand, terms such as avoid, restrict, and limit are meant to convey discretionary and optional implementation, the PEIS must show how the outcomes of such measures are to be counted toward conservation of species.	
50006-07	**COMMENT 3.2. The Species-Specific Measures Will Not Necessarily Produce the Standardization or Consistency Sought by the Agencies.** One of the stated goals for the PEIS is to standardize a set of measures and BMPs that will be required of wind facilities in the UGP region. The objective for standardizing these avoidance and minimization techniques is to provide consistency in the environmental review process and in facility development. In theory, the draft set of species-specific measures included in the PEIS arguably achieves some consistency. In practice, however, the PEIS will not standardize the measures other than to provide flexible benchmarks for species and habitat protection. Consider, for example, the case of the Indiana bat. One of the species-specific avoidance measures is to "increase turbine cut-in speeds at developments within the counties where the Indiana bat is listed."[33] While this requirement theoretically imposes a standard of increasing turbine cut-in speeds for facilities in counties where the Indiana bat is	The commenter is correct in identifying that some flexibility will remain regarding some of the specific requirements for proposed projects. Compliance with the programmatic ESA Section 7 consultation for individual projects that are addressed under the programmatic consultation will be documented through the use of Project Consistency and Species Consistency Evaluation Form(s) to certify the action is consistent with the programmatic Biological Assessment (BA) and the tiered approach identified in the USFWS's voluntary *Land-Based Wind Energy Guidelines*. Interconnection project proponents must complete the appropriate forms and submit them to the Western and/or the USFWS depending upon which agency is the lead Federal agency for the project being evaluated. The lead agency will review the completed forms to verify compliance with the conservation measures identified in the programmatic BA and will submit the information to the appropriate USFWS ES office, as described in the programmatic BA, to document that the requirements of the programmatic ESA consultation have been met. As identified in the PEIS and the programmatic BA, there will be project-specific discussions among project developers, the lead Federal agency, and the appropriate USFWS ES office regarding which

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	listed, there is no set requirement. The PEIS says nothing about the appropriate cut-in speed, the length of time the increased cut-in-speed is to operate, the time of year it must apply, or the time of day the increased cut-in speed should be activated. For instance, is a mere 0.5 m/s increase for one hour each night in the month of August sufficient to comply with this requirement or should the developer increase the cut-in speed to 6.5 m/s from dusk through dawn during the Indiana bat's spring and fall migration periods? How will FWS and project developers agree to the specific measures in the site-specific consultation? And will FWS impose the same increase on all facilities in those counties in which the Indiana bat occurs or will it vary from facility to facility? [33] PEIS, Table 2.3-2, at 2-36. Another example is the requirements for the Sprague's Pipit. One of the species-specific conservation measures is to "conserve or restore native prairie habitats to offset impacts on native prairie caused by fragmentation, as determined in tiered site-specific consultation."[34] Without greater specificity, there is no assurance that restoration of native prairie habitat will in fact be consistent from facility to facility. At the very least, the measure should specify a proportionality requirement between the impacts caused to native prairie by a facility and the degree of restoration or conservation of native prairie habitat. [34] PEIS, Table 2.3-2, at 2-32. Accordingly, the PEIS should explain how FWS will guarantee that species-specific measures will be implemented consistently and programmatically, particularly for those measures that use terms like "should," "avoid," "limit," and "employ BMPs." If FWS intends to coordinate and negotiate these measures in site-specific consultations, the agency should articulate how it proposes to apply site-specific requirements in a standardized manner across all facilities. The PEIS should also set out the opportunities for public input to site-specific decisions. As currently drafted, the PEIS suggests that facility location, design, and operations will be tailored through a tiered consultation process in which the public's role is undefined or nonexistent.	programmatic measures are appropriate and applicable given site-specific conditions. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

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50006-08	**COMMENT 3.3. Wind Turbines Should Not Be Located Within Indiana Bat Maternity Home Ranges.** Indiana bats may travel 5 miles or more between roosts and foraging areas, depending on factors like habitat and prey availability, and may forage across several miles. [35] Thus, roosting bats in an area 5 miles or less from a project's turbines may be impacted as a result of either physical harm or flight path disruption. FWS recommends in its 2011 *Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects* that an Indiana bat's home range should be delineated to include all suitable habitat within 5 miles of a capture location if only capture data are available; all suitable habitat within at least 2.5 miles of a single documented maternity roost tree; all suitable habitat within at least 2.5 miles of the line drawn between two documented roost trees; and all suitable habitat within at least 2.5 miles of the center of the polygon created by connecting three or more documented roost trees. [36] The set of species-specific avoidance measures for the Indiana bat should therefore incorporate a requirement that project developers locate wind facility components outside Indiana bat maternity home ranges, as delineated above. [35] FWS, *Indiana Bat Draft Recovery Plan: First Revision*, at 50 (Apr. 2007), *available at* http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf. [36] FWS, *Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects, Revised*, at 8-13 (Oct. 26, 2011), *available at* http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inbaS7and10WindGuidanceFinal26Oct2011.pdf.	The following avoidance measures have been established for the Indiana bat as identified in the programmatic BA: *Throughout the range of the Indiana bat within the UGP Region (southern Iowa), conduct preconstruction evaluations and/or surveys in areas of potential occurrence to identify suitable foraging and roosting habitat within project boundaries and to identify the distance from project boundaries to hibernacula used by Indiana bats. Disturbance of hibernacula is prohibited throughout the year* *Do not site turbines in areas within 20 mi (32 km) of hibernacula used by Indiana bats or within 1,000 ft (300 m) of known or presumed occupied foraging and roosting habitat (edges along forested areas with dense forest canopy, riparian areas, and small wetlands). Habitat evaluations should be coordinated with the local USFWS Ecological Services Office prior to or during turbine site planning.* It is anticipated that projects that avoid those areas and implement the other conservation measures identified for the Indiana bat in the programmatic BA may affect, but would be unlikely to adversely affect the Indiana bat.
50006-09	**COMMENT 3.4. Wind Turbines Should Not Be Located in High-Quality Greater Sage- Grouse Habitat.** The PEIS makes recommendations for Greater Sage-Grouse protection based on core population areas. [37] However, the PEIS also states that "[w]ithin the UGP Region, core areas for the greater sage-grouse are only known from the State of Montana."[38] This means that there are no core areas determined for Greater Sage-Grouse within North and South	The species-specific requirements for the greater sage-grouse have been updated in the PEIS. Based on information from State fish and wildlife agencies, all areas in North and South Dakota that are occupied by greater sage-grouse are considered to be core areas or priority areas. We have adopted the designated core areas (from Montana State and USFWS, BLM, and NRCS) in Montana. We state in the PEIS and programmatic BA that these areas must be avoided in order to tier from the Programmatic ESA Section 7 Consultation. Areas in Montana

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	Dakota or any of the other UGP states. Therefore, in order to provide protection for Greater Sage-Grouse outside Montana, the PEIS needs to be revised so that all of the recommendations for protection of Greater Sage-Grouse that refer to core areas instead refer to "core areas and other high-quality Greater Sage-Grouse habitat, especially in North and South Dakota, where Greater Sage-Grouse core areas have not been determined." [37] *E.g.*, PEIS, at ES-26 ("Do not site turbines, access roads, transmission lines, or other project facilities within greater sage-grouse core population areas."). [38] PEIS, at 5-141, footnote g.	that are outside core areas but occupied by greater sage-grouse may have wind developments if they agree to the BMPs and other conservation measures for the greater sage-grouse. Feedback from USFWS biologists indicated that any development in core areas would result in a "May Affect, Likely to Adversely Affect" determination. The identified core areas do not have significant overlap with areas indicated to have high wind energy potential, Western's transmission system, or USFWS easements.
50006-10	**COMMENT 4.1. The PEIS Should Define "Eagle Use Areas."** The Service defines important eagle use areas as "an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feed, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding or sheltering eagles."[39] Additionally, the Service has noted that "migration corridors and migration stopover sites" are also important eagle use areas. [40] The PEIS only lists "nesting, foraging, and winter roost areas" as eagle use areas. The agencies should provide a clearer statement of eagle use areas, as defined in 50 C.F.R. § 22.3. The PEIS should also include eagle migration corridors and migration stopover sites as eagle use areas. [39] 50 C.F.R. § 22.3. [40] FWS, *Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy, Version 2*, at 12 (Apr. 2013) (hereinafter "FWS, *ECP Guidance Module 1*"), *available at* http://www.fws.gov/migratorybirds/PDFs/Eagle%20Conservation%20Plan%20Guidance-Module%201.pdf.	The description of the programmatic requirements for complying with the Bald and Golden Eagle Protection Act in section 2.3.2.2 of the PEIS has been updated. As described, project developers would be requested to work with the USFWS to complete analyses that are consistent with the Eagle Conservation Plan Guidance issued by the USFWS in order to identify important eagle use areas that could be affected by a the proposed project. Developers for projects that pose a high or moderate risk to eagles would be required to work with the USFWS to develop and implement project-specific Eagle Conservation Plans.
50006-11	**COMMENT 4.2. ECPs Must Be Required for Projects Located Near Eagle Use Areas.** One of the Ecological Resources BMPs for Project Planning and Design states that if a developer determines that "eagle use areas occur within a 10-mi radius of a project footprint, the project developer *should*	Also refer to the response to comment 50006-10. If it is determined that eagle use areas would be affected by placement of a wind energy project, the project developer would be required to develop an Eagle Conservation Plan (ECP) in order to be able to tier off of this PEIS.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	develop an Eagle Conservation Plan (ECP)."[41] Here, "should" suggests that developers have the choice whether or not to develop an ECP. In Chapter 2, however, the PEIS states that if eagle use areas occur in a 10 mile radius of a project's footprint, "the project developer *would need to* develop an Eagle Conservation Plan (ECP) in order to be able to tier off of this Programmatic EIS."[42] This statement suggests that an ECP is a firm requirement rather than a recommendation. The BMPs section must be amended to reflect that an ECP will be required, not simply encouraged. [41] PEIS, at 5-126 (emphasis added). [42] PEIS, at 2-38 (emphasis added). In the event that the ECP is merely a suggestion, the BMP should be revised to require an ECP. Although the ECP Guidance sets out steps that developers may voluntarily implement, the developers should be required to follow those steps in order to benefit from the tiered PEIS and the streamlined environmental review process. If developers do not wish to follow FWS's expert opinion as described in its ECP Guidance, they should not be permitted to expedite their projects' environmental reviews.	
50006-12	**COMMENT 4.3. Developers Should Be Required to Follow the Service's *Eagle Conservation Plan Guidance* in Developing ECPs.** Under the Ecological Resources BMPs for Project Planning and Design, developers are encouraged to evaluate the potential for adverse impacts to bald and golden eagles "in a manner consistent with the draft *Eagle Conservation Plan Guidance* (Service 2011a)." Further, it is "highly recommended" that "[e]arly in the planning of transmission interconnection and wind farm location" developers coordinate with FWS with respect to the guidance. [43] This BMP needs to require, rather than merely encourage, developers to follow the five step consultation process in the guidance document. We note here that the Service has issued a final ECP Guidance document since the draft PEIS was made public. [44] The PEIS should at the very least explain why developers are not required to follow the recommendations. FWS's *Land-Based Wind Energy Guidelines* "strongly" encourages developers to refer to the ECP Guidance if eagles are identified at a project site. It describes the ECP	See responses to comments 50006-10 and 50006-11.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	Guidance as providing "a national framework for assessing and mitigating risk specific to eagles." [45] If the guidance reflects FWS's expert opinion on the best process for evaluating effects on eagles, that process should be required of developers given the scope of this PEIS. [43] PEIS, at 5-126. [44] FWS, *ECP Guidance Module 1*, *supra* note 40. [45] FWS, *Land Based Wind Energy Guidelines*, at 3 (2012), *available at* http://www.fws.gov/windenergy/docs/WEG_final.pdf.	
50006-13	**COMMENT 4.4. Because No Take of Golden Eagles is Permitted East of the 100th Meridian, the PEIS Should Require Marking of All Line and Retrofitting of Power Poles in Golden Eagle Use Areas.** The PEIS explains that Golden Eagles are permanent residents of Montana and the western portions of the Dakotas and are non-breeding residents "throughout the rest of the UGP Region." [46] Under FWS regulations, no take of Golden Eagles east of the 100th Meridian is permitted. FWS has determined that east of the 100th Meridian the species "might not be able to sustain any additional unmitigated mortality." [47] Given that the UGP region extends east of the 100th Meridian and that Golden Eagles are non-breeding residents throughout that area, developers should be required to mark all transmission lines and retrofit power poles in areas near Golden Eagle use areas, and then BMPs and measures of the PEIS should include all other appropriate actions designed to lower to negligible the risks of eagle mortality at wind projects. [46] PEIS, at 4-98. [47] FWS, *ECP Guidance*	The agencies believe that a requirement to retrofit power poles is outside the scope of the proposed action. Marking of new lines associated with interconnecting new wind energy generation projects is identified as a BMP when appropriate concerns are identified. As described, project developers would be requested to work with the USFWS to complete analyses that are consistent with the ECP Guidance issued by the USFWS in order to identify important eagle use areas that could be affected by a the proposed project. Projects that pose a high or moderate risk to eagles would be required to work with the USFWS to develop and implement project-specific ECPs. It is between the USFWS and the developer to determine the measures that would be included in the ECP. This is an aspect that would be considered as part of the project-specific NEPA documentation. No text changes were made to the PEIS in response to this comment.
50006-14	**COMMENT 5.1. The BMPs and Mitigation Requirements Are Overly Vague.** The agencies use the same range of imprecise terms for the general BMPs and Mitigation Measures sections of the PEIS as for the species-specific measures discussed in Part III. The agencies use "do not, should, avoid, to the extent practicable, may, can be" and other such phrases. Except for "do not," these terms and phrases do not identify with any specificity the extent to which individual BMPs must be	The use of the identified terms has been reviewed and, in some cases, modified in response to the comment. In general, the BMPs and mitigation measures for the listed species identified in table 2.3-2 should be considered requirements. The other BMPs and mitigation measures identified in chapters 2 and 5 are to be applied IF they are appropriate for the site conditions of a given proposed project. Site-specific NEPA documents will review the programmatic measures, will identify which of the measures are

TABLE A-2 (Cont.)

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	implemented. More importantly, most of these terms offer no information as to the manner in which Western and FWS will assess whether any given developer has complied with the so-called requirements. Below are several examples to illustrate the ambiguous character of the BMPs "requirements." We do not limit the scope of our comments to these examples, but highlight them to illustrate the pattern of ambiguity apparent in the PEIS's language. One of the "Land Use" BMPs is to "[a]void locating wind energy developments in areas of unique or important recreation, wildlife, or visual resources. When feasible, a wind energy development should be sited on already altered landscapes." [48] How will a developer prove to the agencies that it has "avoided" developing in an area of important wildlife resources? By what standards will the agencies judge implementation of this BMP so as to permit tiering? What does this BMP succeed in standardizing, and how? What determines feasibility in an area as large as the UGP region? Absent additional information on how the agencies will determine whether a unique area for wildlife has been sufficiently avoided, it is impossible for the public (and the agency decision makers) to understand the level of protection this BMP actually offers. [48] PEIS, at 5-14. Another BMP states that "transmission line support structures and other facility structures *should be* designed to reduce the likelihood of electrocution with proper spacing of components and by the use of line marking devices, *where warranted and appropriate*, to reduce the likelihood of collision."[49] Does "should be" in this context mean "must"? Who determines whether line marking devices are warranted and appropriate – the developer, FWS, or both together? What factors trigger a determination that line marking devices are warranted, if the developer chooses not to construct with regard to the APLIC recommendations? Here again, the BMP does not in and of itself reflect the level of protection it will provide to wildlife. The agencies need to articulate the standards by which terms such as "where warranted" and "as appropriate" will be measured.	applicable for a specific project and location, and will identify how the BMPs will be met.

TABLE A-2 (Cont.)

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	[49] PEIS, at 5-126 (emphasis added). A third example is a Decommissioning BMP that states that "[a]ll turbines and ancillary structures *should be* removed from the site."[50] Does this BMP require or recommend that all structures be removed? If removal of structures, such as turbines, turbine pads, etc., is required, the agencies should state it more directly. Rather than "should be," the PEIS should say all structures "must be" removed. To summarize, the PEIS does not adequately address the baseline requirements and benchmarks that need to be met in order for developers to tier off the PEIS and Section 7 consultation. Much appears to be left to the discretion of developers. Unless the BMPs that use phrases like "where warranted, if appropriate, and should" are either further defined or revised, there is little to suggest that they will result in consistent application or in protection of wildlife and habitat.	
50006-15	**COMMENT 5.2. The BMPs for Project Planning and Design Are Too General for Wildlife.** The PEIS acknowledges that proper siting and design are the best means for minimizing impacts to wildlife. The Ecological Resources BMPs for Project Planning and Design, however, do not appear to "require" any concrete steps or action. The introductory paragraph states that "the following measures *should be* incorporated" into the planning process. [51] "Should" is generally not synonymous with "must." The agencies should state that developers "must" implement the measures to benefit from tiering to the PEIS. The term "should" leaves room for interpretation as to the extent of required implementation. [51] PEIS, at 5-125 (emphasis added). The third BMP for developers is to review information on the species and habitats in the project area, to identify important, sensitive, or unique habitat in the project's vicinity, and then "design the project to avoid, minimize, *or* mitigate potential impacts on these resources." [52] The PEIS states that "[a]voidance is the preferred choice for minimizing impacts." [53] To start, projects should not be permitted to build in	The assumption that Western or the USFWS has input and control over where private developers site their projects is inaccurate. Western is not a regulatory agency. The USFWS is, to an extent, but not over project siting. One goal of the measures identified in the PEIS is for the provided information to serve as a guide that will steer developers away from sensitive areas, since addressing the many issues in such areas impedes projects and cost developers more time and money. However, the agencies cannot mandate that developers not consider projects in such areas, since this is outside the authorities of the agencies. No text changes were made to the PEIS in response to this comment.

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Comment ID	Comment	Response
	important, sensitive, or unique habitat, particularly in or near Important Bird Areas or Important Migratory Shorebird Stopover Sites (which the BMPs seem to permit). [54] ABC's understanding is that the Audubon Society has begun the process of designating Important Bird Areas. We encourage FWS to reach out to Audubon for its data and incorporate it into this PEIS, especially for birds of North and South Dakota. More importantly, the decision to avoid, minimize, or mitigate should not be left to the developer's choosing. Stating a mere preference for avoidance accomplishes little in the way of promoting consistency in environmental protection from project to project, nor does the preference serve to standardize any particular industry practice. [52] PEIS, at 5-125 (emphasis added). [53] PEIS, at 5-125. [54] PEIS, at 5-125. In the Operations and Maintenance section of BMPs for Wildlife, the introductory sentence states that a "variety of measures *may be* implemented to minimize the potential for impact to ecological resources during the operations phase of a wind energy project, including the following [listed BMPs]."[55] Again, "may" is not synonymous with "must." It appears, therefore, that none of the BMPs are strictly required. For example, one of the suggested BMPs is "[i]ncreasing turbine cut-in speeds . . . in areas of bat conservation concern during times when active bats may be at particular risk from turbines."[56] If this is a recommendation rather than a requirement, it is unlikely to be implemented by wind developers. If this is a requirement, the agencies should amend the language and eliminate the inference of suggestion. Further, if this is indeed a requirement, it should incorporate the information provided in the analysis section on effects to bats. In order to influence the planning process, the BMP needs to specify that increased cut-in speeds are required during the spring and fall migration periods, and from dusk until dawn. Ideally, the BMP will also specify the cut-in speed that must be implemented, otherwise it is likely to vary across projects and states depending on the result of the negotiations between project developers and the agencies. [55] PEIS, at 5-129 (emphasis added).	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	[56] PEIS, at 5-129 The agencies incorporate a BMP in this section to evaluate bat use – including surveying for locations of roosts, colonies, and migration corridors – and requires that infrastructure locations "minimize impacts." [57] The statement, however, does not elaborate on how minimization is to occur. The PEIS should, for example, specify that turbines should not be sited closer than 5 miles from documented maternity roost trees unless the site-specific data show that a smaller distance would suffice. [57] PEIS, at 5-126. To summarize, the wildlife BMPs need to be more clearly articulated and defined. The agencies' general recommendations and preferences are not strict requirements	
50006-16	**COMMENT 5.3. The PEIS Needs to Define "Mitigation."** The agencies must define the way they use the term "mitigation." Minimization and mitigation are distinct efforts, but the BMPs and mitigation measures seem to constitute efforts to *minimize* effects to the environment, not *mitigate* unavoidable effects. FWS's guidance on Habitat Conservation Plans describes actions that are considered mitigation. These include "preservation (via acquisition or conservation easement) of existing habitat; enhancement of restoration of degraded or a former habitat; creation of new habitats; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access."[58] Further, FWS's guidance on Section 7 Consultation emphasizes that "[m]itigation may or may not reduce the actual number of individuals the Services' anticipate to be taken as a result of project implementation."[59] Few of the BMPs or mitigation measures contemplate compensatory mitigation; most focus on project footprints with little emphasis on off-site measures that could, or will, be sought by FWS for habitat or species protection. The PEIS needs to identify contemplated mitigation standards and the specific situations to which the standards will apply. [58] FWS, *Habitat Conservation Plans: Section 10 of the Endangered Species Act*, at 2 (Dec. 2005), *available at*	The PEIS explains the use of mitigation in a broader sense than site specific mitigation for unavoidable effects. The use of this broader definition of mitigation is important to the document's explanations of resource protection. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	http://www.fws.gov/endangered/esa-library/pdf/HCP_Incidental_Take.pdf. [59] FWS & NMFS, Endangered Species Consultation Handbook, at 2-5 (Mar. 1998) (emphasis added).	
50006-17	**COMMENT 5.4. The Information on Environmental Impacts to Birds Does Not Always Translate Into a Direct Minimization Measure or BMP.** There are several instances in which the PEIS provides information on a risk to birds, but the agencies have not drafted a BMP or mitigation measure to reflect that information and address that risk. For example, the PEIS explains that transmission lines within 400 meters of a wetland tend to result in higher bird fatalities than those located beyond 400 meters from the water's edge.[60] Other than the broad, likely unenforceable and undefined requirement to "avoid" sensitive areas and important bird areas, there is no BMP to address this risk. The PEIS also notes that the tip-to-tip wingspans of certain birds exceed 60 inches, the recommended spacing between conductors, and thus, additional spacing between or additional insulation of conducting materials is recommended.[61] That recommendation is not reflected in the general BMPs or the species-specific measures. [60] PEIS, at 5-85. [61] PEIS, at 5-84.	As stated in the PEIS, project-related collector/distribution lines must be designed to APLIC standards, which will, in part, address issues related to spacing between or additional insulation of conducting materials for the protection of birds. However, there are other BMPs and mitigation measures identified in chapters 2 and 5 that are to be applied *if* they are appropriate for the site conditions of a given proposed project. Site-specific NEPA evaluations that tier from the programmatic PEIS will review the programmatic measures, will identify which of the measures are applicable for a specific project and location, and will identify how the BMPs will be met. As identified in section 2.3.2.2, project developers will be required to employ a risk-based evaluation approach to identify project-specific concerns related to wildlife and other ecological resources, and the results of the evaluation will be incorporated into project-specific NEPA documentation. Proper identification of resources that could be significantly affected would allow the focus to be on modifying the design of the proposed project or identifying BMPs and mitigation measures to avoid, reduce, or otherwise compensate for potentially significant impacts and would reduce the potential for unexpected impacts on natural resources BMPs and mitigation measures identified in section 5.6.2 shall be applied, as appropriate, to address concerns regarding site-specific ecological impacts identified as a result of the risk-based evaluation approach. In some cases, additional BMPs and mitigation measures may need to be developed to address specific concerns. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
50006-18	**COMMENT 5.5. The Agencies Should Require Developers to Follow the Various Guidance Documents Cited in the PEIS.** Rather than only recommend that developers follow the various agency and industry guidance documents for wind energy projects, the agencies should require that those guidance documents be followed. These documents include FWS's *Land-Based Wind Energy Guidelines*, FWS's *Eagle Conservation Plan Guidance*, APLIC's *Avian Protection Plan Guidelines*, and APLIC's other documents for avian protection on power lines. Given the procedural benefits that this PEIS offers to developers with respect to NEPA and ESA tiering, developers should be required to follow FWS's expert recommendations as well as implement known BMPs for power lines. If other approaches are compatible with FWS recommendations, the PEIS should state examples of approaches that show "consistency" with the guidance documents. Those approaches should be at least equivalent to the results that the Guidelines offer, if not better.	One of the goals of the programmatic process identified in the PEIS is to reduce the potential for adverse impacts and increase the overall conservation benefit to ecological resources, including federally listed species. The PEIS recognizes that the WEG and the ECPG are voluntary guidelines, but requests implementation of a process that is consistent with those guidelines in order for project-specific NEPA compliance documentation to tier from the PEIS. It is anticipated that tiering would result in a simpler NEPA compliance document that could reference analyses conducted in the PEIS. If a developer wishes not to implement processes that are consistent with the guidelines, there is still a potential for preparing NEPA documentation without tiering from the PEIS. As identified in the PEIS and the programmatic BA, a set of consistency forms will be used to document a developers agreement to follow the BMPs and conservation measures applicable to their specific project and to show that they will be consistent with the programmatic criteria for federally listed species. No text changes were made to the PEIS in response to this comment.
50006-19	**COMMENT 5.6. Monitoring Plans Must Be Required.** The PEIS is inconsistent as to whether monitoring is a standard requirement for all wind projects through all phases of development. Chapter 2's overview of FWS's proposed approach for easement exchanges notes that "operators *may be* required to develop monitoring programs, *as appropriate*, to evaluate the environmental conditions at the site through all phases of development . . ."[62] In the PEIS's summary of BMPs, however, the agencies state that monitoring plans "*shall be* developed by the project developers so that environmental conditions are monitored during the construction, operation, and decommissioning phases."[63] Yet, in Chapter 5, the agencies mention that monitoring is a technique that "can be used,"[64] again implying that it is in the discretion of the developer to decide whether or not to implement a monitoring system. And specific to birds and bats, the agencies plan to require Bird and Bat Conservation Strategy Plans, but qualify that with the statement that "[p]ost-construction monitoring *may be needed* to validate the preconstruction risk assessment and allow the facility operators to implement adjustments based on identified	As identified in section 2.3.2.1, project developers seeking to develop a wind energy project that would connect to Western's transmission facilities or that would request accommodation on USFWS easements shall consult with appropriate Federal, State, and local agencies regarding specific projects as early in the planning process as appropriate to ensure that all potential pre-project surveys, monitoring, construction, operation, maintenance, and decommissioning issues and concerns are identified and adequately addressed. The PEIS does not identify specific requirements to be included in monitoring plans. Rather, the programmatic PEIS requires that monitoring needs be considered and identified during project-specific planning and that appropriate monitoring plans be developed to address those needs. For activities involving easement exchanges, the USFWS may require operators to develop site-specific monitoring programs to evaluate the environmental conditions at the site through all phases of development, to establish metrics against which monitoring observations can be

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	problems."[65] There is no discussion in the PEIS as to which projects might "need" monitoring for avian and bat mortality or the factors that will trigger the need. [62] PEIS, at 2-14 (emphasis added). [63] PEIS, at 2-16 (emphasis added). [64] PEIS, at 5-124. [65] PEIS, at 5-125 (emphasis added). The agencies must require monitoring plans for any "environmental conditions" that may be impacted by wind energy development. And the scope of the phrase "environmental conditions" needs to be defined (i.e., wildlife mortality? change in lifecycle behavior?). The PEIS repeatedly emphasizes that information on wind energy impacts on environmental resources, especially listed species, remains in its early stages.[66] It will be impossible to review the effectiveness of the programmatic BMPs and mitigation measures and update and revise the set of requirements unless the agencies collect data on wind facility impacts.[67] [66] *E.g.*, PEIS, at 2-37, 5-147. [67] PEIS, at 2-14. The scope and duration of the PEIS demands that both developers and the agencies carefully monitor actual impacts. Monitoring is recommended by FWS in the *Land-Based Wind Energy Guidelines*, which should be followed as a mandatory requirement for tiering off this PEIS as noted above in Comment 5.5. Monitoring will assist the agencies in building a more comprehensive database of impacts to environmental resources. It will also permit the agencies to analyze and identify differences in predicted risk and actual risk, and thereby require adjustments in operations. Monitoring is also necessary in case adaptive management becomes necessary at any of these facilities, which is a real possibility given how little is known about the impacts of wind energy on threatened or endangered bird species such as Piping Plovers, Least Terns, and Whooping Cranes. In the event that the agencies seek to require monitoring on a case-by-	measured, to identify potential mitigation measures, and to establish protocols for incorporating monitoring observations and additional mitigation measures into standard operating procedures and project-specific stipulations. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	case basis, the agencies must identify for the public the factors that will trigger monitoring across the various environmental conditions discussed in this PEIS and the methodologies the agencies will require developers to implement.	
50006-20	**COMMENT 5.7. Monitoring Protocols Should Be Consistent From Project to Project in Order to Accurately Evaluate Impacts.** The agencies should require uniform monitoring methods and metrics for the various environmental resources identified in the PEIS. This is especially important given that wind projects currently apply different surveying procedures, thus creating obstacles in data-gathering and application. The PEIS explains, for example, that the limitations to the sample of avian and bat fatality studies that have been conducted at wind facilities to date "may not be representative of the species that are killed and the level of actual mortality."[68] Those limitations result from the following: studies apply different methods; studies are not designed in a statistically rigorous manner; birds are not located when killed; and searcher efficiency.[69] While the PEIS notes that there are no universally accepted protocols for conducting post-construction mortality studies, it would seem possible to at least require studies to use similar methods and to design studies in a statistically rigorous manner. [69] PEIS, at 5-84 To achieve consistency among facility monitoring plans, the agencies should establish the metrics against which monitoring observations can be measured and the protocols for incorporating results into operating procedures.[70] If each project develops its own metrics, protocols, and mitigation, the agencies will not create a standardized method through which data may be gathered. By developing uniform methodologies for surveying wildlife fatalities and impacts to environmental conditions at wind sites, the agencies will be better equipped to update the programmatic BMPs, minimization measures, and mitigation requirements. Monitoring is essential to evaluating whether the agencies' assumptions regarding harm prove accurate. [70] PEIS, at 2-14.	See response to comment 50006-19.
50006-21	**COMMENT 6.1. The Process for Easement Land Exchanges Needs**	To be eligible for replacement lands to be used in an exchange, lands

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Comment ID	Comment	Response
	Clarification. The agencies have not explained FWS's process for easement land exchanges in sufficient detail. The PEIS must elaborate on the baseline requirements that replacement land must meet in order to qualify for an exchange and the standards that FWS will apply in reviewing developers' replacement land proposals. The current draft of the PEIS only briefly summarizes the formal steps FWS takes in reviewing requests, which are presumably detailed in the Service's internal guidance document that the agencies mention in Chapter 2. [71] That guidance document does not appear to be incorporated by reference, and it is not available for public comment. In order to better understand the short-term and long-term environmental implications of the easement exchange program, the PEIS must explain the factors FWS considers in measuring the degree to which the original easement's conservation purpose *and* value are impacted and the factors FWS considers in terms of the replacement land's quality and quantity, the degree to which it serves the original easement's conservation purpose *and* conservation value, and the extent to which the replacement land mitigates the impact. [71] *See* PEIS, at 2-4. The References section refers to: Service, 2010a, *Administrative and Enforcement Procedures for FWS Easements (Wetland, Grassland, Tallgrass, and FmHA) within the Prairie Pothole States*, 2nd edition, revised Nov., Denver, CO: Mountain-Prairie Region.	must meet the USFWS's acquisition criteria. For example, in the Dakotas, the USFWS strives to acquire at least 80 percent of grassland easements in areas supporting greater than 60 waterfowl pairs per square mile; 15 percent in areas supporting between 40 and 60 pairs, and 5 percent in areas supporting at between 25 and 40 pairs. Lands that do not support these densities of breeding waterfowl pairs do not qualify for grassland easement acquisition in the Dakotas and therefore would not be eligible for replacement lands in an exchange. Developers typically do not offer replacement lands. The USFWS has a backlog of landowners willing to sell an easement and it is from this pool that replacement lands are generally found. Easements in the Prairie Pothole Region are purchased primarily to provide for the long-term protection of waterfowl breeding habitat; i.e., the primary conservation purpose and value of easements are to provide breeding habitat for waterfowl and other ground-nesting birds. If these values persist after development it is generally-accepted by the USFWS that the impacts are not so severe as to destroy the conservation value of the land. If anticipated impacts would be great enough to render the area unsuitable for acquisition, the request for development would be denied. Information about USFWS's easement exchange is found in USFWS, 2010, *Administrative and Enforcement Procedures for FWS Easements (Wetland, Grassland, Tallgrass, and FmHA) within the Prairie Pothole States*, 2nd edition, revised Nov. Denver, CO: Mountain-Prairie Region. No text changes were made to the PEIS in response to this comment.
50006-22	**COMMENT 6.2. The Mitigation Requirements for Easement Exchanges Are Not Adequately Stated.** The PEIS applies three different standards for measuring impacts to easement lands: impacts to conservation purpose, conservation value, and "entire" conservation value. The degree to which replacement land must mitigate the impacts to each of these standards is unclear and needs elaboration. The PEIS first notes that an easement exchange will not be permitted	The following responses are provided to the questions raised in the comment: *(1) How USFWS measures impacts to the conservation purposes of easements?* Easements in the Prairie Pothole Region are purchased primarily to provide for the long-term protection of waterfowl breeding habitat; i.e., the primary conservation purpose and value of easements are to provide breeding habitat for waterfowl and other ground-nesting birds. If these values persist after development it is generally accepted by the

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	unless "the easement tract will still meet its intended conservation purpose."72 Second, for wind projects seeking to build on easement land, "*replacement land would be required*, through an easement exchange *to offset the anticipated losses in conservation value* . . ."73 This refers to the losses in conservation value of "permanently impacted land,"74 with "permanent" presumably meaning the land upon which wind facility components are constructed. Third, the PEIS states that "mitigation measures on future projects *may* include offsets for impacts *on the entire conservation value of the habitat remaining on impacted easements* and not just the footprint of the disturbed area."75 Thus, there is one baseline requirement for an exchange (the conservation purpose must still be met on the impacted easement) and two sets of mitigation standards – one that is *always* applicable (offset losses to conservation value of impacted land), and one that will *sometimes* be applicable (offset losses to entire conservation value of easement tract). [72] PEIS, at 2-4. [73] PEIS, at 5-2 (emphasis added). [74] PEIS, at 2-5, Step #5. [75] PEIS, at 5-11 (emphasis added) The PEIS needs to describe the following to adequately explain the way FWS measures impacts and what standards of mitigation are required for each level of impact: (1) how FWS measures impacts to the conservation purposes of easements; (2) how impacts to conservation purposes are factored in to mitigation requirements; (3) how FWS measures the conservation value of permanently impacted land versus the "entire" conservation value of easement land; (4) how FWS will determine whether proposed replacement land mitigates the lost conservation value; and (5) when and how FWS will determine that offsets are required for losses to the "entire" conservation value of an easement tract. If replacement land is a firm requirement, then FWS also needs to explain its requirements for replacement land in terms of quantity and	USFWS that the impacts are not so severe as to destroy the conservation value of the land. If it is anticipated that the impacts would be great enough to render the area unsuitable for acquisition, the request for development would be denied. *(2) How impacts to conservation purposes are factored in to mitigation requirements?* The Refuge System does not "mitigate" for impacts. Unavoidable impacts to USFWS easement interests are exchanged. (*3) How USFWS measures the conservation value of permanently impacted land versus the "entire" conservation value of easement land?* Easements in the Prairie Pothole Region are purchased primarily to provide for the long-term protection of waterfowl breeding habitat; i.e., the primary conservation purpose and value of easements are to provide breeding habitat for waterfowl and other ground-nesting birds. If these values persist after development, it is generally accepted by the USFWS that the impacts are not so severe as to destroy the conservation value of the land. If anticipated impacts are to the degree as to render the area unsuitable for acquisition, the request for development would be denied. *(4) How USFWS will determine whether proposed replacement land mitigates the lost conservation value?* To be eligible for replacement lands to be used in an exchange, lands must meet the USFWS's acquisition criteria. For example, in the Dakotas, the USFWS strives to acquire at least 80 percent of grassland easements in areas supporting greater than 60 waterfowl pairs per square mile; 15 percent in areas supporting between 40 and 60 pairs, and 5 percent in areas supporting at between 25 and 40 pairs. Lands that do not support these densities of breeding waterfowl pairs do not qualify for grassland easement acquisition in the Dakotas and therefore would not be eligible for replacement lands in an exchange. *(5) When and how USFWS will determine that offsets are required for losses to the "entire" conservation value of an easement tract?* If a project is proposed that will cause the conservation value of the

TABLE A-2 (Cont.)

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	quality. What factors are considered in determining whether replacement land is "equal" to the impacted land? For example, does FWS contemplate a 1:1 ratio for impacted to replacement land? Or is the standard more qualitative than quantitative? How will "impacted" land be defined? "Impacted" surely must include more land than is actually displaced and ought to include all land in which wildlife behavior will be affected. This discussion is particularly lacking given that the PEIS acknowledges that habitat fragmentation and degradation occurs as a result of the easement land exchange program, and this fragmentation, together with wildlife avoidance of wind facilities, "reduces [an easement's] conservation value and the reason for which it was acquired."[76] A 1:1 land ratio does not effectively mitigate the long-term impacts to the conservation value of grassland and wetland easements. Replacement land should be a firm requirement, and it should be of equal or higher habitat quality than the replaced land. [76] PEIS, at 5-11.	entire easement tract to be lost, the project would be denied. No text changes were made to the PEIS in response to this comment.
50006-23	**COMMENT 6.3. FWS Must Explain Why FWS Region 3 and Region 6 Are Abandoning Their More Protective Approaches to Easement Lands.** The PEIS notes that FWS Region 3 does not currently consider requests to accommodate wind energy on wetland or grassland easements, and Region 6 considers requests to use land on grassland easements but not wetland easements.[77] The PEIS does not address the current differences in protection and approach between the two Service Regions, nor does it explain why the Service Regions have decided to abandon their more protective approaches. Further, the implication is that both Region 6 and Region 3 will now consider requests in all Region 3 and Region 6 states, not just in the states impacted by this PEIS (Montana, the Dakotas, Nebraska, Iowa, and Minnesota). The environmental consequences and cumulative impacts of expanding the easement exchange program to Regions 3 and 6 have not been adequately discussed by the agencies. [77] PEIS, at 5-11.	The proposed action described in the PEIS only applies to those portions of the States that fall within the UGP Region as identified in chapter 2 of the PEIS. The differences in the consideration of easement exchanges for accommodating wind energy between regions 3 and 6 relate to the amount of remaining lands deemed suitable for conservation through easements ,relative to the amount deemed necessary to meet regional conservation goals. The USFWS vigorously pursues violations of easement contracts in both Regions 3 and 6. Easements are monitored for compliance on an annual basis; suspected violations are investigated; and responsible parties for confirmed violations are contacted, and restoration is achieved. When restoration is not achieved, cases are referred to the U.S. Attorney for prosecutorial consideration. Recognizing that the easement constitutes a minimal interest compared to the landowner's rights, the USFWS does have a process in place, however, to consider and potentially accommodate requests for legitimate needs on easement lands. Occasionally this results in exchanges of easement interests.

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Comment ID	Comment	Response
		No text changes were made to the PEIS in response to this comment.
50006-24	**COMMENT 6.4. FWS Must Explain How Compensation to Landowners Is Affected By the Easement Exchange Program.** With respect to those wetland and grassland easements that prohibit the addition of structures but upon which FWS will agree to accommodate wind energy components, FWS should explain how the agency will be reimbursed for the loss of the restriction it purchased on the land (if at all) and for the taxpayer-funded cost of the time spent to assess and acquire the original easement.	When all efforts to avoid impacting easement interests are exhausted, and an exchange of easement interests is warranted (for any project, not just wind energy), the USFWS requires a dollar-for-dollar as well as acre-for-acre exchange. No text changes were made to the PEIS in response to this comment.
50006-25	**COMMENT 6.5. Turbine Sub-Structures Must Be Removed From Easement Lands During De-Commissioning** The PEIS needs to include an additional BMP for conservation easement lands that accommodate wind energy. Turbine substructures must be completely removed on FWS conservation easements in order for native prairie to grow back. Attachment D shows native prairie plant system root depths and illustrates why turbine foundations need to be removed from conservation easement lands. [78] [78] *See* Attachment D.	The decommissioning requirements for facilities accommodated on easement lands will be determined on a case-by-case basis. In some cases, removal of sub-structures may not be requested if it is deemed that removal would likely result in more disturbance and environmental harm than leaving the foundation in place, since the sites would have had 20 to 30+ years to stabilize. To some extent, it is considered that appropriate mitigation for the loss of full functionality within the footprint of the structure has already been achieved through the easement exchange, which has added more land to the conservation base. No text changes were made to the PEIS in response to this comment.
50006-26	**COMMENT 7.1. The PEIS Does Not Take a Hard Look at Cumulative Impacts.** The CEQ regulations define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions." [79] The purpose of the cumulative effects analysis is to consider the full range of consequences of actions. This PEIS does not take a hard look at the cumulative impacts of Western's, FWS's, and other proposed actions on the various resources, and especially on ecological resources. The discussion is limited to general, conclusory statements with little to no supporting data on which to base	The agencies believe that the evaluation of cumulative impacts in the PEIS is appropriate and adequate. As identified in the comment, the PEIS evaluated cumulative impacts of the proposed action, which is streamlining the environmental review of wind energy projects that will interconnect to Western's transmission facilities or that would require consideration of an easement exchange to accommodate placement of project facilities on easements managed by the USFWS. The cumulative impacts associated with three alternative ways the proposed action could be accomplished were compared. As identified in the analysis of cumulative impacts, wind energy development within highly suitable areas in combination with past, present, and reasonably foreseeable future actions could affect all

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	the agencies' assessments. Of the 900-page document, the agencies reserve a mere 11 pages for cumulative impacts (from 6-27 to 6-38). This inadequate coverage is particularly acute in the wildlife and ecological resources sections, and is inexplicable in a programmatic EIS. [79] 40 C.F.R. § 1508.7. The cumulative impacts section must analyze each resource, quantify the impact of past, present, and reasonably foreseeable actions, and identify the incremental impact that will result from wind development under the PEIS. As currently drafted, the PEIS concludes for nearly every ecological resource that impacts will be small, minor, manageable, or reduced under the preferred Alternative without providing any data to support those statements. Whether impacts will be minimized under the mitigation measures and BMPs is arguable, and beside the point; these general assertions are entirely uninformative. The public needs to be able to review a rigorous assessment of what the impact will be *with* the PEIS's BMPs, mitigation, and minimization efforts in effect. Then, the PEIS needs to quantify and describe the magnitude of that impact in light of the impact of other past, present, and reasonably foreseeable actions on ecological resources. The point of the cumulative impacts analysis is to assess the proposed action's impact on environmental resources together with other past, present, and future impacts so as to identify whether additional minimization or mitigation techniques are needed. The cumulative impacts section for wildlife, for example, is merely a brief summary of the types of impacts the agencies expect from commercial, agricultural, industrial, and residential development – from direct injury to habitat disturbance to interference with behavioral activities to increased risk of invasive species.[80] This description gives no indication of what the impact of development will be on wildlife. How much wildlife mortality can be expected from development? How much habitat loss is predicted? How much grassland conversion do the agencies expect in the UGP region and what will that mean in terms of behavioral modification of birds? How close will we come to too much? How much is too much for affected resources? These questions must	resources in the UGP Region to some degree. The agencies do not have jurisdiction over siting of wind energy projects. The overall amount of wind energy development that would occur within the UGP Region would primarily be a function of Federal, State, and local regulations and market pressures (e.g., energy prices, potential for obtaining leases for development areas, and market incentives). Thus, the agencies believe that the overall level of wind energy development within the UGP Region under all of the alternatives, including the amount of land disturbance and the areas that would be developed for wind energy projects, would be similar to those identified for the No Action Alternative. As identified in the PEIS, the incremental impacts of wind energy projects under the preferred alternative (Alternative 1) would be "small" for most resources because the wind energy development program under Alternative 1 would use a standardized structured process to evaluate environmental impacts associated with interconnection and easement exchange requests, and would require implementation of programmatic mitigation measures, BMPs, and monitoring (including those related to programmatic ESA Section 7 consultation) to minimize or avoid impacts to resources and ensure that the conservation objectives of USFWS easements are maintained. The proposed action does not control how much wind energy development is allowable within the UGP Region and the agencies are not responsible for determining, cumulatively, how much overall wind energy development can be sustained within the UGP Region. There is no requirement that the length of the cumulative impacts section to be relative to the overall size of the document. No text changes were made to the PEIS in response to this comment.

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	be addressed and answered. It is not sufficient to merely state what the general impacts of development are on wildlife species. To constitute a hard look at the issue, the agencies need to provide data and estimates as to the extent of the impacts. [80] PEIS, at 6-34. The agencies cannot rely on site-specific NEPA analyses, either. The tier II analyses for cumulative impacts will look solely at the impacts of individual projects together with other projects and development within a relatively limited area much small than the programmatic region. The agencies must complete their own cumulative analysis for the development scenarios used throughout the PEIS. This PEIS is the only opportunity to review the broad, regional risks that accompany the streamlining of the environmental review process	
50006-27	**COMMENT 8.1. Neither the ESA Nor the ESA Regulations Explicitly Allow for Tiering Section 7 Consultations Without A Tier II Site-Specific Consultation.** Neither the ESA nor the statute's implementing regulations expressly permit a tiered Section 7 consultation system without a tier II site-specific consultation. Some courts have approved of tiered consultations, though others have expressed reservations on whether tiering meets the ESA's requirements. Even in those cases where tiered consultation has been deemed permissible, project-specific consultations were always required and biological opinions ensued. In those cases, FWS continued to serve as the final decision maker on whether project-specific actions would adversely affect listed species or critical habitat. For example, the Ninth Circuit approved of FWS's tiering of site-specific biological opinions for forest contracts to the National Forest Plan ("NFP"). The court noted that "[b]ecause the NFP covered such a wide area, from Northern Washington to Northern California, involving virtually all of the federal government's forested land in this expansive area, the NFP BiOp explicitly declined to address the unique impacts of any particular action or implementation of the NFP."[81] A district court opinion in the Ninth Circuit, however, expressed concern with this	It was the intention to disclose all adverse effects in the PEIS and address all impacts up-front in the PEIS to streamline site-specific EAs (or other NEPA documentation, as appropriate) and Section 7 consultation. Programmatic consultation techniques have the greatest potential to increase the efficiency of the Section 7 consultation process because much of the effects analysis is completed one time up front rather than repeatedly each time a new action is proposed. These types of programmatic consultations address the effects of an identified group of defined actions. By completing this analysis up front in a programmatic consultation document, the anticipated effects of the action agency's future projects can be added into the environmental baseline prior to their actual completion. This provides predictability for project proponents and predictability for action agencies as they can be assured that the effects of their future actions have already been broadly accounted for. By completing this analysis up front, the process for completing consultation for future actions proposed under the programmatic consultation can be dramatically shortened. A variety of court decisions have made it clear the Federal agencies must consult on the implementation of programs, plans or strategies that guide the development of future site-specific actions (Pacific Rivers Council v. Thomas, Lane County Audubon Society v. Jamison, and Silver v. Babbitt) The courts have ruled that the decision to adopt plans

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	decision. It explained Tiered consultation . . . is not described anywhere in ESA or its implementing regulations. Allowing such a process in a procedural statute which requires no particular result makes staged analysis acceptable. ESA, however, is an actionforcing statute, turning on identified prohibited consequences of government action, both direct, indirect, and interrelated effects. Tiering . . . will tend to obscure the ability of the agency to identify the direct and indirect consequences of particular action, and thus tend to obscure when government action is prohibited.[82] [81] Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1063-64 (9th Cir. 2004). [82] Natural Resources Defense Council v. Rodgers, 381 F.Supp.2d 1212, 1228 n. 27 (E.D. Cal. July 28, 2005). Similarly, a district court in the Sixth Circuit also had reservations regarding the tiered consultation systems that FWS and the Forest Service implemented for a Forest Plan fulfilled agency responsibilities under the ESA. [83] The court noted that the Ninth Circuit had justified its approval because the NFP had "already survived a legal challenge . . . and it was not an ordinary land management plan but rather a particularly thorough and complex one. Additionally, effectiveness monitoring . . . was also in effect." [84] [83] Buckeye Forest Council v. U.S. Forest Service, 337 F.Supp.2d 1030, 1036 (S.D. Ohio, 2004). [84] *Buckeye Forest Council*, 337 F. Supp. 2d at 1036. Here, the agencies apparently plan on approving projects under the tier I consultation, rather than conducting a tier II consultation on site-specific issues. Unlike in the NFP BiOp, which declined to address project-specific impacts, the agencies *are* addressing unique impacts in the tier I analysis by emphasizing that no additional consultation would be required for individual projects that implement the species-specific avoidance and conservation measures. Meanwhile, the agencies admit that "[i]nformation about wind energy impacts on listed species is in its	or strategies that guide the implementation of future individual actions, as well as each future individual action itself, must complete the requirement of Section 7 consultation (Lane County Audubon v. Jamison, Pacific Coast Federation of Fishermen's Association v. National Marine Fisheries Service, and Pacific Coast Federation of Fishermen's Association v. Nation Marine Fisheries Service) PEIS and the associated programmatic BA do just that. Informal programmatic consultation, including development of a programmatic BA was completed as part of this PEIS to address listed species within the UGP Region. A set of avoidance criteria, minimization measures, and mitigation measures that would result in determinations of no effect or not likely to adversely affect for listed species within the UGP Region due to wind energy projects interconnecting to Western's transmission system or placing structures on USFWS easements were identified as a result of that consultation and were concurred to by the USFWS. Under the programmatic evaluation process, Western and the USFWS would conclude that additional ESA Section 7 consultation beyond the programmatic consultation would not be required for projects for which the project developers commit to implementing the programmatic BMPs, avoidance measures, minimization measures, and mitigation measures applicable to a specific project that would result in a determination that listed species and critical habitats are not likely to be adversely affected. Conversely, project-specific ESA Section 7 consultation would be initiated by the lead agency for (1) any listed species or critical habitat not considered in the programmatic consultation and (2) for any listed species or critical habitat for which project developers are unwilling or unable to implement the programmatic BMPs, avoidance measures, minimization measures, and mitigation measures applicable to a project. Compliance with ESA Section 7 consultation for individual projects that are addressed under the programmatic consultation will be documented through the use of Project Consistency and Species Consistency Evaluation Form(s) to certify the action is consistent with the programmatic Biological Assessment (BA) and the tiered approach identified in the USFWS's voluntary *Land-Based Wind Energy Guidelines*.

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	early stages."[85] Whatever might be said about the legality of conducting tiered consultation, it is unwise, and should not be employed to address ESA obligations associated with wind development in the UGP. [85] PEIS, at 2-37.	Interconnection project proponents must complete the appropriate forms and submit them to the Western and/or the USFWS depending upon which agency is the lead Federal agency for the action being evaluated. The lead agency will review the completed forms to verify compliance with the conservation measures identified in the programmatic BA and will submit the information to the appropriate USFWS ES office, as described in the programmatic BA, to document that the requirements of the programmatic ESA consultation have been met.
50006-28	**COMMENT 8.2. The Agencies Must Conduct Site-Specific Formal Consultations For Any Projects That May Affect Critical Habitat or a Threatened or Endangered Species.** The PEIS needs to clarify the steps Western and FWS will take to fulfill consultation requirements under ESA Section 7. The agencies are preparing a programmatic consultation under ESA Section 7, and expect that "specific consultation requirements will be determined on a project-by-project basis."[86] However, the agencies also state that "additional ESA Section 7 consultation beyond the programmatic consultation would not be required for projects for which the project developers commit to implementing the appropriate and applicable programmatic avoidance measures, minimization measures, and mitigation measures that would result in a determination that listed species are not likely to be adversely affected."[87] The agencies need to be more direct as to whether they expect to conduct site-specific consultations, and, if so, what the relationship of such consultations is to "additional Section 7 consultation." [86] PEIS, at 2-18. [87] PEIS, at 2-18. Formal consultation is required under 50 C.F.R. § 402.14(a) when a Federal agency determines that an action "*may affect* listed species or critical habitat." [88] Many of the "Effect Determinations" in Table 2.3-2 indicate that where the species-specific avoidance and conservation measures are implemented, the project's effect determination will be "may affect, not likely to adversely affect." The "not likely to adversely affect" conclusion does not eliminate the requirement for the Service's	As identified in the response to comment #50006-27, informal programmatic consultation, including development of a programmatic BA was completed as part of this PEIS to address listed species within the UGP Region and the PEIS has been updated to reflect completion of that consultation. A set of avoidance criteria, minimization measures, and mitigation measures that would result in determinations of no effect or not likely to adversely affect for listed species within the UGP Region due to wind energy projects interconnecting to Western's transmission system or placing structures on USFWS easements were identified as a result of that consultation and were concurred to by the USFWS. Under the programmatic evaluation process, Western and the USFWS would conclude that additional ESA Section 7 consultation beyond the programmatic consultation would not be required for projects for which the project developers commit to implementing the programmatic BMPs, avoidance measures, minimization measures, and mitigation measures applicable to a specific project that would result in a determination that listed species and critical habitats are not likely to be adversely affected. Conversely, project-specific ESA Section 7 consultation would be initiated by the lead agency for (1) any listed species or critical habitat not considered in the programmatic consultation and (2) for any listed species or critical habitat for which project developers are unwilling or unable to implement the programmatic BMPs, avoidance measures, minimization measures, and mitigation measures applicable to a project. Compliance with ESA Section 7 consultation for individual projects that are addressed under the programmatic consultation will be documented through the use of Project Consistency and Species Consistency Evaluation Form(s) to certify the action is consistent with the programmatic Biological Assessment (BA) and the tiered approach identified in the USFWS's voluntary *Land-Based Wind Energy*

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	concurrence under 50 C.F.R. § 402.14(b) at the time the project is reviewed by the reviewing agency (Western, FWS, or both). This means that even if a developer implements each avoidance measure for the Piping Plover, for example, the Service's concurrence is still required *at that time* to determine whether or not the implemented measures do in fact reduce the impact to "not likely to adversely affect." [88] 50 C.F.R. § 402.14(a), (b) (emphasis added). Moreover, the apparent advance commitment to provide such a concurrence based only on the general and vague measures and BMPs provided in the PEIS is not proper. Western or the FWS (or both) will need to seek FWS concurrence that the project "is not likely to adversely affect." As described below in Comment 8.3, absent a written concurrence or separate biological opinion from FWS, the "not likely to adversely affect" determination will legally only constitute the Federal agency's or applicant's opinion, not FWS's final regulatory opinion.	*Guidelines*. If it is determined during the site-specific project consistency review that the applicable measures cannot or will not be adequately implemented or that listed species or critical habitats would be adversely affected, the lead agency would be required to initiate site-specific ESA Section 7 consultation with the USFWS.
50006-29	**COMMENT 8.3. The Agencies' Plan for Tier II Consultation Does Not Meet the Exceptions to the Formal Consultation Requirement.** The agencies' plan to document site-specific consultations with a letter to the appropriate Service office, providing details about the project location, the affected species, and the measures that the developer agrees to incorporate. This plan does not qualify for the exceptions that have been adopted to formal consultation requirements. There are only two exceptions to the formal consultation requirement in 50 C.F.R. § 402.14: (1) if the agency determines as a result of either a biological assessment or informal consultation that the action is not likely to adversely affect any listed species *and receives the written concurrence of FWS*; or (2) if a preliminary biological opinion is issued after early consultation and *is later confirmed as the final biological opinion*.[89] Therefore, for each wind project that tiers to the agencies' programmatic consultation, FWS must memorialize its written concurrence that the project will not adversely affect any listed species or critical habitat identified in the project's action area. The PEIS currently contemplates that a tiered consultation's final document will simply be a letter from either Western or the Service (or a joint letter for	As identified in the response to comment #50006-27, informal programmatic consultation, including development of a programmatic BA was completed as part of this PEIS to address listed species within the UGP Region and the PEIS has been updated to reflect completion of that consultation. A set of avoidance criteria, minimization measures, and mitigation measures that would result in determinations of no effect or not likely to adversely affect for listed species within the UGP Region due to wind energy projects interconnecting to Western's transmission system or placing structures on USFWS easements were identified as a result of that consultation and were concurred to by the USFWS. Thus, formal ESA Section 7 consultation is not required for the proposed action. If it is determined during the site-specific project consistency review that the applicable measures cannot or will not be adequately implemented or that listed species or critical habitats would be adversely affected, the lead agency would be required to initiate site-specific ESA Section 7 consultation with the USFWS.

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	interconnections involving easement lands) to the appropriate Service office. This is neither a formal consultation under 50 C.F.R. § 402.14(b) nor a qualified exception thereto. [89] 50 C.F.R. § 402.14(b). If the agencies seek to benefit from the second exception to formal consultation, they must meet the requirements under 50 C.F.R. § 402.11 for early consultation. The first issue with characterizing the programmatic consultation as early consultation is that the regulation contemplates that the prospective applicant will be involved throughout the consultation process. [90] Early consultation is generally requested by the applicants, who certify to the applicable Federal agency that "it has a definitive proposal outlining the action and its effects and (2) that it intends to implement its proposal, if authorized." [91] This is clearly not the case with this PEIS. Finally, the preliminary biological opinion that results from early consultation must still be confirmed by FWS so as to finalize the biological opinion [92] As explained above, the PEIS does not indicate that FWS will take any steps to confirm the results of a tiered consultation's documenting letter. [90] *See* 50 C.F.R. § 402.11(a). [91] 50 C.F.R. § 402.11(b). [92] 50 C.F.R. § 402.11(f). It is FWS's responsibility to determine whether a proposed action is likely to jeopardize the continued existence of a listed species or adversely modify designated critical habitat. Where a proposed Federal action *may affect* and *is likely to adversely affect* a listed species or designated critical habitat, then formal consultation is required. [93] As it stands, the PEIS does not adequately or legally articulate FWS's role in project specific consultations that will tier off the initial programmatic consultation. [93] *See* FWS & NMFS, Consultation Handbook, *supra* note 8, at xvi.	
50006-30	**COMMENT 8.4. The PEIS Must Clarify and Revise the Criteria for Reinitiation of Formal Consultation Under ESA Section 7.**	See response to comment 50006-29.

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	The ESA regulations require that formal consultation be reinitiated in four situations: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action. [94] [94] 50 C.F.R. § 402.16. The PEIS only mentions two situations in which the agencies expect reinitiation to occur: for "(1) any listed species or critical habitat not considered in the programmatic consultation and (2) any listed species or critical habitat for which project developers are unwilling or unable to implement the programmatic avoidance, minimization, or mitigation measures applicable to a project."[95] This statement does not adequately cover the requirements stated above. It focuses on the initial interconnection requests by wind facilities but does not consider the implications that new information about facility operations or modifications of facilities might have on the consultation results. The PEIS must identify the other situations required under the ESA regulations as circumstances under which formal consultation will be reinitiated. [95] PEIS, at ES-8.	
50006-31	**COMMENT 9.1. The PEIS Needs to Address Liability for MBTA Take and Identify How Incidental Take of Migratory Birds Will Be Permitted.** The draft PEIS does not sufficiently address the potential for liability under the MBTA or the manner by which the agencies propose to regulate and monitor migratory bird deaths. Section 703 of the MBTA	The MBTA is a strict liability statute. The killing of any protected migratory bird is not technically allowed under law unless a permit is obtained and the USFWS does not issue "incidental or accidental take" permits. The USFWS uses prosecutorial discretion to deal with what is prohibited by the Act. The USFWS's Office of Law Enforcement cannot under the MBTA absolve individuals or companies from liability by following those guidelines; enforcement is focused on those individuals

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	prohibits the unpermitted "taking" or "killing" of migratory birds "at any time, by any means or in any manner."[96] This broad prohibition includes incidental take of migratory birds, as occurs when migratory birds collide with wind turbines and power lines. Further, where federal plans incorporate third party activity, that activity must (absent specific legislation to the contrary) be managed so as to avoid the unpermitted taking of migratory birds. This PEIS is one such example of a federal plan incorporating third party development that will result in the unpermitted taking of migratory birds. The agencies must propose a permitting system in order to address liability for migratory bird deaths. Otherwise, the agencies are subject to injunction and developers remain liable for MBTA take. [96] 16 U.S.C. § 703; *see also* 50 C.F.R. § 21.11. Every interconnection request that Western plans to authorize under this PEIS will simultaneously constitute Western's authorization of MBTA take. Although the agencies seek to minimize take of migratory birds with the implementation of BMPs, species-specific measures, and mitigation requirements, thousands upon thousands of birds will still be killed as a result of wind energy development in the UGP Region. FWS is well-equipped to craft incidental take regulations, because it has extensive experience in promulgating and administering regulations that are responsive to the incidental take language in Sections 7 and 10 of the ESA. [97] FWS could, for example, prepare a programmatic MBTA take permit for wind developers that tier to the PEIS. The programmatic permit would specify the total number of migratory bird deaths permitted to be taken over the life of the PEIS, require monitoring and reporting of bird deaths at individual project sites, and require developers to implement all necessary measures to avoid migratory bird deaths. [97] *See* 16 U.S.C. §§ 1536, 1540.	or companies that take migratory birds with disregard for the law, and where no legitimate conservation measures have been applied. It is the intent of this PEIS to inform project proponents to demonstrate due diligence to minimize the take of migratory birds and their habitats. Evaluations of compliance with the MBTA will be addressed at the site-specific project level. As identified in section 2.3.2.2, the proposed action would require implementation of a risk-based evaluation process that is consistent with that identified in the *Land-Based Wind Energy Guidelines*. Requesting developers to implement a method for evaluating the potential for ecological resources to be affected by wind energy projects that is consistent with the *Land-Based Wind Energy Guidelines* would facilitate the ability of Western and the USFWS to (1) identify and address project-specific concerns related to species protected under the ESA; (2) identify and address project-specific concerns related to protection of eagles under the BGEPA, and (3) meet responsibilities of Federal agencies to protect migratory birds as directed by Executive Order 13186 and to accomplish terms and objectives identified in a 2006 Memorandum of Understanding between the DOE and the USFWS regarding implementation of the Executive Order. No text changes were made to the PEIS in response to this comment.
50006-32	In closing, thank you for considering our comments. Please add CLC and ABC to the notification list, using the names and contact information below. /s/W. William Weeks Director	The suggested additions were made to the project notification list.

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	Conservation Law Center 116 S. Indiana Ave Bloomington, Indiana 47408 Office: (812) 856-5737 /s/Kelly Fuller Wind Campaign Coordinator American Bird Conservancy 1731 Connecticut Ave. NW, Third Floor Washington, D.C. 20009 Tel: (202) 234-7181, ext. 212 Fax: (202) 234-7182 Email: kfuller@abcbirds /s/Virginie Roveillo Graduate Fellow Conservation Law Center 116 S. Indiana Ave. Bloomington, Indiana 47408 Office: (812) 855-1824 Email: virgrove@indiana.edu	
50007-01	**Highlighting Contaminated Lands and Mine Sites** EPA encourages Western and the Service to highlight the potential of these sites in the final PEIS. Current references to contaminated sites are linked to construction and liability considerations (3.9.5 Existing Contamination). However, these sites represent a unique opportunity for future wind development given historic uses. To this end, EPA recommends adding the second paragraph below to encourage this reuse opportunity and providing a list of identified potential sites as an appendix to the PEIS: **3.9.5 Existing Contamination** It is possible that wind energy projects would be proposed for areas at which other industrial activities had previously taken place (or are ongoing). In those situations, industrial contamination may be encountered during site development, especially during foundation and cable trench	Western and the USFWS are not involved in the actual siting of future wind energy projects. Both agencies are encouraging developers to consider brownfield sites, but developers are looking for sites with the best wind resources and access to existing transmission with available capacity. To the extent brownfield sites coincide with excellent wind resources and favorable transmission, they may be considered. Developers will also look for sites for which they can obtain lease options, and will be wary of brownfield sites because of potential contamination and legal obligations for cleanup. No text changes were made to the PEIS in response to this comment.

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	excavations. Once identified, all such contamination would need to be characterized, and a separate plan to remove contamination or stabilize it in place would need to be developed. Additional agreements may be needed to negotiate specific responsibilities for characterizing and remediating contamination. *Due to historical uses, potentially or formerly contaminated lands or mine sites may present unique opportunities for wind energy redevelopment. Potential advantages may include, but are not limited to, leveraging existing utility and transportation infrastructure, mitigating impacts on open space, and reducing land costs. To date, US EPA has identified seven (7) wind energy projects (with a cumulative capacity of 55 MW) installed on these types of sites, including the 35-MW Steel Winds project (NY) at a former steel mill site and the 16.5-MW Chevron Casper Wind Farm (WY) at a former refinery site. These projects may serve as models for future development at contaminated lands and mine sites identified by the EPA's RE-Powering America's Land Initiative or other State cleanup programs in the Upper Great Plains service territory.* Based on preliminary screening, there are many contaminated sites with significant development potential for wind energy. Please see attached file for more detailed information on the sites that met the criteria for utility scale, large scale and 1-2 turbine sites. This list includes potentially contaminated lands, landfills, and mine sites in the Upper Great Plains and flags those within the definite service territory (Column 1). The associated map (study area.jpg) illustrates the location of these candidate sites within the geography of the study area. These screening results reflect updated criteria and wind energy resource data developed in collaboration with NREL. This update will be posted to the RE-Powering Mapping Tool website at: http://www.epa.gov/renewableenergyland/rd_mapping_tool.htm For sites with greater than 9,500 acres, as described in Section 5 Environmental Consequences, EPA identified the following sites with very large-scale development potential (> 75 utility-scale turbines).	
50007-02	**Add Incentives to Further Encourage Redevelopment of**	This may be a workable idea for a government-proposed project,

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	Contaminated Lands EPA recommends adopting incentives specific to contaminated lands, similar to those outlined in the DOE-BLM Solar Energy Zones PEIS. This approach highlights the potential and also provides incentives for developers to prioritize these lands. Potential incentives for land revitalization may include: Facilitating Streamlined Permitting: o Where applicable, permitting review may take into account historical data collection and environmental review associated with historical activities at a potentially or formerly contaminated site to assess, investigate, and respond to contamination. o If applicable, documentation that the proposed project will be located in, or adjacent to, previously contaminated or disturbed lands such as brownfields identified by the EPA's RE-Powering America's Land Initiative (http://www.epa.gov/renewableenergyland) or a State cleanup program; mechanically altered lands such as mine-scarred lands and fallowed agricultural lands; idle or underutilized industrial areas; lands adjacent to urbanized areas and/or load centers; or areas repeatedly burned and invaded by fire-promoting non-native grasses where the probability of restoration is determined to be limited. • Environmental Mitigation: Where applicable, remediation activities to address contamination at a site will be considered in reviewing the overall environmental impact of the wind energy development at a given site.	however, this is beyond the scope of the PEIS. No text changes were made to the PEIS in response to this comment.
50007-03	**Best Management Practices** According to the draft PEIS, the obligation to decommission the facility and perform reclamation as required by the landowners and appropriate land management agencies or jurisdictional authorities. EPA recommends the final PEIS include examples of BMPs typically used for this type of project. This information would provide the decision makers a better understanding of the actions that could be	Information about BMPs for decommissioning has been included for the various resource areas in chapter 5 of the PEIS.

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	employed to reduce impacts.	
50007-04	**Mitigation and Monitoring** We recommend that the final PEIS include additional information about how Western and the Service will ensure implementation and monitoring of BMPs. We also recommend that that the PEIS identify responsible entities and schedules for monitoring compliance. Examples of contractual agreements or a description of how the contracting strategy would ensure full implementation of all BMPs and mitigation measures associated with the ROD's selected alternative could be an effective means of disclosure.	Monitoring needs and requirements will be identified as part of the site-specific NEPA evaluations.
50007-05	**Financial Assurance** The draft PEIS indicates the typical life of a wind park in the UGP will most likely be 20-30 years. An obligation to decommission the facility and perform reclamation as required by the landowners and appropriate land management agencies or jurisdictional authorities was discussed in detail. However, no information regarding financial assurance for decommissioning and reclamation was identified. EPA recommends that the final PEIS include financial assurance strategies for decommissioning and reclamation. The projected lifespan should be used to ascertain the correct financial instruments and project future rates of decommissioning that could be used for financial assurance calculations.	Financial assurance is typically part of the permitting requirements for each of the UGP Region States. It is generally beyond the agencies' authorities to require or administer such requirements. Although details of USFWS easement agreements are beyond the scope of this PEIS, the following language is contained in the partial term release and relinquishment agreement regarding financial assurances for decommissioning and reclamation: *(3) Financial surety.* *(a) Before commencing construction, the Company shall furnish a continuing financial surety in the form of an irrevocable letter of credit (ILC) from a federally-insured financial institution rated investment-grade or higher in the amount of $_____ (said amount to be annually adjusted to reflect the percent of change in the average consumer price index for all items, city average, as published by the United States Department of Labor, Bureau of Labor Statistics), naming the UNITED STATES OF AMERICA as beneficiary thereof. The ILC shall be irrevocable, require presentation of no document other than a written demand and the ILC (and letter of confirmation, if any), expire only as provided in paragraph (3)(b) hereof, and be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (3)(c) hereof.* *(b) The ILC shall cover the entire period for which financial security is required, as follows:* *(i) The ILC shall expire no earlier than ___ months after termination of*

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		the Lease and this partial term relinquishment and release, or __ months after abandonment of the project. [Note: The ILC should expire no earlier than 12 months after the period allowed for site reclamation specified above; for example, if the Company is allowed 18 months after lease termination or project abandonment to reclaim the site, the ILC should expire no earlier than 30 months after lease termination or project abandonment]. The UNITED STATES OF AMERICA shall be entitled to draw on the ILC at any time during the 12 months preceding its expiration. *(ii) Alternately, the ILC shall have an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the UNITED STATES OF AMERICA with written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment (except for an annual adjustment in the amount of the ILC for inflation, as provided in paragraph (3)(a) hereof) for one year from the expiration date, or any future expiration date, until the period of coverage required by paragraph (3)(b)(i) hereof is completed and an authorized official of the UNITED STATES OF AMERICA provides the financial institution with a written statement waiving the right to payment. If the issuer provides a written notice of non-renewal at any time* *during the period of coverage required by paragraph (3)(b)(1) hereof, the UNITED STATES OF AMERICA shall be entitled to immediately draw on the ILC.* *(iii) In case of Lease renewal or extension, the period of coverage required by paragraph (3)(b)(i) hereof will be correspondingly extended.* *(c) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. Unless the financial institution issuing the ILC had letter of credit business of at least $25 million in the year preceding the issuance of the ILC, ILCs over $5 million must be confirmed by another federally-insured financial institution rated investment-grade or higher that had letter of credit business of at least $25 million in the year preceding the issuance of the ILC. The Company shall provide the United States Fish and Wildlife Service a credit rating from a recognized commercial rating service (as specified in Office of Federal Procurement Policy Pamphlet No. 7) that indicates the financial*

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		institution has the required rating(s) as of the date of issuance of the ILC. If, subsequent to issuance of the ILC, the issuing financial institution=s rating drops below the required level, the Company shall have 30 days to substitute an acceptable ILC. If no such acceptable substitution is made within 30 days of the change in the financial institution=s rating, the UNITED STATES OF AMERICA shall be entitled to immediately draw on the ILC. *(d) Any funds derived from the ILC by the UNITED STATES OF AMERICA shall be deposited in the General Fund of the United States Treasury without deduction for any charge or claim, and any performance of the project decommissioning and site restoration and reclamation activities described in paragraph (2) hereof by the UNITED STATES OF AMERICA is subject to the availability of appropriated funds. Nothing in this partial term relinquishment and release shall affect any liability or obligation of the Company or the owners of the Released Lands to perform project decommissioning or site restoration or reclamation activities pursuant to federal or state law.* No text changes were made to the PEIS in response to this comment.
50008-01	Basin Electric supports the preferred alternative as described in the Draft Programmatic Environmental Impact Statement (Programmatic EIS) developed by the Western Area Power Administration and the U.S. Fish and Wildlife Service (Service). This proposal will help energy development in the region and protect the environment. We previously provided oral testimony in favor of the Draft Programmatic EIS in Bismarck, and respectfully submit these additional comments for the record. Basin Electric is a regional, consumer-owned, power supplier formed in 1961 to provide supplemental power to a consortium of electric distribution cooperatives. Basin Electric supplies 136 rural electric member cooperative systems with wholesale electricity power who in turn serve approximately 2.85 million customers in a nine-state area. In the Upper Great Plains, our service territory overlaps significantly with much of the area covered by the Programmatic EIS. Our cooperative currently has more than 700 megawatts of wind-generated electricity on its system. During permitting and development	Thank you for your comments and support for the Agencies' proposal. No text changes were made to the PEIS in response to this comment.

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	of our most recent wind farms in North and South Dakota, Basin Electric's environmental and engineering staff worked closely with Western and the Service to evaluate potential environmental impacts from these projects. In particular, we worked with the Service to mitigate lost acreage to grassland and wetland easements, and have committed to reclaim these sites when the wind farms are decommissioned. Should the preferred alternative be adopted, it will streamline future wind projects by focusing on site specific concerns, rather than requiring duplicate environmental reviews for every wind project in the region. In short, Basin Electric believes that this Programmatic EIS will provide a win-win for wind developers, landowners, Western, and the Service. Wind projects will move more quickly since they won't be mired down in duplicative environmental review. Landowners will gain assurances that their lands with high wind potential won't automatically be overlooked by developers just because the land is also enrolled in a grasslands or wetlands easement program. Finally, Western and the Service will be able to meet their obligations under NEPA in a more timely fashion. Again, Basin Electric supports the preferred alternative. Thank you for your consideration of these comments.	
50009-01	Audubon strongly believes the value of the proposed area's wildlife resources that could be impacted by wind energy development and associated transmission lines, thus warrant the BLM's serious consideration of the information below. The states of Iowa, Minnesota, Montana, and Nebraska all contain designated Important Bird Areas. North Dakota and South Dakota are currently in the process of identifying and considering proposed areas within the state as Important Bird Areas **Important Bird Areas Program – Reflecting Critical Avian Habitat** Important Bird Areas ("IBAs") are part of an international program to identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. In the United States, this program is managed by the National Audubon Society. A site is recognized as an IBA only if it meets certain criteria, which are internationally agreed, standardized, quantitative and scientifically defensible. Scientists identify locations that provide essential habitat to	Western and the USFWS appreciate the information pertaining to Important Bird Areas. Information about these areas has been included in chapter 4 of the PEIS. One of the uses the agencies envision for the PEIS is as a guide for potential developers that will educate them on the many requirements for a successful project, while at the same time encouraging them to avoid siting projects in areas with sensitive resource issues. Siting in areas with fewer potential environmental issues will expedite the environmental clearance process and reduce time and costs, while helping to minimize overall and cumulative impacts to environmental resources. The project-specific NEPA process will include a public and agency scoping process where the public and agencies will be invited to come learn about the proposed project. The NEPA process is typically conducted early in a project's development and would provide opportunities for agencies to comment and note areas of interest early in the process. As identified in section 2.3.2.2, project developers will be required to

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	one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). The selection of IBAs has been a particularly effective way of identifying conservation priorities. **The identification of such critical habitats is an important consideration in generation and transmission development, as these areas should be avoided due to their ecological value.** The goals of the IBA Program are to i*dentify* the most essential areas for birds, *monitor* those sites for changes to birds and habitat, and c*onserve* these areas for long-term protection of biodiversity. IBA criteria are divided into four categories based on vulnerability, responsibility, and the fragility of certain species occurring at certain sites or because of a species unique natural history. IBA classifications are determined by panels of state and national experts within a tiered categorization system to reflect differences in importance across different geographical scales (i.e., state, continental and globally significant sites). The IBA identification process provides a data-driven means for cataloging the most important sites for birds throughout the country and the world. The influential Western Electricity Coordinating Council's ("WECC") Environmental Data Task Force ("EDTF") ultimately included Important Bird Areas as a preferred data set when evaluating potential transmission alternatives. According to the EDTF, "high voltage transmission lines have a relatively small direct footprint on the ground; however, large interstate transmission lines can also indirectly and cumulatively impact wildlife, cultural and historical features and water resources" (WECC 2011)1. Thus, "the anticipated benefit of incorporating environmental and cultural information upfront in the transmission planning process is to reduce the potential for conflict with these resources during subsequent siting, permitting, and constructions" (WECC 2011). To access a map and information about the Important Bird Areas in each state, please go to http://netapp.audubon.org/IBA/IBA .	employ a risk-based evaluation approach to identify project-specific concerns related to wildlife and other ecological resources, and the results of the evaluation will be incorporated into project-specific NEPA documentation. It is anticipated that this approach would include consideration of Important Bird Areas and information pertaining to the location of Important Bird Areas was provided in the PEIS to facilitate this consideration. Proper identification of resources that could be significantly affected would allow the focus to be on modifying the design of the proposed project or identifying BMPs and mitigation measures to avoid, reduce, or otherwise compensate for potentially significant impacts and would reduce the potential for unexpected impacts on natural resources. BMPs and mitigation measures identified in section 5.6.2 shall be applied, as appropriate, to address concerns regarding site-specific ecological impacts identified as a result of the risk-based evaluation approach. In some cases, additional BMPs and mitigation measures may need to be developed to address specific concerns.
50009-02	Audubon's Avian Concerns Research has shown the negative impacts of human activities and infrastructure development (such as those associated with energy	See response to Comment 50009-1.

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	development and transmission lines) on various avian species. These impacts include change in habitat use patterns (use of lower quality habitats), avoidance, increase in invasive species, death due to collision and electrocution, habitat fragmentation, cumulative impacts, and creation of travel routes for land predators. In conclusion, the states of Iowa (86 state level IBAs), Minnesota (49 state and 5 global IBAs), Montana (27 state level, 1 continental, and 12 global IBAs), and Nebraska (24 state and 3 global IBAs) all contain designated Important Bird Areas. North Dakota and South Dakota are currently in the process of identifying and considering proposed areas within the state as Important Bird Areas. We strongly encourage dialogue with individual state Audubon offices to identify areas of conflict with specific avian species or where there is critical habitat, such as IBAs. If you need any assistance in this matter going forward, please do not hesitate to contact me. **Audubon stresses avoidance to the greatest degree possible, such as where IBAs are located, followed by minimizing practices to reduce impacts.** Finally, as a last resort, careful mitigation may be appropriate in certain situations. We thank you for your time and look forward to future opportunities to discuss the Upper Great Plains Wind Energy PEIS.	
50010-01	**The actual benefits of the PEIS are unclear.** AWEA understands that the Agencies have endeavored to create a streamlined protocol for the processing of interconnection requests for wind energy projects on Western's facilities and for the placement of wind energy facilities on easements managed by the Service. However, from the draft PEIS, it is difficult to see where this streamlining will actually come into play and realize associated benefits. First, the draft PEIS does not discuss whether a project eligible for tiering could potentially achieve NEPA compliance through preparation of an environmental assessment ("EA") or a categorical exclusion ("CatEx") instead of an environmental impact statement ("EIS"). One would think that the implementation of the extensive measures required to tier off the PEIS would, in many, if not most, cases, allow a project to proceed with a site-specific EA or CatEx. Even if the Agencies cannot	In general, both the PEIS and programmatic BA should help expedite environmental clearances by having already collected and presented background information that can be incorporated into site-specific NEPA evaluations. BMPs and conservation measures are already gathered in one place and can be applied to a given project without extensive additional research. This should allow for more consistency and prevent effective measures from being left out, thus increasing the effectiveness of the measures. Much of the needed analysis is completed up front in the PEIS. Developers will know what measures they need to agree to in order to achieve a "not likely to adversely affect" on listed species that occur in their project area through application of the programmatic BA. Developers will demonstrate that they are being consistent with required conservation measures in the BA by completing consistency evaluation forms for the lead agencies and the USFWS to review.

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	guarantee this on the programmatic level, there ought to be some discussion of the "downstream" advantages that implementing the PEIS measures would create. While the PEIS does discuss streamlining generally as it relates to tiering, there should be a more detailed and tangible discussion of what this may mean from a NEPA document preparation and processing standpoint. Given the breadth of measures that the draft PEIS would require of a project in order for it to tier off of the PEIS, even a tiered EIS, would seemingly present scant or no discernible benefit to a developer over current practices.	One will not know which BMPs and measures will be implemented until the specific sites are identified. Some measures will not be needed as the resources addressed by some measures are not present on the site. Site conditions will determine which measures will be effective, and therefore, should be applied and which ones will be ineffective. It is anticipated that the additional NEPA documentation required for most projects tiering from the PEIS would be EAs, although this may not always be the case. Overall, it is anticipated that there would be a reduction in the amount of time (and associated costs) needed to prepare and review tiered environmental documents and in the amount of time for obtaining concurrence from the USFWS regarding potential effects on listed species. Text has been added to sections 7.2 and 7.3 of the PEIS.
50010-02	**Additional comment under the header: The actual benefits of the PEIS are unclear.** Further, the way many of the best management practices ("BMPs") and measures are currently written, it would be difficult for a developer to know whether it is sufficiently meeting such a measure to avail itself of the benefits of tiering. The draft PEIS states: "If a developer does not wish to implement the evaluation process, BMPs, or mitigation measures identified for this alternative, a separate NEPA evaluation that does not tier off the analyses in the PEIS would be required."2 ES-6 Similarly, project-specific Endangered Species Act ("ESA") Section 7 consultations would tier off programmatic consultation conducted for this PEIS, as long as developers agree to implement the appropriate avoidance measures, mitigation measures, and monitoring requirements identified during the programmatic consultation.3 The BMPs and measures contained in the PEIS, as written, are lacking in specificity and, in some instances, are so vague that a developer would not be able to ascertain confidently whether it is implementing the measure. As such, it would be difficult for a developer to gauge whether it could avail itself of the advantages of the streamlining.	This simply says that to fall under the programmatic NEPA document and BA, a developer needs to agree to the conditions stated. If a developer cannot or does not wish to commit to these conditions, then the programmatic process would not apply, and the usual site-specific process would be followed. As identified in the PEIS, site-specific NEPA documents for each proposal would continue to be needed. Overall, it is anticipated that there would be a reduction in the amount of time (and associated costs) needed to prepare and review tiered environmental documents and in the amount of time for obtaining concurrence from the USFWS regarding potential effects on listed species.

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	In other instances, the measures are simply not practicable. For example, under Noise Impacts, one of the measures required in section 5.5.2.1, is to "take advantage of topography and the distance to nearby sensitive receptors when positioning potential sources of noise." Given the lack of parameters in this measure, it would be difficult for a developer to know what exactly would be required to demonstrate implementation of this measure. In another example taken from the BMPs and Mitigation Measures for Water Resources section (Section 5.3.2), a measure calls for the avoidance of crossing streams and wetlands. However, the draft PEIS does not make mention of a qualifier such as "to the extent reasonably practicable." This in turn raises the question of whether a developer who chooses to pursue authorization under Section 404 of the Clean Water Act for a stream crossing would be disqualified from tiering because it did not apply that mitigation measure. As with this example, the PEIS appears to create many other "gotchas" that could disqualify the developer from being eligible for the tiering process. (Section II of this letter provides additional examples of some of the problems created by the impracticability and vagueness of specific BMP measures.)	
50010-03	**Additional comment under the header: The actual benefits of the PEIS are unclear.** Moreover, the amount of regulation and guidance for wind development in the Upper Plains region is already quite voluminous. The draft PEIS tacitly acknowledges this in its multiple references to other regulations and guidance. The draft also requires (for tiering purposes) that a developer adhere to the Land-Based Wind-Energy Guidelines ("WEG") and the Eagle Conservation Plan Guidance ("ECPG"), in addition to state and local measures, when establishing BMPs and mitigation measures. It is unclear why another layer of measures in the form of those in the draft PEIS is required for a project to go forward, especially given this process recommends adherence to the other existing measures that are sufficient. This point is perhaps even more pronounced given that the Agencies view the draft PEIS as applying to the entire project even though the federal actions triggering the PEIS are truly only the interconnection and/or easement exchange. While many developers do voluntarily follow the WEG, it is also worth	One of the goals of the programmatic process identified in the PEIS is to reduce the potential for adverse impacts and increase the overall conservation benefit to ecological resources, including federally listed species. The PEIS recognizes that the WEG and the ECPG are voluntary guidelines, but requests implementation of a process that is "consistent with" those guidelines in order for project-specific NEPA compliance documentation to tier from the PEIS. It is anticipated that tiering would result in a simpler NEPA compliance document that could reference analyses conducted in the PEIS. However, the agencies are not imposing a requirement for following the identified guidelines in order to request an interconnection. If a developer wishes not to implement processes that are consistent with the guidelines, there is still a potential for preparing NEPA documentation without tiering from the PEIS. No text changes were made to the PEIS in response to this comment.

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	noting that the federal advisory committee that developed the WEG was adamant in making the WEG voluntary and the Service agreed. Moreover, the WEG itself is a guidance document and, therefore, by its very nature voluntary.4 By requiring that a developer follow the WEG in order to avail itself of tiering, the draft PEIS makes adherence to the WEG mandatory and this was never intended by the advisory committee or the Service.5 Similarly, the ECPG is also a voluntary document and given the issues that have been raised since its issuance and not fully addressed in version 2 (published April 2013), should clearly remain so. In short, neither of these documents should be turned into mandatory requirements.	
50010-04	**Additional comment under the header: The actual benefits of the PEIS are unclear.** Finally, in addition to all of the existing regulation and guidance in the Upper Plains region, the Great Plains Wind Energy Habitat Conservation Plan ("GPWE HCP") and Midwest Wind Energy Multi-Species Habitat Conservations Plan ("MWE MSHCP") are well under development and together cover the Upper Plains region. It is anticipated that the GPWE HCP effort will be completed in the second quarter of 2014, and the MWE MSHCP sometime thereafter. Once the GPWE HCP is approved and take authorization issued, a developer's authorization under and adherence to the GPWE HCP or MWE MSHCP should be more than sufficient to meet both NEPA and Endangered Species Act section 7 requirements for a given interconnection or easement. In other words, since those HCPs will already provide BMPs that are equally effective , or even superior, at avoiding or reducing the impacts of an interconnection or easement exchanges on specific environmental resources than the standardized BMPs in the draft PEIS, [6] it would be duplicative for the Agencies to also require adherence to the measures set forth in the programmatic draft PEIS's BMPs as well as those in the HCPs and counter to the purposes of that document to streamline the environmental review process and NEPA compliance for wind energy projects. Accordingly, AWEA encourages the Agencies to allow HCP participants to tier based on their compliance with these HCPs, but also to qualify as a CatEX under NEPA and to excuse a project from the programmatic BMPs in the draft PEIS, as they will be required to follow the BMPs in these HCPs. Such an action would	At the time of finalizing the PEIS, details regarding the conservation measures to be included in the GPWE HCP remained unavailable for review by the lead agencies. While it is true that a developer could choose to follow the section 10 HCP process instead of ESA Section 7 consultation for the species to be addressed by the GPWE HCP, there are numerous other listed species within the UGP Region that, depending upon the location of a proposed project, may still need to be addressed through ESA Section 7 consultation. In addition, the GPWE HCP will not fully address the requirements of NEPA and it is anticipated that most projects would not qualify for Categorical Exclusions under NEPA simply by complying with the GPWE HCP. NEPA requires evaluations of other environmental issues, including environmental justice, geology, soils, farmlands, social, geographic, economic, and many other issues that the HCP would not address. As identified in the PEIS and the associate programmatic BA, avoidance, minimization, and mitigation needs for some species may be revised to be consistent with the GPWE HCP once it has been completed.

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	consistent with other instances in which CatEXs were granted if there were already adequate measures in place to minimize the impacts. [7] 6 - Specifically, the HCPs' BMPs will be just as effective at ensuring compliance with the relevant statutory and regulatory requirements, minimizing local impacts of siting decisions and design, promoting post-construction stabilization of impacts, maximizing post-construction restoration of habitat conditions, minimizing cumulative impacts, and promoting economically feasible development of wind projects. 7 *Cf. Jones v. Gordon*, 792 F.2d 821	
50010-05	**II. The measures are too vague to be a determining factor for tiering.** As mentioned in Section I above, AWEA believes many of the BMPs and other measures called for in the draft PEIS would be difficult for a developer to implement. These types of measures tend to be either too vague or impracticable. Below are examples of some of the BMPs that fall into these two categories. Please note that this is not an exhaustive list. These examples best elucidate the issues common to many of the measures provided in the PEIS. In many instances it appears that the Agencies have gone well beyond what is truly necessary and are proposing a "wish list." Given that eligibility for tiering is dependent on implementing these measures, such a wish list is inappropriate for the PEIS. We urge the Agencies to reconsider which measures are truly necessary for this PEIS and to reduce the measures to only those that are clear and reasonable. In 2.3.2.2, the draft PEIS specifies that surveys prepared for listed species will be shared with the Service's Ecological Services Field Office. It should not be mandatory for this process that surveys conducted by developers in evaluating a wind project site be turned over to the Service. That choice and risk assessment is solely within the purview of the developer. In 2.3.2.2, the draft PEIS provides a measure stating "meteorological towers shall not be located in sensitive habitats or in areas where resources known to be sensitive to human activities (e.g. wetlands, cultural resources, and listed species are present). . . ." Given many of	The BMPs and mitigation measures identified in chapters 2 and 5 are to be applied if they are appropriate for the site conditions of a given proposed project. Site-specific NEPA documents will review the programmatic measures, will identify which of the measures are applicable for a specific project and location, and will identify how the BMPs will be met. As identified in section 2.3.2.2, any surveys conducted for listed species should be coordinated and shared with the USFWS Ecological Services Field office with jurisdiction if the programmatic ESA Section 7 consultation is to be considered for the project. The purpose of this is to facilitate evaluation of the occurrence of listed species and assist with possible future modification of conservation measures for listed species. If a developer does not wish to do this, site specific consultation under ESA Section 7 may be required. Changes were made to some of the BMPs identified in the comment as follows: The BMP stipulating that meteorological towers shall not be located in sensitive habitats has been modified. Stipulations for listed species are addressed in the measures identified in table 2.3-2. The BMP stipulating that noisy construction activities should occur between 7 a.m. and 7 p.m. has been modified. The description pertaining to development of Eagle Conservation Plans

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	the listed species occurring in the Upper Plains region are migratory species, a developer cannot say with certainty that a meteorological tower will be placed somewhere where no listed species are ever present. In 5.5.2.1 (Noise Impacts), a measure requires that a developer "take advantage of topography and the distance to nearby sensitive receptors when positioning potential sources of noise." This measure does not have parameters that a developer can follow in order to address this issue. If using the streamlined process requires following the measures, they should be clear. In 5.5.2.3 (Noise Impacts), a measure requires that noisy construction be limited to the least noise-sensitive times of the day, specifying between 7am and 7pm on weekdays. For projects being built in very remote areas (which is not unlikely in the Upper Plains region), developers should have the flexibility to construct around the clock—seven days a week should that be the most economical and efficient approach. There is inconsistency when referring to the development of an eagle conservation plan ("ECP"). The statements regarding the development of an ECP range from "should develop"[8] (PEIS 5.6.2.1) to "would need to develop."[9] (ES-34) This inconsistency leaves it unclear what the expectation is for the project developers with respect to whether they must develop an ECP. Adding to this confusion, there are references that suggest that project developers are not required to use the recommended ECP procedures.[10] PEIS 2-39) Regardless, and as discussed above, the ECPG is voluntary and the decision to develop an ECP or not develop and ECP should be the developer's and not a condition to eligibility for tiering. In 5.6.2.3 (Ecological Resources), a measure requires that a developer establish buffer zones around known raptor nests, bat roosts, and biota and habitats of concern if site evaluation shows that proposed construction activities would pose a significant risk to avian or bat species of concern. Nothing more is provided as to the size of buffers or what constitutes a significant risk. Moreover, this is in effect repetitive of	has been modified. The visual resource BMPs in section 5.7.1.3 that are included in the comment are not blanket requirements. Rather, as identified in the preface to the list of BMPs in the PEIS these "should be employed where appropriate and feasible." The Agencies again reiterate the point that the BMPs and mitigation measures identified in chapters 2 and 5 are to be applied if they are appropriate for the site conditions of a given proposed project. Contrary to the contention in the comment, the BMPs identified in the PEIS do not constitute a set of new *de facto* regulations. Rather, the BMPs represent measures that, when implemented, will allow the agencies to be confident that significant environmental impacts to specific resources will be avoided. For this reason, agreement by developers to implement the BMPs that are applicable and appropriate for specific projects will allow the agencies to complete their project-specific NEPA reviews in a more streamlined fashion by tiering from the analyses in the PEIS. If a developer does not wish to implement measures that are deemed appropriate for a specific project, site specific NEPA reviews that do not tier from the analyses in the PEIS can be prepared.

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	a recommendation to follow the WEG. This is another example of why the GPWE HCP or MWE MSHCP terms should dictate the entirety of measures that should be implemented at a project site. In 5.6.2.3 (Ecological Resources), measures require that access roads and utility and transmission line corridors be regularly monitored for the establishment of invasive species and that weed control measures be implemented immediately upon discovery of invasive species. This same section also requires that fill materials not originate from areas with known invasive vegetation species. It is not practicable for a developer to have monitors along these areas for the purpose of invasive species. Not only is this not economically feasible in most cases, in many cases landowner agreements restrict developer access and rights to these areas. In 5.6.2.4 (Ecological Resources), the monitoring of access roads and utility and transmission line corridors, and tower site areas is again required for invasive species. Again, this is not practicable. In 5.6.2.4. (Ecological Resources), a measure requires “increasing turbine cut-in speeds in areas of bat conservation concern during times when active bats may be at particular risk from turbines.” No further parameters are given to know what type of cut-in speeds would be required or when exactly these measures would be required. This is open to too much interpretation and could have a devastating effect on the economics of a project. Further, simply increasing cut-in speed of turbines may not have the desired effect without feathering of the turbine blades below certain wind speed to minimize risk to bats. Again, this is yet another example of where the MWE MSHCP terms should dictate the entirety of measures that should be implemented at a project site. In 5.7.1.3 (Visual Impacts), a measure provides that facilities, structures, roads, and other project elements should match and repeat the form, line, color, and texture of the existing landscape. Again, there is no qualifier such as using language such as “to the extent reasonably practicable” and it is unclear how this would be achievable for a wind project. Additionally, we are unaware of any other industry that is held to	

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	such a standard. We do not dispute that visibility can be an issue with wind energy projects but overwhelmingly it is an issue related to turbines which could not meet any of these conditions. Nor is it clear that these conditions provide measurable ecological, biological, archaeological or other environmental benefits of significance. In 5.7.1.3 (Visual Impacts), a measure requires that "grouped structures should all be painted the same color to reduce visual complexity and color contrast." While we understand that it might be desirable to keep everything uniformly colored, it hardly seems that this process is the vehicle by which to require it as a prerequisite for tiering. This type of measure (and several others in Visual Impacts) defeats the utility of the PEIS to streamline projects. In 5.7.1.3 (Visual Impacts), a measure requires that "the geometry of road ditch design should consider visual objectives; rounded slopes are preferred to V-shaped and U-shaped ditches." Using this type of measure as a prerequisite to tiering is unreasonable. If the BMPs and measures are required for tiering, then the Agencies should keep the measures and BMPs to those that are reasonably related to addressing the issue at hand. In summary, the measures provided as examples above highlight the issues with many of the measures provided in the draft PEIS. Moreover, even though not following the measures disqualifies a developer from being eligible to tier, several of the measures are far too vague or onerous for a developer to feel any sense of certainty that it is successfully implementing them. Many of these measures also go well beyond any federal, state, or local regulation, and it is not clear at all why this draft PEIS should essentially result in establishing a broad set of new de facto regulations. NEPA is not a regulatory statute. The draft PEIS should only include measures with clear parameters that address clear potential impacts and account for the economic realities of siting a wind project. It is unclear why the Agencies are pursuing an approach that requires anything beyond what is already required by the broad and detailed regulations and guidance already in existence.	
50010-06	In Section 5.6.2.4. (Ecological Resources), what is meant by "long-term" in reference to mortality studies?[11] (PEIS 5-129) This is also open to	As the USFWS's Wind Energy Guidelines indicate, if a project is constructed in a sensitive area that has the potential of killing significant

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	interpretation and could have substantial economic effects on projects.	numbers of birds and/or bats, two or more years of fatality monitoring may be necessary.
50010-07	The summary table (presented as ES 5-2 and 2.3-2) provides species-specific survey requirements, avoidance measures, and conservation measures. The measures presented are generally consistent with what was included in other large wind development environmental impact analyses. However, the table contains some inconsistencies, such as species having the identical potential impacts, identical species-specific survey requirements and avoidance measures, yet different conservation measures and effect determinations. Without more detail regarding the table it is unclear how the measures were determined and why they are inconsistent.	The tables have been updated to reflect the final measures developed during consultation with the USFWS. Species-specific narratives within the programmatic BA provide discussion, information, and citations pertaining to the species-specific avoidance, minimization and mitigation measures listed in tables ES.5-2 and ES.2.3-2 in the PEIS. The information presented in the programmatic BA supports the effects determinations in the PEIS (see appendix D of the PEIS).
50010-08	In 5.7.1.3 (Visual Impacts), a measure requires that soil disturbance should be minimized in areas with highly contrasting subsoil color. This is beyond the scope of the Agencies and should not be included in this document. This measure this measure is generally inappropriate, but particularly in remote areas. Developers have to consider a wide array of factors when siting a wind facility and the difference in color of subsoil should not be added to this list without more justification.	The visual resource BMPs in section 5.7.1.3 that are included in the comment are not blanket requirements. Rather, as identified in the preface to the list of BMPs in the PEIS these "should be employed where appropriate and feasible." The agencies again reiterate the point that the BMPs and mitigation measures identified in chapters 2 and 5 are to be applied if they are appropriate for the site conditions of a given proposed project. No text changes were made to the PEIS in response to this comment.
50010-09	In 5.12.1.4 (Hazardous Materials), a measure requires the preparation of a hazardous materials and waste management plan. The components of this plan are rather extensive. Developers are already required to comply with federal, state, and local requirements with regards to hazardous materials and waste management. There is no reason to require that developers develop plans in addition to those already required.	The BMP has been modified to indicate that appropriate plans for hazardous materials and waste management should be developed, as required by Federal, State, and local regulations.
50010-10	**III. Western's discussion of wildlife needs to conform to those being developed in the GPWE HCP and MWE MSHCP.** The wildlife measures provided in the draft PEIS go well beyond what is appropriate for the Agencies' review. First, the ESA requires minimization and mitigation of impacts to listed species, but it does not require avoidance. Several measures speak to avoidance. Wind developers must consider several other factors when evaluating the economics of a project. In some cases, avoidance is not practicable and	As identified in section 2.3.2.2, one goal for development of the programmatic avoidance, minimization, and mitigation measures for federally listed species and designated critical habitats was to identify a set of measures that would limit the potential for adverse effects to species and critical habitats while still accommodating the majority of wind energy projects likely to occur within the UGP Region. This met objectives of the agencies to establish programmatic processes that would facilitate environmental evaluations for most of the requests for interconnection to Western's transmission system and for most of the

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	minimization and mitigation measures must be implemented where impacts are not avoided. In light of the fact that the ESA does not, the draft PEIS should not require avoidance in order for a developer to be eligible for tiering. Second, the draft PEIS did not include the draft biological assessment prepared under Section 7 of the ESA. The wildlife measures required by the draft PEIS for tiering should not extend beyond those that are required in the final Biological Opinion prepared for the draft PEIS. Without having reviewed these documents, the justification for the measures provided in the draft PEIS is unclear and any related conclusions are premature. Generally speaking, the draft PEIS is in effect a "foundational" programmatic document that proposes changes to the NEPA process in an effort to streamline efforts required by Western and the Service. As such, the draft PEIS provides little quantitative analysis relating to projected development but instead merely provides a lengthy discussion regarding the potential impacts from hypothetical wind development scenarios. However, without an adequate understanding of the likely projected wind development, which the draft PEIS seemingly does not have, very little in the way of accurate projections can be concluded about the potential scope of impacts. The draft PEIS also does not include the programmatic Biological Assessment. As such, evaluation of the Threatened, Endangered and Sensitive ("TES") analysis in the draft is difficult, if not impossible, to make and, as discussed above, is rife with inconsistencies that leave developers with uncertainty and pose potential substantial adverse economic effects for their projects. For instance, there are several BMPS, avoidance measures, and other measures associated with the TES in the draft PEIS [12] (ES 5-2; 2.3-2) that are standard items and have been used in similar large scale environmental impact analyses. However, quantitative measures that would provide certainty, such as specific buffer distances, were not discussed and should be set forth in greater detail in the Biological Assessment, which should be made available for public review and comment.	requests to accommodate wind energy development on areas under USFWS easements. The agencies believe that the numbers of wind energy development projects that will be unable to implement the programmatic species-specific avoidance and minimization measures would be small; environmental evaluations for such projects would be accommodated using project-specific NEPA evaluations and ESA Section 7 consultations that do not tier from the proposed programmatic environmental evaluation process. The species-specific measures summarized in table 2.3-2 were developed by first identifying avoidance areas (e.g., types of habitats or locations) within the UGP Region where specific wind energy development and operational activities would be precluded or restricted in order to protect federally listed species and designated critical habitat within the UGP Region without affecting the ability for most wind energy projects to proceed. Species-specific avoidance measures are intended to limit the potential for most of the direct impacts of wind energy development and operations on designated critical habitats, on habitat areas considered vital to maintaining existing populations of federally listed species, and on individual organisms in areas known to be occupied by federally listed species. If there was information about species-specific threats to survival, habitat use, or behavior that indicated that the avoidance measures alone would not be sufficient to reasonably limit the potential for adverse effects, species-specific minimization measures were identified that would further reduce the potential for adverse effects through implementation of BMPs. For some species (e.g., whooping crane) site-specific evaluations will be used to determine if species-specific mitigation measures are needed to compensate for potentially adverse losses of habitat or habitat use that remain even if species-specific avoidance and minimization measures are applied. Projects that cannot or choose not to implement the identified avoidance, minimization, and mitigation measures will not be eligible for tiering under the programmatic consultation that was conducted. This does not necessarily mean that such projects will be denied interconnection to Western's transmission system or that placement of wind energy facilities from such projects cannot be accommodated

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	In comparison with the ongoing programmatic wind HCP efforts discussed herein, the draft PEIS does not provide an adequate evaluation of how developers may be subjected to variable requirements. For instance, the draft states: As an adaptive management measure, it is the intent of this PEIS to adopt most or all of the BMPs and mitigation measures from the GPWE HCP when it is finalized for any subsequent wind development occurring under this PEIS. This will serve the dual purpose of having one consistent set of guidelines for the four species of concern (three of which are in the UGP Region) and will also incorporate the most recent and studied measures into future activities conducted under this PEIS.[13] (6-35) We agree that the HCPs should serve as the basis for minimization and mitigation measures with respect to wind projects and TES species under the PEIS. However, in the draft PEIS, it appears as if this approach is to be incorporated as an adaptive management measure on top of other existing measures. In light of the fact, as discussed above, that the wind HCPs will already provide BMPs that are equally, or more, effective at avoiding or reducing the impacts of an interconnection or easement exchanges on specific environmental resources than the standardized BMPs in the draft PEIS, it would be duplicative for the Agencies to also require adherence to the measures set forth in the programmatic draft PEIS's BMPs in addition to those in the HCPs.	through easement exchanges. Rather, the agencies would initiate project-specific ESA-Section 7 consultation for such projects in order to determine what measures may be required to avoid jeopardy to listed species and to protect critical habitats. The agencies do not agree that the PEIS "changes the NEPA process." Rather, as is commonly done with programmatic NEPA documents, it collected and analyzed available information to identify commonalities among wind energy development projects and developed procedures that could be applied to multiple projects in order to save time and money for developers and for agency reviewers by avoiding duplication for every project. The comment claims that the PEIS is not as adequate at identifying BMPs as the yet to be released GPWE HCP. The agencies requested early information regarding the BMPs being considered for the HCP, but the request was not accommodated. As a consequence, the agencies proceeded with identification of measures for the three species-of-concern that are common to the HCP and the programmatic BA, while leaving open the possibility that future adjustments would be made to make the processes consistent after the GPWE HCP has been completed and released.
50010-11	**IV. Western should be careful not to overestimate the potential development of wind energy in the UGP region.** The draft PEIS provides predictions on development and the rationale behind its assumptions. Specifically, in order to evaluate potential impacts associated with the alternatives for the draft PEIS, two standardized wind energy development scenarios were developed for the UGP Region and considered for the analyses of impacts. The development time frame chosen is from the present to 2030 in order to be consistent with the modeling conducted by the Department of Energy. Two estimates for wind energy development within the region were used to bound analyses of potential natural resource impacts:	In agreement with the commenter, the agencies believe that the estimates presented in the PEIS generally bound the likely level of wind energy development that could occur in the UGP Region by 2030. Ultimately the estimates were used to evaluate the potential levels of impacts that could occur to various resources within the UGP Region. General assumptions about the areas of the UGP Region with conditions most suitable for development and the proximity of such areas to Western's transmission facilities and USFWS easements were used to gauge the resources most likely to be affected by the decisions made by the agencies regarding their environmental review processes. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	Projected wind energy development based on extrapolation of the levels of development within the UGP Region States from 2000 through 2010; and 2. Projected wind energy development based on modeling conducted by the National Renewable Energy Laboratory ("NREL") to identify how 20 percent of the Nation's electrical generation could be produced by wind energy by the 36 year 2030. With respect to the development predictions in the draft PEIS, we think they are generally within the reasonable range of the predictions developed by AWEA and member companies in the GPWE HCP. We caution, however, that any projections for wind energy's growth are often inaccurate and the number of new projects in this region will likely be considerably less than estimated. For instance, data from the Department of Energy's 20 percent Wind Energy by 2030 report ("20 Percent Report") should not be viewed as a reliable predictor of wind project development that is likely to occur in the region in the foreseeable future. It is important to understand that this report was not intended to be a projection but more of an aspirational goal under the particular scenario considered at the time. The 20 Percent Report assumed that electricity demand would grow by 1-2.2 percent annually, driving significant demand for new wind generation, when in reality electricity demand growth has been negative over the nearly 5- year time period since the report was released, and most forecasts call for electricity demand growth to remain well below the level assumed in the report. As a result, it would require significantly fewer MW of wind today to obtain 20 percent of the nation's electricity needs from wind than were previously identified in the report. AWEA has dedicated significant resources to developing reliable and well-reasoned estimates of potential development. In fact, the GPWE HCP and MWE MSHCP both require a prediction of wind development over the term of the incidental take permit. Based on those projections, the UGP region (IA, MN, MT, ND, NE, and SD) currently represents 19.5% of all installed wind capacity in the U.S. (11,690 MW of 60,007	

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	MW). These 11,690 MW of wind capacity in the UGP region were built over a period of 25 years.[15] Between 2010 and 2012, 4,192 MW of new wind capacity was installed in the UGP region or 16.8% of all the new wind installed between 2010 and 2012 in the U.S. Across the 6- state region, 35% of the UGP wind installed between 2010 and 2012 was in Iowa, 28.8% in MN, 11.4% in ND, 11.2% in SD, 7.3% in NE and 6.4% in MT.[16] Although the 2010 to 2012 period encompasses the largest annual wind capacity installation in U.S. history, it should not serve as a benchmark for future annual installations in the U.S. Indeed, annual wind capacity installations in the coming years are not forecasted to reach the historic high levels of 2012, which was 13,000 MW.[17] The average annual installation between 2010 and 2012 in the UGP region was 1,397 MW per year. Applying this benchmark figure to future growth for the UGP region would represent 25,149 MW of additional wind capacity installed in the UGP region by 2030. This level of installation would represent a tripling of installed wind capacity in the region over the next 17 years. This level of installation would be sufficient and far exceed the capacity needed to meet RPS requirements in the region. The average turbine size today is 2.0-MW suggesting the 25,149 MW would represent 12,574 turbines. However, the average size of a turbine is increasing from a 1.5-MW average in only 2005.[18] Assuming the average turbine size remains 2.0-MW through 2020 then increases to 2.5-MW in the 2020-2030 timeframe, the 25,149 MW of additional wind would consist of 10,479 additional wind turbines.	
50011-01	Incorporating comments of ABC and CLC by reference (See Comment Document 50006). Their comments were attached.	See responses to comment document 50006.
50012-01	Incorporating comments of Daly Edmunds, Audubon Rockies by reference (See Comment Document 50009). His letter was attached.	See responses to comment document 50009.
50013-1	Montana Fish, Wildlife and Parks (FWP) appreciates the opportunity to comment on the Western/FWS Draft Wind Energy PEIS. FWP has reviewed the four alternatives presented and supports the preferred alternative with some reservations.	No text changes were made to the PEIS in response to this comment.
50013-2	FWP, like other organizations that provided comments, would like the preferred alternative to state a commitment to interagency consultation.	The PEIS requests developers to consult with Federal and State agencies early in the planning stages in order to identify important

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	In addition, the PEIS should provide for additional research on the impacts to wildlife from wind energy developments.	resources in the vicinity of the project area and to obtain input on ways to reduce potential effects. Although the PEIS does not specifically call for research on impacts from wind energy developments, much research has and is being conducted by the USFWS and other agencies to understand how wind energy affects natural resources. No text changes were made to the PEIS in response to this comment.
50013-3	The PEIS, while providing stipulations for winter ranges, nesting, and calving/birthing impacts, does not describe the potential negative impacts nor address how these impacts might be avoided. The PEIS should state that state wildlife agency be contacted for site specific natural resource issues and impacts.	See response to Comment 50013-2.
50013-4	Montana Fish, Wildlife and Parks understands the need for alternative energy development and wind energy development in the State. As the management agency for Montana's fish and wildlife resources the Agency would like to see an EIS that balances the needs of energy development with the conservation of the State's fish and wildlife resources.	One of the uses the agencies envision for the PEIS is as a guide for potential developers that will educate them on the many requirements for a successful project, while at the same time encouraging them to avoid siting projects in areas with sensitive resource issues. Siting in areas with fewer potential environmental issues will expedite the environmental clearance process and reduce time and costs, while helping to minimize overall and cumulative impacts to environmental resources. The project-specific NEPA process will include a public and agency scoping process where the public and agencies will be invited to learn about the proposed project. The NEPA process is typically conducted early in a project's development and would provide opportunities for agencies to comment and note areas of interest early in the process.
50014-01	Yes, my name is Lyle, L-Y-L-E, Witham, W-I-T-H-A-M. I'm the Environmental Manager for Basin Electric Power Cooperative. We provide supplemental wholesale power to a large part of the Upper Great Plains Region that is covered by this Programmatic EIS. We were formed to provide that supplemental power, and are part of the integrated system, or IS, and work with Western on a lot of projects. We have built two wind projects in the last few years, went through an EA on one of them and an EIS on the other. We had wetland and grassland easements on both of those projects. We encouraged both Western and Fish and Wildlife Service to go through this process. I have been lucky enough to have had a chance to review the EIS, and there's a tremendous amount of work that has gone into this review.	Thank you for your comments. No text changes were made to the PEIS in response to this comment.

TABLE A-2 (Cont.)

Comment ID	Comment	Response
	Fish and Wildlife Service, in our particular projects, as John mentioned, was very reasonable on the -- on the wind turbines that we located on grassland easements and wetland easements. We worked with them to locate them in places which would have the least impact on those easements, and on the edges of the easements, and then we did mitigation in terms of buying additional properties, and as John mentioned in his -- his testimony, we also arranged so when they -- when the period of use is over we'll restore that grassland or wetland easement to its original state. So I think I want to thank all of the people that were involved in this. We do support the preferred alternative that was presented here tonight. I think this whole process will streamline the process in the future for additional projects as -- as our national policy is set on greenhouse gases, it is likely that more renewable wind energy projects will be needed by power companies to meet their obligations, and this will allow that to go forward. As a couple of John's slides showed, there are both grassland and -- and especially wetland easements all over the Upper Great Plains, and the Prairie Pothole Region especially, and you really could not build a wind project without having some impact on those areas, so now that there's a policy in place that's going to make a -- it easier to locate wind farms and -- and move forward with projects, so I think this is an important process, and we really thank you for doing it, and we -- we will probably submit some brief additional written comments, but we really appreciate you having this hearing and the whole -- the whole years of work that you've put into this whole process, so thank you.	

APPENDIX B

PROJECTED WIND ENERGY DEVELOPMENT IN THE UGP REGION THROUGH 2030

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APPENDIX B

PROJECTED WIND ENERGY DEVELOPMENT IN THE UGP REGION THROUGH 2030

The projected level of wind energy development that would occur in the Upper Great Plains (UGP) between 2010 and 2030 was estimated in order to be consistent with a scenario under which 20 percent of the Nation's electricity would be generated from wind energy by 2030 (DOE 2008). Two estimates for wind energy development within the UPG region were used to bound analyses of potential natural resource impacts:

1. Projected wind energy development based upon levels of development within the UGP Region States from 2000 through 2010; and

2. Projected wind energy development based upon modeling conducted by the National Renewable Energy Laboratory (NREL) to see how a goal for 20 percent of the Nation's electrical generation to be from wind energy by the year 2030 could be accomplished.

B.1 CASE 1: PROJECTED DEVELOPMENT BASED UPON DEVELOPMENT IN THE UGP REGION STATES FROM 2000 THROUGH 2010

For this case, it was assumed that the trajectory for the increase in installed wind energy capacity during the next 20 years would remain similar to the annual rate of increase during the past 10 years. Overall, the installed capacity within each of the UGP States has increased substantially during the previous 10-year period (figure B-1, table B-1). The rate of increase has slowed in some States in recent years (e.g., Iowa) and has increased in others (e.g., South Dakota).

The estimated level of wind energy development within the UGP Region in 2030 was calculated by developing a best-fit linear relationship using reported values of installed wind energy capacity for each of the UGP States from 2000 through 2010 and using those relationships to predict the amount of installed capacity that would be present by 2030. To estimate the number of turbines that would be needed to meet the projected capacity, it was assumed that each turbine would be capable of generating 1.5 MW of electricity. Typical wind turbines currently being installed in the UGP Region generate between 1.5 and 2 MW per turbine. The predicted level of generation and the estimated number of turbines to meet the generation capacity estimates under Case 1 are presented in table B-2.

B.2 CASE 2: PROJECTED DEVELOPMENT BASED UPON NREL MODELING

For this case, the estimate of future installed wind energy capacity between 2010 and 2030 was based on an analysis conducted by NREL using its Wind Deployment System (WinDS) model. The model used a variety of inputs and assumptions, as described in Appendix B of the DOE (2008) report, to modify a base case version of the model (Denholm and Short 2006). The revised model indicated that the wind turbines required to

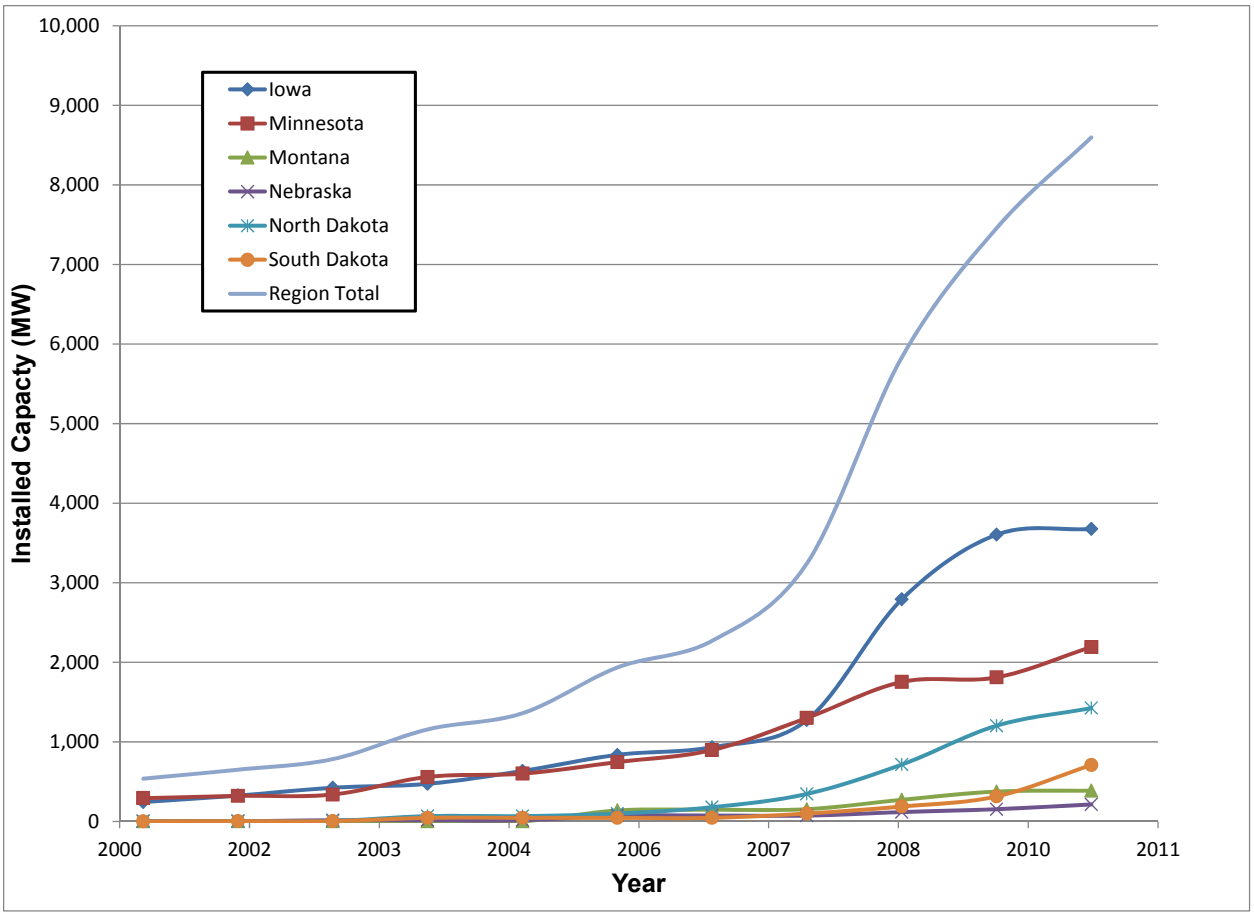

FIGURE B-1 Installed Capacity (MW) for States within the UGP Region, 2000–2010 (Source: DOE 2011)

supply 20 percent of the Nation's electricity (more than 300 GW) would be broadly distributed across the United States, and that at least 100 MW would be installed in 43 of the 48 contiguous States. The revised model presented one way of providing 20 percent of the nation's electricity through wind energy.

The specific assumptions used in the model significantly affect each State's projected wind capacity, and the DOE (2008) report stated that the projected levels would vary significantly as electricity markets evolve and State policies promote or restrict wind energy production. The modeled levels of wind energy capacity that would be developed in each of the States within the UGP Region to meet a goal for 20 percent of the Nation's electrical generation to be from wind energy by 2030 (as presented by Kiesecker et al. 2011) is shown in table B-3. As for Case 1, the number of turbines needed to meet the projected capacity (table B-3) was estimated by assuming that each turbine would be capable of generating 1.5 MW of electricity.

TABLE B-1 Installed Capacity (MW) for States within the UGP Region, 2000–2010

	Year										
State	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Iowa	242.4	324.2	422.7	471.8	634.0	836.3	932.2	1,272.9	2,791.2	3,603.9	3,675.0
Minnesota	291.2	319.8	337.7	558.3	600.1	745.4	895.9	1,299.8	1,752.8	1,810.0	2,192.0
Montana	0.1	0.1	0.4	1.1	1.1	136.9	145.9	152.9	271.5	375.0	386.0
Nebraska	2.8	2.8	14.0	14.0	14.0	73.4	73.4	71.9	116.9	152.9	213.0
North Dakota	0.4	0.4	4.8	66.3	66.3	97.8	178.3	344.8	714.5	1,202.6	1,424.0
South Dakota	0.0	2.6	3.0	44.3	44.3	44.3	44.3	98.3	186.8	313.2	709.0
Region Total	536.9	649.9	782.5	1,155.7	1,359.8	1,934.0	2,269.9	3,240.6	5,833.7	7,457.6	8,599.0

Source: DOE (2011).

TABLE B-2 Current and Predicted Development of Wind Energy Capacity and Estimated Number of Wind Turbines under the Case 1 Projection for the UGP Region

	Capacity (MW)			Number of Turbines[a]		
State	2010[b]	2030[c]	Increase	2010	2030	Increase
Iowa	3,675	9,597	5,922	2,450	6,398	3,948
Minnesota	2,192	5,475	3,283	1,461	3,650	2,189
Montana	386	1,115	729	257	743	486
Nebraska	213	514	301	142	343	201
North Dakota	1,424	3,451	2,027	949	2,301	1,352
South Dakota	709	1,274	565	473	850	377
UGP Region	8,599	21,427	12,828	5,733	14,285	8,522

[a] Number of turbines estimated by assuming each turbine would generate 1.5 MW.

[b] Source: DOE (2011).

[c] Capacity for 2030 was estimated by assuming that the rate of increase would be similar to the annual rate of increase in wind energy capacity from 2000 through 2010.

TABLE B-3 Current and Predicted Development of Wind Energy Capacity and Estimated Number of Wind Turbines under the Case 2 Projection for the UGP Region

	Capacity (MW)			Number of Turbines[a]		
State	2010[b]	2030[c]	Increase	2010	2030	Increase
Iowa	3,675	19,910	16,235	2,450	13,273	10,823
Minnesota	2,192	9,940	7,748	1,461	6,627	5,165
Montana	386	5,260	4,874	257	3,507	3,249
Nebraska	213	7,880	7,667	142	5,253	5,111
North Dakota	1,424	2,260	836	949	1,507	557
South Dakota	709	8,060	7,351	473	5,373	4,901
UGP Region	8,599	53,310	44,711	5,733	35,540	29,807

[a] Number of turbines estimated by assuming each turbine would generate 1.5 MW.

[b] Source: DOE (2011).

[c] Sources: DOE (2008) and Kiesecker et al. (2011).

B.3 DIFFERENCE BETWEEN THE ESTIMATED LEVELS OF DEVELOPMENT

The projected overall wind energy capacity and numbers of turbines for the UGP States by 2030 under Case 1 and Case 2 differ considerably (table B-4). Table B-5 presents the new generation capacity and number of additional turbines that would be needed to reach the levels of wind energy development projected under Case 1 and Case 2. With the exception of North Dakota, the levels of development projected based upon past development are lower than the levels projected based upon modeling conducted by NREL (DOE 2008). This indicates that the rate of wind energy development in most of the UGP States and region-wide would likely need to increase dramatically to meet a goal of 20 percent of the Nation's electrical generation being supplied by wind energy by 2030. In effect, the estimates under Case 1 and Case 2 bound the anticipated levels of wind energy development within the UGP Region through 2030.

TABLE B-4 Comparison of Overall Projected Capacity and Number of Turbines for Wind Energy Development in the UGP Region States by 2030

	Projected Capacity (MW)			Number of Turbines		
State	Case 1	Case 2	Difference	Case 1	Case 2	Difference
Iowa	9,597	19,910	10,313	6,398	13,273	6,875
Minnesota	5,475	9,940	4,465	3,650	6,627	2,976
Montana	1,115	5,260	4,145	743	3,507	2,764
Nebraska	514	7,880	7,366	343	5,253	4,910
North Dakota	3,451	2,260	−1,191	2,301	1,507	−794
South Dakota	1,274	8,060	6,786	850	5,373	4,524
UGP Region	21,427	53,310	31,883	14,285	35,540	21,255

TABLE B-5 Comparison of Estimated New Generation Capacity and Additional Number of Turbines Needed to Meet Projected Wind Energy Development in the UGP Region States by 2030

	Projected Capacity (MW)			Number of Turbines		
State	Case 1	Case 2	Difference	Case 1	Case 2	Difference
Iowa	5,922	16,235	10,313	3,948	10,823	6,875
Minnesota	3,283	7,748	4,465	2,189	5,165	2,976
Montana	729	4,874	4,145	486	3,249	2,763
Nebraska	301	7,667	7,366	201	5,111	4,910
North Dakota	2,027	836	−1,191	1,352	557	−795
South Dakota	565	7,351	6,786	377	4,901	4,524
UGP Region	12,828	44,711	31,883	8,552	29,807	21,255

B.4 DEVELOPMENT RELEVANT TO THE PROPOSED ACTION

Depending upon the method (Case 1 or Case 2) used to estimate future wind energy development, it is estimated that approximately an additional 8,600 to 30,000 wind turbines and associated infrastructure would be installed in the UGP Region by 2030. On the basis of information for wind energy projects that have connected to transmission facilities managed by Western Area Power Administration (Western) within the UGP Region (table B-6), it is assumed that a typical project would be composed of 75 turbines and would have a generation capacity of approximately 112 MW. Using information from Denholm et al. (2009), which estimates a wind energy project will encompass 84 ac (34 ha) of land per MW of capacity, it is estimated that the area encompassed by a typical project would be approximately 9,500 ac (3,845 ha) (including permanently disturbed, temporarily disturbed, and undisturbed lands). Combining these estimates, it is anticipated that about 115 to 400 new wind energy projects, encompassing a total area of about 1.1 to 3.8 million ac (0.4 million to 1.5 million ha) could be developed within the UGP Region States by 2030; most of this land area would not be directly disturbed by project activities.

On the basis of information provided by Denholm et al. (2009) for 172 individual wind energy projects totaling 26,462 MW of capacity, the average amount of land that would be permanently affected, temporarily affected, and the average overall project area was estimated using values of 0.7, 1.7, and 84 ac (0.3, 0.7, and 34 ha) per MW of generation, respectively. Using these values, which are based on information for modern wind power plants in the United States and incorporate disturbance for areas affected by turbine towers, access roads, substations, and transmission facilities associated with development of wind farms, between 15,000 and 40,000 ac (6,070 and 16,187 ha) of land within the UGP Region could be permanently affected by existing and new wind energy development by 2030; an additional 37,000 to 92,000 ac (14,973 to 37,231 ha) of land could be affected by temporary disturbance from development activities, resulting in a total of about 52,000 to 132,000 ac (21,043 to 53,419 ha) of land that could be disturbed by existing and new wind energy development (table B-7).

It is estimated that 8,600 to 30,000 additional turbines would need to be installed in the UGP Region by 2030 to generate the increased capacity (table B-5) and that approximately 9,500 to 33,000 ac (3,845 to 13,355 ha) of land would be permanently affected by the footprints of turbine towers and other infrastructure associated with this level of development (table B-8). An additional 22,000 to 77,000 ac (8,903 to 31,160 ha) would be temporarily affected by new development activities, resulting in a total of about 32,000 to 110,000 ac (12,950 to 44,515 ha) of new land that could be disturbed by wind energy development by 2030 (table B-8).

Predicting where future wind energy development is likely to occur within the UGP Region is difficult. Not all of the lands within the UGP Region are suitable for development of wind energy projects because of factors such as lack of suitable wind regimes, unsuitable land cover types, steep slopes, open water and wetland areas, urban development, and Federal and State land use restrictions.

NREL has modeled and mapped the wind resources in each of the UGP States and has assigned class designations to indicate the potential for wind power generation (figure B-2). Wind power classes range from 1 to 7; Class 7 has the highest potential wind power generation

TABLE B-6 Installed Capacity and Number of Turbines for Wind Energy Projects within the UGP Region from 2000 through 2010

State	Project Name	Capacity (MW)	Number of Turbines
IA	Endeavor	100	40
IA	Endeavor II	50	20
IA	Intrepid	160	107
IA	Pomeroy Wind Phase I	123	87
MN	Chanarambie	85	57
MN	Elm Creek Wind Farm	99	66[a]
MN	Elm Creek II	150	62
MN	Trimont Area Wind Farm	100	67
MN	Fenton Wind Farm	205	137
MN	Jeffers Wind Farm	50	20
MN	Moraine Wind	51	34
MN	Moraine Wind II	48	23
MN	Stoneray Wind Power	105	70
NE	Elkhorn Ridge Wind Energy	80	27
SD	Buffalo Ridge	306	204
SD	White Wind Farm	200	103
SD	Wessington Springs	99	66
SD	South Dakota Wind	41	27
SD	MinnDakota Wind II	54	36
ND	Ashtabula Wind Phase II	200	133
ND	Wilton Wind	50	33
ND	Tatanka Wind	180	120
ND	North Dakota Wind 1 & 2	62	41
ND	Langdon Wind	159	106
MT	Glacier McCormick Ranch Phase I	120	60
MT	Judith Gap	135	90
MT	Valley County Wind	170	114
Total within UGP Region		3,182	1,950

[a] Value not reported, but the number of turbines was calculated based on capacity, using an assumption of 1.5 MW per turbine.

Source: Stas (2011).

and Class 1 has the lowest. On the basis of projected wind technology development, NREL has determined that wind resources in Class 3 and higher could be economically developable by 2030 (i.e., during the time frame under consideration). Therefore, for the purposes of evaluating which resources would be at the most risk from wind energy development to be considered as part of the proposed program, the focus is on those areas where the wind resource potential is Level 3 or greater (figure B-2). Overall, most areas within the UGP Region are predicted to have a suitable wind resource for wind energy development. It should be noted that development of transmission lines to connect proposed wind energy projects to existing transmission services would not be limited to areas with suitable wind potential.

Because of the expense of acquiring rights-of way and building transmission lines, the cost of a wind energy project would increase significantly with increasing distance from existing

TABLE B-7 Comparison of Overall Land Area Disturbance[a] for Wind Energy Development in the UGP Region States by 2030 under Case 1 and Case 2 Development Projections

	Permanent Disturbance (ac)[b]		Temporary Disturbance (ac)[c]		Total Disturbance (ac)		Project Area (ac)[d]	
State	Case 1	Case 2	Case 1	Case 2	Case 1	Case 2	Case 1	Case 2
Iowa	7,111	14,753	16,593	34,424	23,705	49,178	805,964	1,672,042
Minnesota	4,057	7,366	9,467	17,186	13,524	24,552	459,824	834,761
Montana	826	3,898	1,927	9,095	2,753	12,992	93,597	441,735
Nebraska	381	5,839	890	13,625	1,271	19,464	43,207	661,762
North Dakota	2,558	1,675	5,968	3,908	8,525	5,582	289,856	189,795
South Dakota	944	5,972	2,203	13,936	3,147	19,908	107,013	676,879
UGP Region Total	15,878	39,503	37,048	92,173	52,925	131,676	1,799,462	4,476,974

[a] Values were calculated based upon information in Denholm et al. (2009) and include estimated land disturbance for existing wind energy projects.

[b] Permanent disturbance area estimated using a value of 0.7 ac (0.3 ha) per MW of capacity.

[c] Temporary disturbance area estimated using a value of 1.7 ac (0.7 ha) per MW of capacity.

[d] Project area estimated using a value of 84 ac (34 ha) per MW of capacity.

TABLE B-8 Comparison of Additional Land Area Disturbance[a] Needed to Meet Wind Energy Development in the UGP Region States by 2030 under Case 1 and Case 2 Development Projections

	Permanent Disturbance (ac)[b]		Temporary Disturbance (ac)[c]		Total Disturbance (ac)		Project Area (ac)[d]	
State	Case 1	Case 2	Case 1	Case 2	Case 1	Case 2	Case 1	Case 2
Iowa	4,388	12,030	10,239	28,070	14,628	40,100	497,338	1,363,415
Minnesota	2,433	5,741	5,677	13,396	8,110	19,138	275,740	650,677
Montana	540	3,612	1,260	8,427	1,799	12,039	61,180	409,319
Nebraska	223	5,681	521	13,256	745	18,937	25,319	643,875
North Dakota	1,502	619	3,506	1,445	5,008	2,065	170,269	70,207
South Dakota	419	5,447	977	12,710	1,396	18,157	47,471	617,337
UGP Region Total	9,506	33,131	22,180	77,305	31,686	110,436	1,077,318	3,754,830

[a] Values were calculated based upon information in Denholm et al. (2009).

[b] Permanent disturbance area estimated using a value of 0.7 ac (0.3 ha) per MW of capacity.

[c] Temporary disturbance area estimated using a value of 1.7 ac (0.7 ha) per MW of capacity.

[d] Project area estimated using a value of 84 ac (34 ha) per MW of capacity.

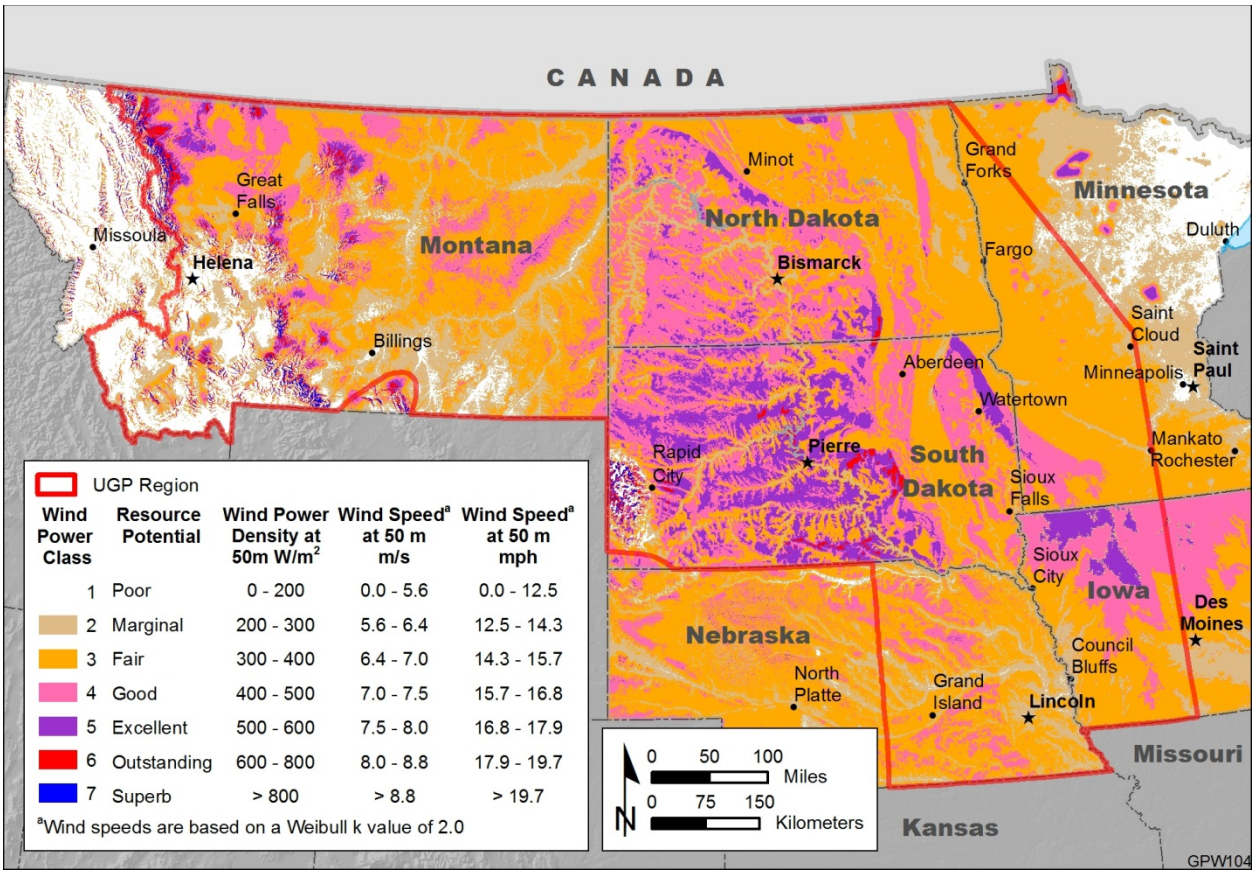

FIGURE B-2 Distribution of Wind Energy Resources in the UGP Region

transmission services to which it could connect. Therefore, to further delineate the areas within the UGP Region where wind energy projects are likely to request interconnection to Western's transmission facilities, areas within 25 mi (40 km) of existing substations on the transmission infrastructure operated by Western were identified (figure B-3). Natural resources that overlap these areas are considered to be more likely to be affected by projects that would be evaluated under the proposed wind energy program. Overall, the areas within 25 mi (40 km) of these substations encompass more than 97 million ac (39 million ha) within the UGP Region. From 2000 through 2010, 27 wind energy projects, with a total capacity of 3,182 MW, interconnected to Western's transmission system within the UGP Region (table B-6). To date, four wind energy projects have been allowed to place turbines on U.S. Fish and Wildlife Service (USFWS) easements within the UGP Region through easement exchange. In total, 33 turbines have been placed on easements lands.

In addition to the wind resource alone, a number of assumptions were used regarding factors that affect the appropriateness of particular locations for wind energy development in order to identify which areas within the UGP Region would be most suitable for wind energy development. A similar analysis was conducted by the Western Governors' Association to evaluate the suitability of lands in the western United States for development of renewable energy facilities (Western Governors' Association and DOE 2009). Information and assumptions regarding suitability criteria for utility-scale wind energy development for that analysis were incorporated into our analysis. In general, the suitability analysis assigned

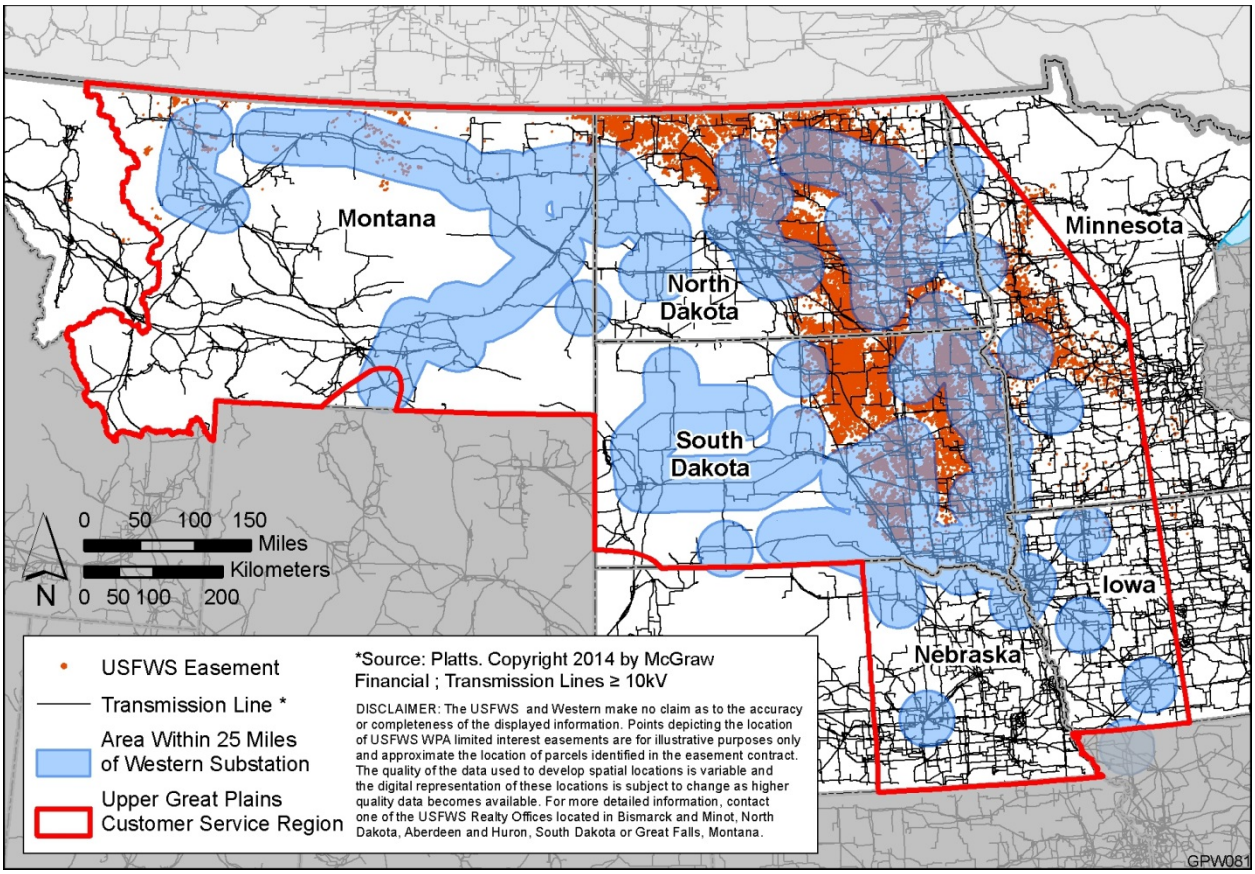

FIGURE B-3 Areas within 25 mi (40 km) of Western's Transmission Substations within the UGP Region, Together with General Locations of USFWS Easements

weights to spatial information for land cover, slope, wind power class, protected lands, and proximity to existing energy infrastructure to develop an overall index of wind development suitability for locations within the UGP Region. These index values were than categorized as low, medium, and high suitability. The methods for calculating the suitability index values are described in Appendix E of this programmatic environmental impact statement, and the results of the analysis are presented in figure B-4 and table B-9.

On the basis of analyses conducted, the land area needed to accommodate new projects (1.1 million to 3.8 million ac [0.4 million to 1.5 million ha] for 115 to 400 projects) to build out wind energy to the projected levels would encompass about 2.1 to 7.2 percent of the lands identified as having high suitability for wind energy development within the UGP Region. It is also estimated that all permanently and temporarily disturbed lands would require between 0.1 and 0.2 percent of the lands identified as having high suitability for wind energy development within the UGP Region.

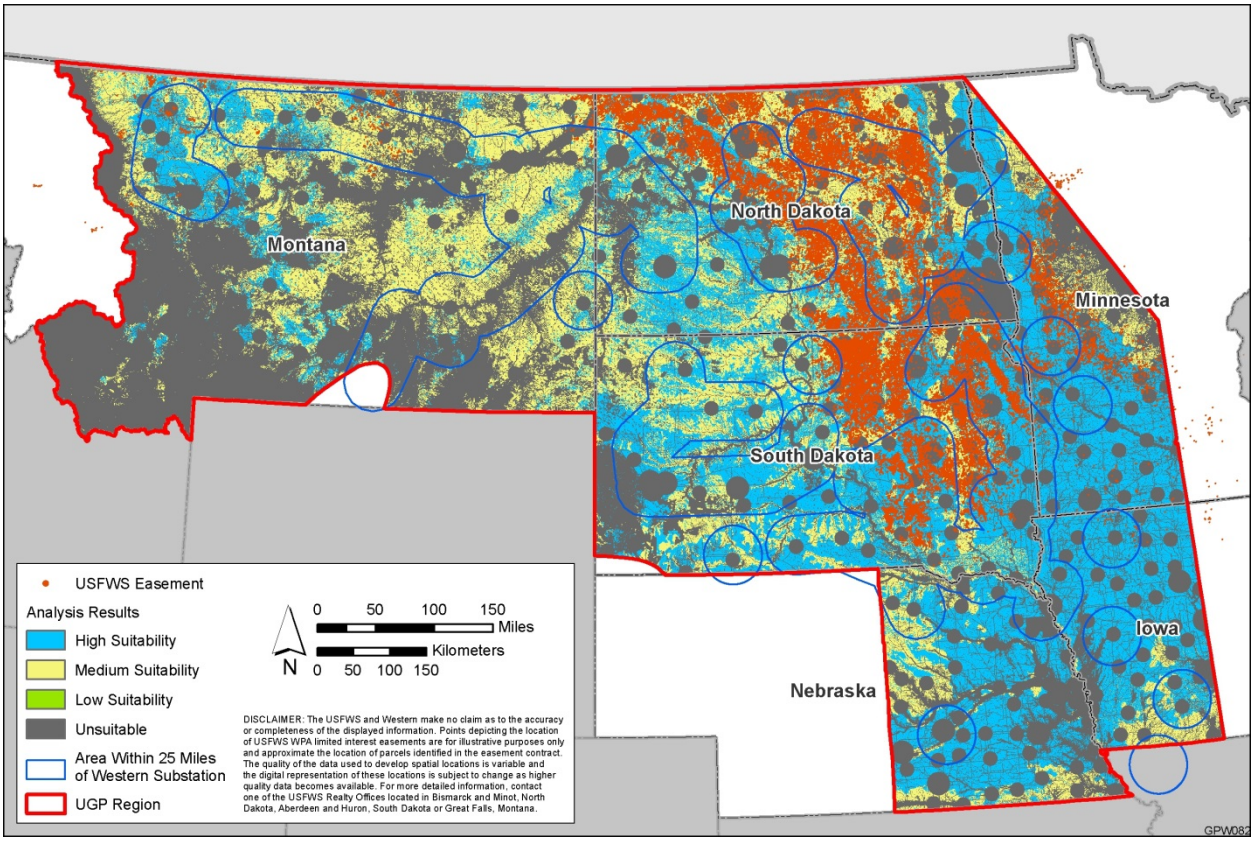

FIGURE B-4 Wind Energy Development Suitability for Lands within the UGP Region, Together with Areas within 25 mi (40 km) of Western's Transmission Substations and General Locations of USFWS Easements

TABLE B-9 Estimated Acreages of Lands within Wind Development Suitability Categories for the UGP Region

Potential for Wind Energy Development	UGP Region	Within 25 mi of Western Transmission	Portions of States within Region (ac)					
			Iowa	Minnesota	Montana	Nebraska	North Dakota	South Dakota
Low[a]	110,868,000	39,847,845	6,796,498	9,973,053	47,537,348	10,380,614	18,756,672	17,394,058
Medium	65,093,977	27,476,285	2,486,997	2,488,954	23,952,728	4,770,103	16,032,379	15,338,596
High	52,621,694	25,101,575	6,546,237	8,429,032	5,288,550	5,765,765	10,457,785	16,126,897
Total	228,583,671	92,425,705	15,829,733	20,891,040	76,778,625	20,916,482	45,246,836	48,859,552

[a] Includes lands classified as unsuitable for wind energy development.

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APPENDIX C

ECOREGIONS OF THE UPPER GREAT PLAINS REGION

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APPENDIX C

ECOREGIONS OF THE UPPER GREAT PLAINS REGION

An ecoregion is defined as an area that has a general similarity of ecosystems and is characterized by the spatial pattern and composition of biotic and abiotic features, including vegetation, wildlife, geology, physiography, climate, soils, land use, and hydrology (EPA 2007). Ecoregions of the United States as mapped and described by the U.S. Environmental Protection Agency (EPA) are presented here as the basis for describing visual resources and ecosystems at a general level. The Level III ecoregion classification includes 15 ecoregions covering the Western Area Power Administration's Upper Great Plains Customer Service Region (UGP Region; Figure C-1). The ecoregion descriptions presented here are derived primarily from EPA (2002), except where noted. In some cases, Level IV ecoregion information was used to supplement the Level III ecoregion descriptions. Level IV ecoregion supplemental data presented here are derived from Bryce et al. (1996), Chapman et al. (2001, 2002), and Woods et al. (2002).

In the ecoregion descriptions presented here, "major urban areas" are defined as urban areas with populations exceeding 50,000, except where noted. "Major roads" are defined as U.S. highways and Interstate highways.

IDAHO BATHOLITH. Within the UGP Region, this ecoregion is found in western Montana at elevations ranging from 6,142 to 9,692 ft (1,872 to 2,954 m), and covering 282.74 mi^2 (732.28 km^2). This ecoregion is a dissected, partially glaciated, mountainous plateau. Many perennial streams originate here and water quality can be high if basins are undisturbed. Deeply weathered, acidic, intrusive igneous rock is common. Soils are sensitive to disturbance, especially when stabilizing vegetation is removed. Grand fir, Douglas fir, and—at higher elevations—Engelmann spruce and subalpine fir occur; ponderosa pine, shrubs, and grasses grow in very deep canyons. The highest elevations are above tree line, and are characterized by tundra, alpine grassland, subirrigated meadows, and wetlands. Logging, grazing, mining, and recreation are common land uses. There are no major populated areas, and few roads.

MIDDLE ROCKIES. Within the UGP Region, this ecoregion is found in western Montana and western South Dakota (Black Hills region), at elevations ranging from 2,999 to 12,402 ft (914 to 3,780 m), and covering 25,912.90 mi^2 (67,114.09 km^2). The climate of the Middle Rockies lacks a strong maritime influence. Mountains have Douglas fir, subalpine fir, and Engelmann spruce forests and alpine areas; Pacific tree species are never dominant. Forests can be open. Foothills are partly wooded or shrub and grass covered. Intermontane valleys are grass and/or shrub covered and contain a mosaic of terrestrial and aquatic fauna that is distinct from the nearby mountains. Many mountain-fed, perennial streams occur and differentiate the intermontane valleys from the Northwestern Great Plains. Granitics and associated management problems are less extensive than in the Idaho Batholith. Recreation, logging, mining, and summer livestock grazing are common land uses. Within the Montana portion of the UGP Region, this ecoregion includes scenic resources of national importance, including the Lewis and Clark Trail and the BLM's Judith Mountain Scenic ACEC. The Black

FIGURE C-1 Level III Ecoregions within the UGP Region (Source: EPA 2011)

Hills region of South Dakota is an area of high scenic value and an important recreational and tourist area. Sensitive visual resources of national importance in this area include Jewel Cave, Wind Cave, and Mount Rushmore. Significant urban areas include Helena, Montana, and Rapid City, South Dakota, and there are several major roads, including sections of I-90 and I-15.

WYOMING BASIN. Within the UGP Region, this ecoregion is found in south central Montana, at elevations ranging from 3,760 to 7,156 ft (1,146 to 2,181 m), and covering 122.28 mi^2 (316.71 km^2). The portion of the ecoregion in Montana is within the Bighorn Basin Level IV ecoregion. The Bighorn Basin lies in the rain shadow of the Beartooth Plateau. It includes some of the driest places in Montana, and parts receive an average of only 6 in. (15 cm) of precipitation per year. Unleached, nearly white soils commonly occur and are often alkaline and/or gypsiferous. The potential natural vegetation is mostly sagebrush steppe and is distinct from that of the surrounding ecoregions. Most land is used for grazing, but some irrigated agriculture occurs, especially near the Yellowstone River. There are no major populated areas, and few major roads.

WESTERN HIGH PLAINS. Within the UGP Region, this ecoregion is found in southwestern South Dakota, at elevations ranging from 2,782 to 3,698 ft (848 to 1,127 m), and covering 964.92 mi^2 (2,499.14 km^2). The Western High Plains ecoregion is a landscape of rolling plains and tablelands formed by the erosion of the Rocky Mountains. The portion of the ecoregion in South Dakota is within the Pine Ridge Escarpment Level IV ecoregion, and lies entirely within the Pine Ridge Indian Reservation. The Pine Ridge Escarpment forms the boundary between the Missouri Plateau to the north and the High Plains to the south. Ponderosa pines are present on the northern face and the ridgecrest outcrops of sandstone. Cattle graze the rolling grasslands of the Pine Ridge Indian Reservation, and there is limited agriculture and logging as well. Mixed-grass prairie vegetation dominates this northern extremity of the Western High Plains. Sensitive visual resource areas of national importance within this region include Badlands National Park, which overlaps the northern edge of the northernmost portion of the Pine Ridge Escarpment. There are no major populated areas, and few major roads.

CENTRAL GREAT PLAINS. Within the UGP Region, this ecoregion is found in southeastern Nebraska, at elevations ranging from 1,191 to 2,510 ft (363 to 765 m), and covering 13,809.44 mi^2 (35,766.28 km^2). The Central Great Plains are slightly lower, receive more precipitation, and are somewhat more irregular than the Western High Plains to the west. Once a grassland with scattered low trees and shrubs in the south, much of this ecological region is now cropland, the eastern boundary of the region marking the eastern limits of the major winter wheat growing area of the United States. A number of small towns are located in the region, but there are no major urban areas. Sensitive visual resources of national importance include several National Historic Trails: Oregon Trail, California Trail, Mormon Pioneer Trail, and Pony Express Trail. Within the ecoregion, these trails generally follow the courses of the Platte, Loup, and Little Blue Rivers. There are several major roads, including a section of I-80.

CENTRAL IRREGULAR PLAINS. Within the UGP Region, this ecoregion is found in south-central Iowa, at elevations ranging from 883 to 1,348 ft (269 to 411 m), and covering 960.37 mi^2 (2,487.35 km^2). Within Iowa, this portion of the ecoregion is within the Loess Flats and Till Plains Level IV ecoregion. Deep to moderate loess deposits over glacial till and dark shallow soils are characteristic of the Loess Flats and Till Plains ecoregion. Loess deposits generally increase to the south, especially near the Missouri River. Several streams have headwaters in this region, and the topography varies from flat to moderately hilly. Valley sides are not steep, with slopes generally less than 10 percent. The Chariton River area is a more dissected and hilly area within this region. It lacks glacial till in many places and has a greater drainage density and more woody vegetation in stream reaches than in other parts of the ecoregion. Natural wetlands occur along the Grand River and several other rivers in the region. Soils are inherently fertile, but use can be limited due to severe erosion. Land use includes areas of cropland, pasture in the valleys and on upland slopes, and bands of woodland. Corn and soybeans are the major crops. Sensitive visual resources of national importance within the ecoregion include the Mormon Pioneer National Historic Trail. There are no major populated areas, and few major roads.

CANADIAN ROCKIES. Within the UGP Region, this ecoregion is found in western Montana, at elevations ranging from 4,190 to 10,000 ft (1,277 to 3,048 m), and covering 2,254.79 mi^2 (5,839.88 km^2). It straddles the border between Alberta and British Columbia in Canada and extends southeastward into northwestern Montana. Vegetation is mostly Douglas fir, spruce, and lodgepole pine at lower elevations and alpine fir at middle elevations. The higher elevations are treeless alpine. A large part of the region is in national parks (primarily Glacier National Park), where tourism is the major land use and where scenic values are generally very high. Forestry and mining occur on the non-park lands. There are no major populated areas, and few major roads.

NORTHWESTERN GLACIATED PLAINS. Within the UGP Region, this ecoregion is found in Northern Montana, Northern Nebraska, and North and South Dakota, at elevations ranging from 1,207 to 6,401 ft (368 to 1,951 m), and covering 67,504.98 mi^2 (174,837.09 km^2). The Northwestern Glaciated Plains ecoregion is a transitional region between the generally moister, more level, and more agricultural Northern Glaciated Plains to the east and the generally more irregular, dryer Northwestern Great Plains to the west and southwest. The western and southwestern boundary roughly coincides with the limits of continental glaciation. Pocking this ecoregion is a moderately high concentration of semi-permanent and seasonal wetlands, locally referred to as “prairie potholes.” Land uses are primarily agriculture and grazing (especially on steeper slopes), with numerous wetlands, and some forested areas and native prairie. Oil production occurs in some places. Sensitive visual resource areas within the ecoregion include the Lewis and Clark National Historic Trail, the North Country National Scenic Trail, portions of the Missouri and Niobrara Rivers designated as National Wild and Scenic Rivers, and Nez Perce National Historical Park. Bismarck, North Dakota, and Great Falls, Montana, are the only major urban area within the ecoregion. There are a number of major roads in this region, including sections of I-15, I-94 and I-90.

NORTHWESTERN GREAT PLAINS. Within the UGP Region, this ecoregion is found in Montana, Nebraska, and North and South Dakota, at elevations ranging from 1,355 to 9,419 ft

(413 to 2,871 m), and covering 114,911.61 mi^2 (297,619.70 km^2). The Northwestern Great Plains ecoregion encompasses the Missouri Plateau section of the Great Plains. It is a semiarid rolling plain of shale and sandstone punctuated by occasional buttes. Native grasslands, largely replaced on level ground by spring wheat and alfalfa, persist in rangeland areas on broken topography. Agriculture is restricted by the erratic precipitation and limited opportunities for irrigation. Land uses include grazing, crop production, scattered coal production, and recreation, with logging in wooded areas. Sensitive visual resource areas within the ecoregion include Badlands National Park, Theodore Roosevelt National Park, Bighorn Canyon National Recreation Area, Little Bighorn Battlefield National Monument, Lewis and Clark National Historic Trail, the North Country National Scenic Trail, portions of the Missouri and Niobrara Rivers designated as National Wild and Scenic Rivers, Fort Union Trading Post, and Knife River Indian Villages and Minuteman Missile National Historic Sites. Within the portion of the ecoregion in Western's service area, Billing, Montana, and Pierre, South Dakota are the only major urban areas, and Pierre's population is less than 15,000. There are a number of major roads in this vast ecoregion, including sections of I-94 and I-90.

NEBRASKA SANDHILLS. Within the UGP Region, this ecoregion is found in north-central Nebraska and southern South Dakota, at elevations ranging from 1,342 to 3,642 ft (409 to 1,110 m), and covering 3,512.35 mi^2 (9,096.93 km^2). The Nebraska Sandhills comprise one of the most distinct and homogenous ecoregions in North America. One of the largest areas of grass-stabilized sand dunes in the world, this region is generally devoid of cropland agriculture and, except for some riparian areas in the north and east, the region is treeless. Large portions of this ecoregion contain numerous lakes and wetlands and have a lack of streams. Cattle grazing is common. Only the easternmost and extreme northernmost portions of the ecoregion are contained within the UGP Region. Very small portions of these areas contain lakes. Most of the South Dakota portion of the ecoregion within the service area is sandhill landscape (generally low east-west grassy ridges), while the Nebraska portion of the ecoregion within the UGP Region is about evenly split between sandhill landscape and the flat, sandy plains of the Wet Meadow and Marsh Plain Level IV ecoregion. Unlike the strictly rangeland characteristics of other Sand Hills regions, land use in the Wet Meadow and Marsh Plain Level IV ecoregion is a mix of rangeland, hayed meadows, and more extensive irrigated cropland. The region is very sparsely populated, with few major roads.

NORTHERN GLACIATED PLAINS. Within the UGP Region, this ecoregion is found in Minnesota and North and South Dakota, at elevations ranging from 915 to 2,507 ft (279 to 764 m), and covering 54,549.59 mi^2 (141,282.79 km^2). The Northern Glaciated Plains ecoregion is characterized by a flat to gently rolling landscape composed of glacial till; however, there is some wooded and hilly terrain within the far northern portions of the ecoregion. The subhumid conditions foster transitional grassland containing tall-grass and short-grass prairie. High concentrations of temporary and seasonal wetlands create favorable conditions for waterfowl nesting and migration. Though the till soils are very fertile, agricultural success is subject to annual climatic fluctuations. Much of the ecoregion is devoted to crop production. Sensitive visual resource areas of national significance include the North Country Scenic Trail and the Lewis and Clark Trail, which borders the extreme southern end of the ecoregion on the Missouri River. There are many small towns within this ecoregion, but no major urban areas. Several Interstate highways pass through the ecoregion (I-94, I-90, I-29).

WESTERN CORN BELT PLAINS. Within the UGP Region, this ecoregion is found in Iowa, Minnesota, Nebraska, and South Dakota, at elevations ranging from 761 to 2,067 ft (232 to 630 m), and covering 49,387.10 mi^2 (127,912.00 km^2). Once covered with tall-grass prairie, over 75 percent of the Western Corn Belt Plains is now used for cropland agriculture and much of the remainder is in forage for livestock. A combination of nearly level to gently rolling glaciated till plains and hilly loess plains, an average annual precipitation of 25–35 in. (63–89 cm) that occurs mainly in the growing season, and fertile, warm, moist soils make this one of the most productive areas of corn and soybeans in the world. The northeastern portion of the ecoregion within the UGP Region consists primarily of rolling plains dominated by row crops and pasture, while portions of the ecoregion in far western Iowa and eastern Nebraska are hilly, and more likely to have wooded areas. Because the ecoregion within the UGP Region includes portions of the Platte and Missouri Rivers, several National Historic Trails pass through the ecoregion and constitute sensitive visual resources of national significance, including the Oregon Trail, California Trail, Mormon Pioneer Trail, Pony Express Trail, and the Lewis and Clark Trail. In addition, a portion of the Missouri River within the ecoregion is designated as a National Scenic River. The ecoregion within Western's service area includes several major urban areas, specifically Council Bluffs and Sioux City, Iowa, and Lincoln, Nebraska. There are numerous major roads, including several Interstate highways (I-80, I-680, I-90, and I-29).

LAKE AGASSIZ PLAIN. Within the UGP Region, this ecoregion is found in Minnesota and North and South Dakota, at elevations ranging from 787 to 1,404 ft (240 to 428 m), and covering 12,992.78 mi^2 (33,651.14 km^2). Glacial Lake Agassiz was the last in a series of proglacial lakes to fill the Red River valley in the three million years since the beginning of the Pleistocene. Thick beds of lake sediments on top of glacial till create the extremely flat floor of the Lake Agassiz Plain. The historic tall-grass prairie has been replaced by intensive row crop agriculture. The preferred crops in the northern half of the region are potatoes, beans, sugar beets, and wheat; soybeans, sugar beets, and corn predominate in the south. The landscape is predominantly flat, but with low ridges of gravel and sand in the easternmost portion of the ecoregion. Sensitive visual resources of national significance within this ecoregion and within the UGP Region include the North Country National Scenic Trail. Fargo, North Dakota, is the single large urban area in the ecoregion. There are several major roads within the ecoregion, including sections of I-94 and I-29.

NORTHERN LAKES AND FORESTS. Within the UGP Region, this ecoregion is found in Minnesota, at elevations ranging from 1,181 to 2,001 ft (360 to 610 m), and covering 1,154.94 mi^2 (2,991.29 km^2). The portion of the ecoregion within the Western service region is within the Itasca and St. Louis Moraines Level IV ecoregion and the Wadena/Todd Drumlins and Osakis Till Plain Level IV ecoregion. The Northern Lakes and Forests is a region of nutrient-poor glacial soils, coniferous and northern hardwood forests, undulating till plains, moraine hills, broad lacustrine basins, and extensive sandy outwash plains. Soils in this ecoregion are thicker than in those to the north and generally lack the arability of soils in adjacent ecoregions to the south. The numerous lakes that dot the landscape are clearer and less productive than those in ecoregions to the south. The Itasca and St. Louis Moraines Level IV ecoregion consists primarily of forested rolling landscape with some lakes, crops, and pasture. Sensitive visual resources of national significance within this ecoregion and within the UGP Region include the North Country National Scenic Trail. The Wadena/Todd Drumlins and Osakis Till Plain Level IV ecoregion contains primarily drumlins and rolling plains with row crops,

pasture, and woodland. There are a few small towns within these areas, but no large urban areas and few major roads.

NORTH CENTRAL HARDWOOD FORESTS. Within the UGP Region, this ecoregion is found in Minnesota, at elevations ranging from 771 to 1,739 ft (235 to 530 m), and covering 9,165.24 mi^2 (23,737.85 km^2). The North Central Hardwood Forests is transitional between the predominantly forested Northern Lakes and Forests to the north and the agricultural ecoregions to the south. The portion of the ecoregion within the Western service region consist primarily of rolling plains, with elevated knob and kettle landscapes and many lakes in the westernmost portion of the ecoregion. Land use/land cover in this ecoregion consists of a mosaic of forests, wetlands and lakes, cropland agriculture, pasture, and dairy operations. Sensitive visual resources of national significance within this ecoregion and within the UGP Region include the North Country National Scenic Trail, which passes through the northern portion of the ecoregion. Major urban areas include St. Cloud, Minnesota. There are few major roads, although the portion of the ecoregion within the UGP Region includes a section of I-94.

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APPENDIX D

PROGRAMMATIC BIOLOGICAL ASSESSMENT FOR WIND ENERGY DEVELOPMENT IN THE UGP REGION

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APPENDIX D

PROGRAMMATIC BIOLOGICAL ASSESSMENT FOR WIND ENERGY DEVELOPMENT IN THE UGP REGION

Programmatic Endangered Species Act of 1973 (ESA) Section 7 consultation was conducted and a programmatic biological assessment (BA) was prepared in conjunction with this programmatic environmental impact statement (PEIS) to address listed species and critical habitats present in the Upper Great Plains (UGP) Region. As described in the programmatic BA, the programmatic environmental evaluation process to be implemented under Alternatives 1 or 2, Western Area Power Administration (Western) and the U.S. Fish and Wildlife Service (USFWS) would conclude that additional ESA Section 7 consultation beyond the programmatic consultation would not be required for projects for which project developers commit to implementing appropriate and applicable programmatic BMPs, avoidance measures, minimization measures, and mitigation measures that would result in a determination that listed species and critical habitats are not likely to be adversely affected. Conversely, project-specific ESA Section 7 consultation would be initiated for (1) any listed species or critical habitat not considered in the programmatic consultation and (2) any listed species or critical habitat for which project developers are unwilling or unable to implement the programmatic best management practices (BMPs), avoidance measures, minimization measures, and mitigation measures applicable to a project.

ESA Section 7 consultation for individual projects that are addressed under the programmatic consultation will be documented through the use of one or more Project Consistency and Species Consistency Evaluation Forms to verify the action is consistent with the programmatic BA and the tiered approach identified in the USFWS's *Land-Based Wind Energy Guidelines*. Interconnection project proponents must complete the appropriate forms and submit them to Western. Western will review the completed forms to verify compliance with the conservation measures identified in the programmatic BA and will use the information, as described in the programmatic BA, to document that the requirements of the programmatic ESA consultation have been met. Proponents of projects involving easement exchanges must complete the appropriate forms and submit them to the USFWS lead for the project. The USFWS will review the completed forms to verify compliance with the conservation measures identified in the programmatic BA and will use the information, as described in the programmatic BA, to document that the requirements of the programmatic ESA consultation have been met.

The programmatic BA, including templates for the Project Consistency and Species Consistency Evaluation Forms, was included, in its entirety, as an electronic file on compact disks (CDs) used to distribute the Final PEIS. In addition, the programmatic BA is available for download from the project Web site (http://plainswindeis.anl.gov); additional download locations will be identified in the Record of Decision for the PEIS.

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APPENDIX E

THE UPPER GREAT PLAINS WIND ENERGY POTENTIAL DEVELOPMENT SUITABILITY MODEL

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APPENDIX E

THE UPPER GREAT PLAINS WIND ENERGY POTENTIAL DEVELOPMENT SUITABILITY MODEL

E.1 INTRODUCTION

The number of proposed, planned, and developed wind energy projects in the Western Area Power Administration's (Western) Upper Great Plains (UGP) Region is rapidly increasing. To facilitate a more informed assessment of the potential impacts related to wind energy development in the UGP Region, a location-specific model was created. The purpose of the UGP Wind Energy Potential Development Model (UGP Model) is to broadly quantify the suitability of the region for wind energy development in a spatial context, identify the approximate areas for likely development in the future, and determine the associated potential impacts of development to sensitive resources. While the UGP Model provides an estimate of suitability for locations throughout the study area, it was not used to identify wind energy zones.

Many recent studies have been conducted to help inform and improve decision making related to future energy development, which provided a basis for designing the UGP Model. One such study, the *Western Renewable Energy Zone — Phase I Report* (WGA and DOE 2009) commissioned by the Western Governors' Association (WGA), employed GIS analysis and stakeholder engagement to identify hubs most appropriate for future renewable energy projects in the western States. While the study included multiple types of renewable energy, the *Phase 1 Report* described several criteria specific to wind energy analyses that are applicable for the UGP Model.

The WGA is not the only organization to establish renewable energy zones in recent years. In 2008 the Colorado Governor's Energy Office published a revision to its 2007 study on the potential of various renewable energy technologies within the State (Colorado Governor's Energy Office 2008). The report, submitted in response to Colorado Senate Bill 07-091, briefly explains the potential of wind, solar, hydroelectric, and geothermal power, as well as biomass, ethanol, and biodiesel energy development within the State. The Colorado study used wind power class data from the National Renewable Energy Laboratory (NREL), to determine specific wind power generation development areas, mostly along the eastern edge of the State.

The Electric Reliability Council of Texas (ERCOT) contracted AWS Truewind (now AWS Truepower) to conduct a study in order to designate competitive renewable energy zones in Texas (ERCOT System Planning 2006). AWS Truewind used its proprietary meteorological model and stakeholder input to identify 25 potential zones. In addition, the Wind Energy Resource Zone Board of Michigan used GIS analysis for a wind siting study that resulted in the identification of four regions with the highest wind energy harvest potential in the State (PSC and MSU 2009). The Michigan Board ran 18 different scenarios varying setbacks from roads and open water, wind resource data, and included land types to determine the four optimal regions.

Two regional studies, prepared by Midwest ISO and ISO New England, did not seek to designate specific wind energy zones, but instead, to determine which areas are better suited for wind energy development. One of the overall goals of the *Regional Generation Outlet Study*

(MISO 2010) was to identify potential sites from eastern Montana to Ohio that had a combined rated capacity of at least 3,000 gigawatts. This was accomplished using the AWS Truewind meteorological model and included other limiting factors, such as slope and land use. ISO New England sought to determine the total onshore and offshore installed capacity within the region, given several transmission scenarios (Levitan & Associates, Inc. 2008). This analysis also used AWS Truewind data, as well as wind power class, population, water depth, and other restrictive factors (ISO-NE 2010).

These studies, along with several others, provided the basis for the UGP Model. Some factors included in the UGP Model were not present in all or any of the previously developed models. These factors, incorporated into the UGP Model based on expert input, produce a balanced model for studying the wind energy development potential of lands within Western's UGP Region.

E.2 METHODOLOGY

E.2.1 Model Design

The UGP Model included six major siting factors: wind resource potential, slope, land use, proximity to existing transmission infrastructure, protected areas, and potentially suitable habitat for threatened and endangered species. All model input rasters were clipped to the study area, had a cell size of 300 meters, and were in the USA Contiguous Albers Equal Area Conic USGS Version projected coordinate system with the North American 1983 datum. Suitability scores, which were assigned to the model input rasters and calculated in the model results, ranged from zero to one, with zero representing excluded lands and one representing the highest suitability. Table E.2-1 lists the data and sources used to develop the UGP Model.

E.2.2 Wind Resource Model Input Layer

Following the procedure cited in the *Western Renewable Energy Zone — Phase 1 Report*, only land with a NREL wind power class value of three or greater at 50 meters above ground was considered to be suitable for development in the UGP Model (WGA and DOE 2009). The exclusion of lands rated one or two for wind power class was prevalent throughout the various wind siting studies. The *Final Report of the Michigan Wind Energy Resource Zone Board* (PSC and MSU 2009) and the ISO New England *Phase II Wind Study* (Levitan & Associates, Inc. 2008) also only included lands rated three or better for analysis. The Wind Resource model input layer is comprised solely of this NREL wind power class data. For the UGP Model, individual State wind power class rasters were stitched together and then clipped to the study area. Wind power classes three to seven were assigned suitability values ranging from 0.2–1.0, while wind power classes one and two were assigned the exclusionary value of zero. Table E.2-2 displays the analysis values attributed to the NREL wind power classes in the UGP Model. Figure E.2-1 shows the wind resource model input layer.

TABLE E.2-1 Data Sources Used to Develop Model Inputs

Data	Source
25-mi buffer around Western substations	Western Area Power Administration (Western) (Weisbender 2009a)
Airports	National Transportation Atlas Database 2010 (Research and Innovative Technology Administration's Bureau of Transportation Statistics) (FAA 2010)
Areas of Critical Environmental Concern	Argonne National Laboratory, Bureau of Land Management (BLM) (Argonne 2008a)
Battlefields and Military Park Sites	National Park Service (NPS) (NPS 2010a)
Defined critical habitat	U.S. Fish and Wildlife Service (USFWS) (USFWS 2010)
Electric substations	Platts (2010a)
GAP potentially suitable habitat models	U.S. Geological Survey (USGS) GAP Analysis Program (USGS 2011)
Military installations, ranges, training areas	The Defense Installation Spatial Data Infrastructure (DISDI) Program (The DISDI Program 2010)
National Elevation Dataset 30-m digital elevation models	U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS) (USDA 2010)
National Historic and Scenic Trails	NPS (2003)
National Land Cover dataset	USDA NRCS (USDA 2001)
National Monuments	Argonne National Laboratory, from various sources (Argonne 2009)
National Park Service property	NPS (2010b)
National Scenic and Back Country Byways	National Scenic Byways Program (NSBP) (NSBP 2010)
National Wetland Inventory	USFWS, Division of Habitat and Resource Conservation (USFWS 2004)
Protected Areas Database of the United States, Version 1.1 for State lands, national conservation areas, and other protected areas	USGS National Gap Analysis Program (USGS 2010)
Surface management agency (Federal land ownership) for military lands, National Parks, National Wildlife Refuges	BLM (Reitsma 2010)
Surface water stream centerlines	National Atlas of the United States (ESRI 2004a)
Surface water body areas	National Atlas of the United States (ESRI 2004b)
Transmission lines	Platts (2010b)

TABLE E.2-1 (Cont.)

Data	Source
USFS roadless areas	U.S. Forest Service (USFS) (USFS 2008)
USFS specially designated areas	USFS (2000)
Western service boundary	Western (Weisbender 2009b)
Weather radar sites	National Oceanic and Atmospheric Administration (NOAA) (Crum 2009)
Wild and Scenic Rivers	USFS (2009)
Wilderness Areas	National Atlas of the United States (National Atlas 2005)
Wilderness Study Areas	Argonne National Laboratory, from BLM and USFS sources (Argonne 2008b)
Wind resource potential at 50 meters for Iowa	Iowa Energy Center (Slaats 2009)
Wind resource potential at 50 meters for Minnesota, Montana, Nebraska, North Dakota, South Dakota	National Renewable Energy Laboratory (NREL) (NREL 2000, 2002, 2005; Heimiller 2009)

TABLE E.2-2 Assigned Values in the Wind Power Class Model Input Layer

Wind Power Class	Analysis Value
1	0.0
2	0.0
3	0.2
4	0.4
5	0.6
6	0.8
7	1.0

E.2.3 Slope Model Input Layer

Another factor affecting the placement of wind turbines, especially for utility-scale wind projects, is the gradient of the land. Wind turbines cannot be readily placed on land that is too steep. The UGP Model excluded from analysis any land where the terrain slope was greater than 20 percent, or 11.31 degrees. Both the *Western Renewable Energy Zone – Phase 1 Report* (WGA and DOE 2009) and the Midwest ISO *Regional Generation Outlet Study* (MISO 2010) used this 20 percent threshold as well. For the UGP Model, the slope model input layer was first created by stitching together a number of 30-meter Digital Elevation Models and then running a percent rise slope analysis on the final output. The percent rise analysis resulted in values ranging from 0 to 527. For percent rise, the range is 0 to near infinity. A flat surface is

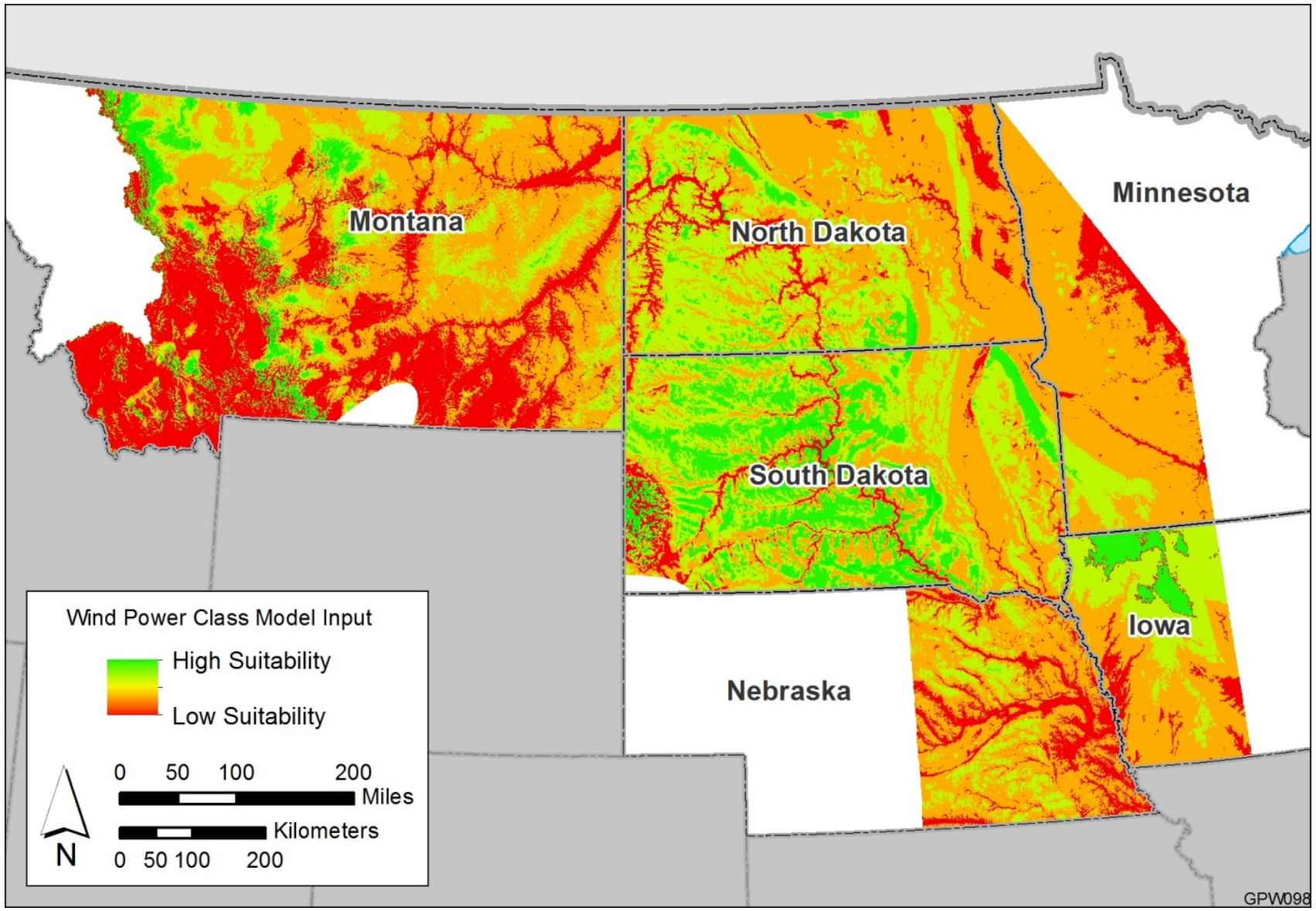

FIGURE E.2-1 Model Input Layer for Wind Resources

0 percent, a 45-degree surface is 100 percent, and as the surface becomes more vertical, the percent rise becomes increasingly larger. The highest percent rise value in the slope model input layer was 527 percent, which means the steepest area (cell in the GIS layer) within the UGP Region had a gradient of 79.25 degrees. All cells with a slope of less than 20 percent were given a suitability value of one and all cells with a slope of 20 percent or greater were assigned a suitability value of zero. The slope model input layer can be seen in figure E.2-2.

E.2.4 Land Use Model Input Layer

The UGP Model also factored land use into the analysis as a land constraint, in addition to wind power class and slope. The UGP Land Cover model input layer included land use information from the USGS National Land Cover Database (NLCD), stream centerlines and water bodies from the National Atlas, and wetland data from the National Wetland Inventory. The NLCD data contained a number of land types, some that were suitable for utility-scale wind projects and others that were not. Developed areas, for example, were one classification of NLCD lands excluded in both the UGP Model and the Midwest ISO *Regional Generation Outlet Study* (MISO 2010). Open water and wetlands, aside from uplands, were also deemed unsuitable for wind projects for the purpose of this analysis. Table E.2-3 indicates the values assigned to the attributes in the Land Cover model input layer. The compilation of all the land use factors is shown in figure E.2-3, the land use model input layer.

E.2.5 Transmission Infrastructure Model Input Layer

Access to electrical transmission infrastructure is an important requirement and cost factor for siting utility-scale wind energy projects. For this UGP Model input, existing electrical transmission line and substation data (Platts 2010a,b) were used. Distance to the nearest substation was calculated for each cell to a limit of 25 mi (40 km), and the same computation was performed for transmission lines. The resulting layers were converted to inverse distances, scaled to a range of 1.0 (adjacent to a substation or transmission line) to 0.2 (25 mi [40 km] from the nearest substation or transmission line). Cells over 25 mi (40 km) from the nearest transmission infrastructure component were assigned scores of 0.2 since longer distances are not completely prohibitive to project siting.

Next the total capacity of substations and transmission lines within 25 mi (40 km) of the aforementioned infrastructure components was computed. In these computations, substations lacking a voltage value were assigned a voltage of 34 kV, and transmission lines lacking a voltage value were assigned a voltage of 10 kV. The 34 kV and 10 kV assigned voltages were based on the expert input of a systems engineer who is very knowledgeable on electricity infrastructure. These results were also scaled to ranges from 0.2 to 1.0, with 1.0 corresponding to the highest summed substation and transmission line capacities.

The four resulting layers were multiplied together to combine the distance and capacity scores. Finally, areas within 300 meters of infrastructure were assigned a score of 0.0 to allow for minimum setbacks of towers from the infrastructure. The resultant model input layer for proximity to existing electrical infrastructure is shown in figure E.2-4.

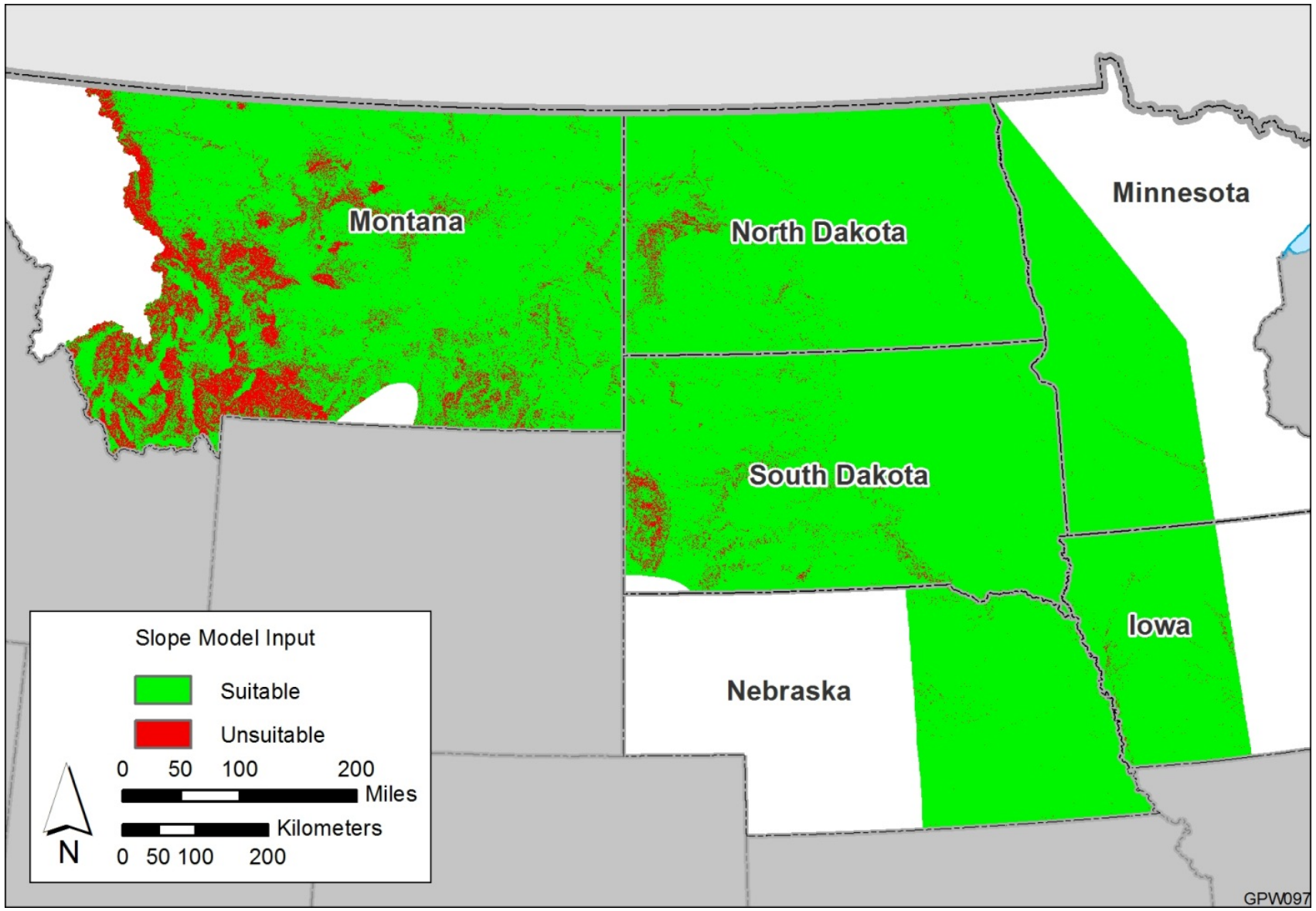

FIGURE E.2-2 Model Input Layer for Slope

TABLE E.2-3 Data Layers and Assigned Values in Land Use Model Input Layer

Land Type	Value
Open water and wetlands	0.0
Developed areas	0.0
Barren land	1.0
Deciduous, coniferous, and mixed forests	0.0
Shrub/scrub	1.0
Grassland/herbaceous	1.0
Pasture/hay	1.0
Cultivated crops	1.0

E.2.6 Protected Areas Model Input Layer

Protected areas, such as Specially Designated Areas and Wilderness Areas, were included in the UGP Model in order to exclude them from potentially suitable land. Most data layers were acquired from the Renewable Energy Atlas produced by the Environmental Science Division of Argonne National Laboratory (Argonne) as part of the *Section 368B Report to Congress*, which was created in response to the Programmatic Environmental Impact Statement (PEIS), *Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE and DOI 2008). Data for airports, Department of Defense (DOD) properties, radar, and critical habitat came from other sources. Land in the immediate vicinity of airports was also deemed unsuitable, as cited in the *Final Report of the Michigan Wind Energy Resource Zone Board* (PSC and MSU 2009). Airport data obtained from the National Transportation Atlas Database were buffered 10 mi (16 km) for commercial, military and airports with control towers and 6.32 mi (10.2 km) for local airports. The resultant area was then added to the protected areas model input layer. Areas that the US Fish and Wildlife Service (Service) has designated as critical habitat also were included in the protected areas model input layer, as were DOD lands and 10-mi (16-km) buffers around weather radar points.

In order to account for State parks, national forests, and other protected areas, the USGS National Biological Information Infrastructure (NBII) Gap Analysis Program (GAP) Protected Areas Database of the United States (PAD-US) was added to the protected areas model input layer. The data were queried based on GAP Status Code and International Union for the Conservation of Nature (IUCN) Category. Lands with GAP Status Code 1, 2, or 3 or assigned IUCN Category Ia, Ib, II, III, IV, V, or VI were excluded from potential suitable land. Data layers included in the protected areas model input layer are listed in table E.2-4. All protected areas were considered unsuitable for wind energy development and were therefore assigned a suitability value of zero. Figure E.2-5 displays the protected areas model input layer.

E.2.7 Potentially Suitable Habitat Model Input Layer

Threatened and endangered species habitats are similar to protected areas in that they also need to be considered for a land development suitability analysis. Twelve candidate, threatened, or endangered species in the Upper Great Plains study area that could be affected

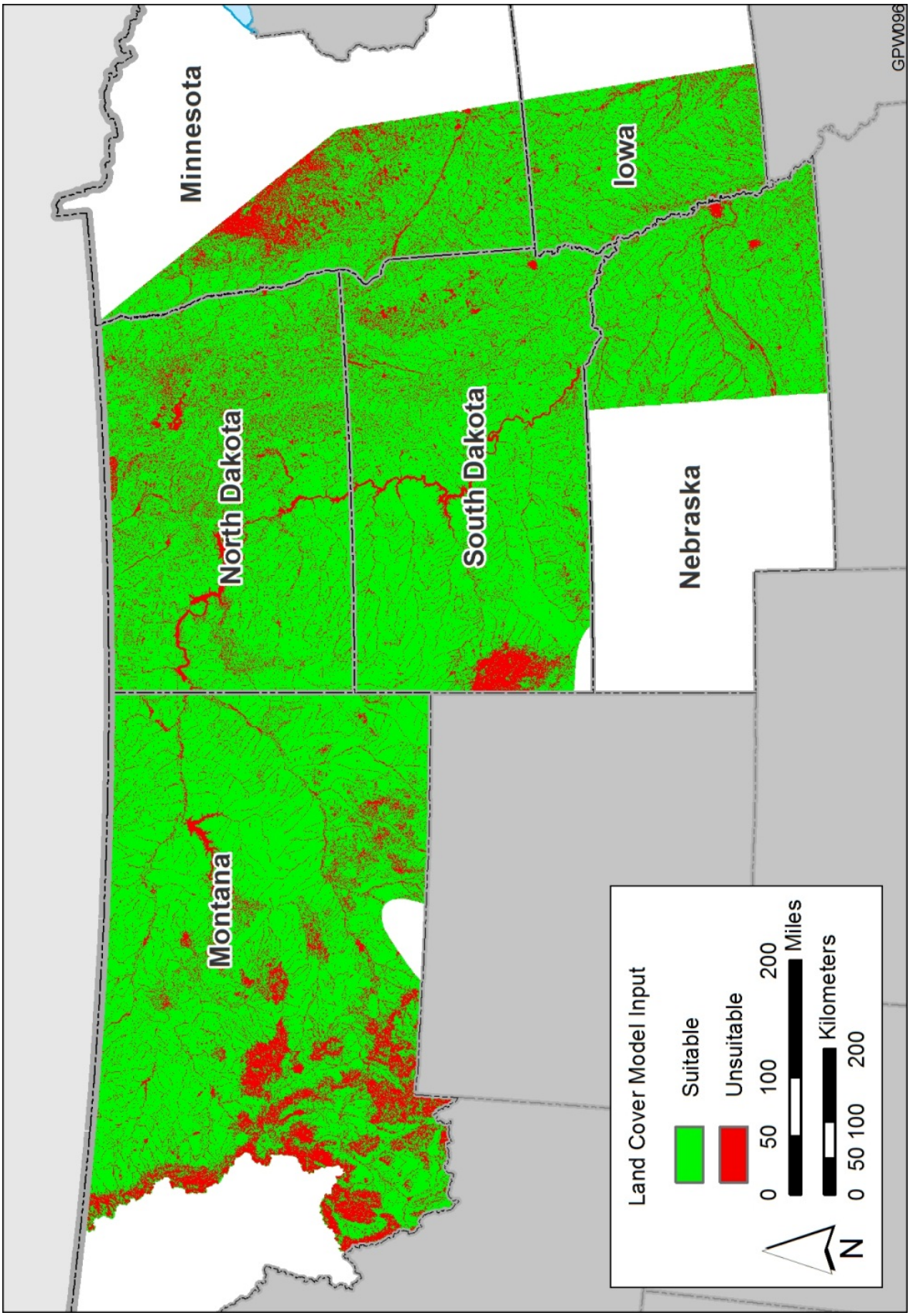

FIGURE E.2-3 Model Input Layer for Land Use

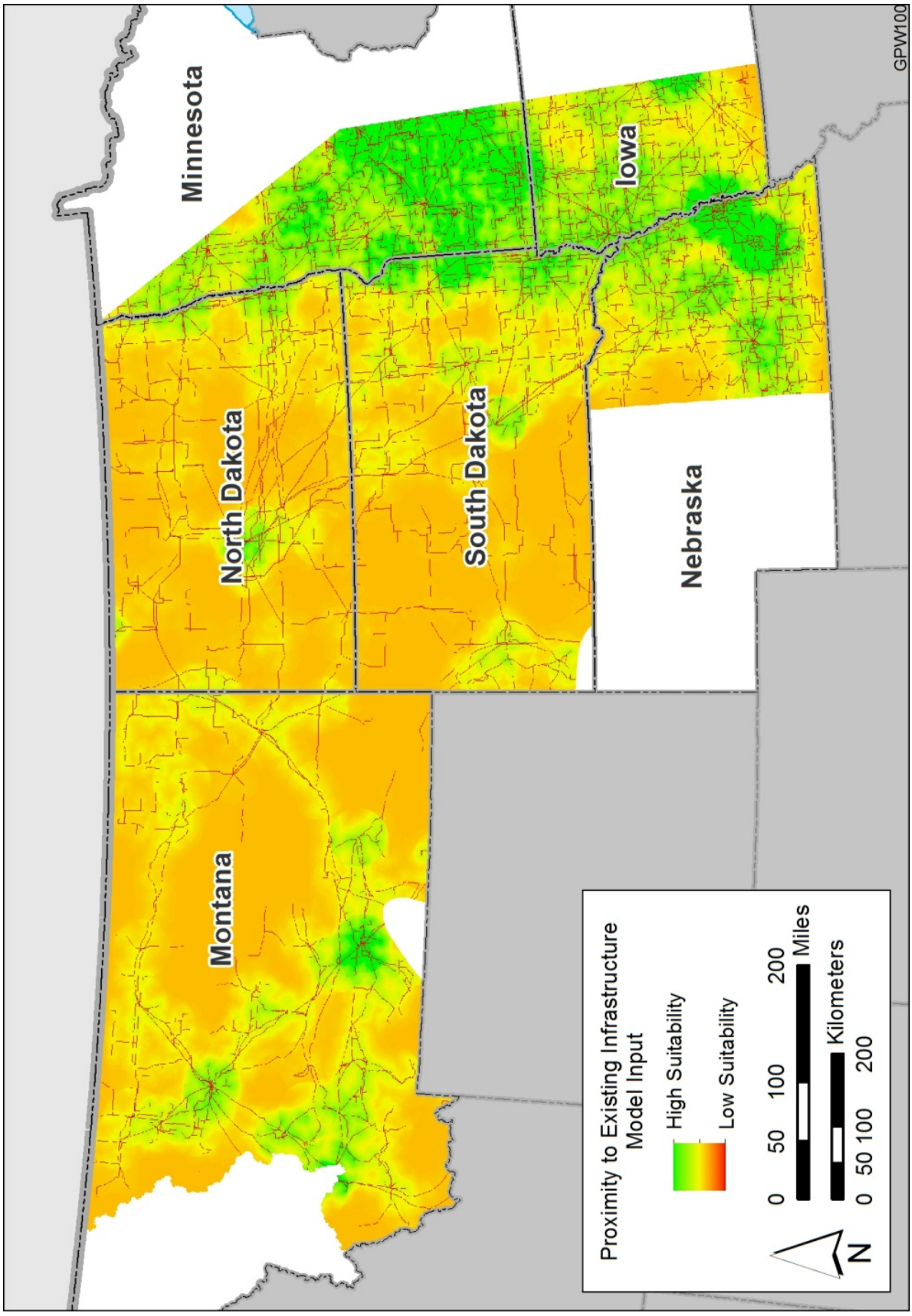

FIGURE E.2-4 Model Input Layer for Proximity to Existing Infrastructure

TABLE E.2-4 Data Layers in the Protected Areas Model Input Layer

Protected Area
Wild and Scenic Rivers
National Park Service (NPS) National Trails
National Scenic and Back Country Byways
National Parks
NPS Battlefields and Military Park Sites
Areas of Critical Environmental Concern
National Monuments
National Wildlife Refuges
NPS Property
Wilderness Study Areas
Wilderness Areas
U.S. Forest Service (USFS) roadless areas
USFS specially designated areas
National Conservation Areas
U.S. Fish and Wildlife Service critical habitat
U.S. Department of Defense military lands
Airport buffers
National Oceanic and Atmospheric Administration (NOAA) weather radar points (10-mi buffer)
U.S. Geological Survey (USGS) NBII GAP Protected Areas Database of the United States

by the development or operation of utility-scale wind projects were identified. Aquatic species were not included, as open water areas were already deemed unsuitable land for analysis in the UGP Model. USGS Gap Analysis Program (GAP) data were used to determine the extent of potentially suitable habitat in the study area. Two factors were considered in the potentially suitable habitat analysis: the Service status assigned to each species and the impact of multiple species occupying the same area. The GAP Suitability Models, which indicate the presence or absence of potentially suitable habitat for a particular species, were assigned an endangerment score based on the Service status. The second factor, impact of multiple species in the same area, was determined by multiplying all the species rasters in a State together. The resultant compounded values were used to represent potentially suitable habitat in the final analysis. The list of candidate, threatened, and endangered species, as well as the States in which they are present and the assigned suitability score can be seen in table E.2-5. Figure E.2-6 shows the result of all the raster multiplication: the model input layer for potentially suitable habitat for threatened and endangered species.

E.3 MODEL EXECUTION

Once the six model input layers were compiled, the UGP Model itself was relatively straightforward. The model input layers were weighted equally with a value of 1.0 and put into the following equation to calculate the geometric mean for each cell:

$$\bar{x} = \left(\prod_{i=1}^{n} x_i^{w_i} \right)^{1/\sum_{i=1}^{n} w_i}$$

FIGURE E.2-5 Model Input Layer for Protected Areas

TABLE E.2-5 Threatened and Endangered Species GAP Suitability Models Included in the Suitability Analysis and Assigned Endangerment Score

Species	State						Status (Endangerment Score)
	Iowa	Minnesota	Montana	Nebraska	North Dakota	South Dakota	
Black-footed ferret			X			X	Endangered (0.2)
Canada lynx		X	X				Threatened (0.2)
Gray wolf		X	X				Endangered (0.2)
Greater sage-grouse			X		X	X	Candidate (0.5)
Grizzly bear			X				Threatened (0.2)
Indiana bat	X						Endangered (0.2)
Least tern	X		X	X	X	X	Endangered (0.2)
Massasauga	X			X			Candidate (0.5)
Mountain plover			X				Proposed (0.2)
Piping plover	X		X	X	X	X	Threatened (0.2)
Sprague's pipit			X		X	X	Candidate (0.5)
Whooping crane			X				Endangered (0.2)

where x_i = the suitability index score for variable *i*, and w_i = weight given to variable *i*. The model expression, as entered into the ESRI ArcGIS Spatial Analyst Extension Raster Calculator, was:

**Power("protected_areas"*"wpc_final"*"infrastructure"*"land_cover"*"slope"*
"potentially_suitable_habitat",0.1667)**

The designated raster names of the model input layers are displayed in table E.3-1.

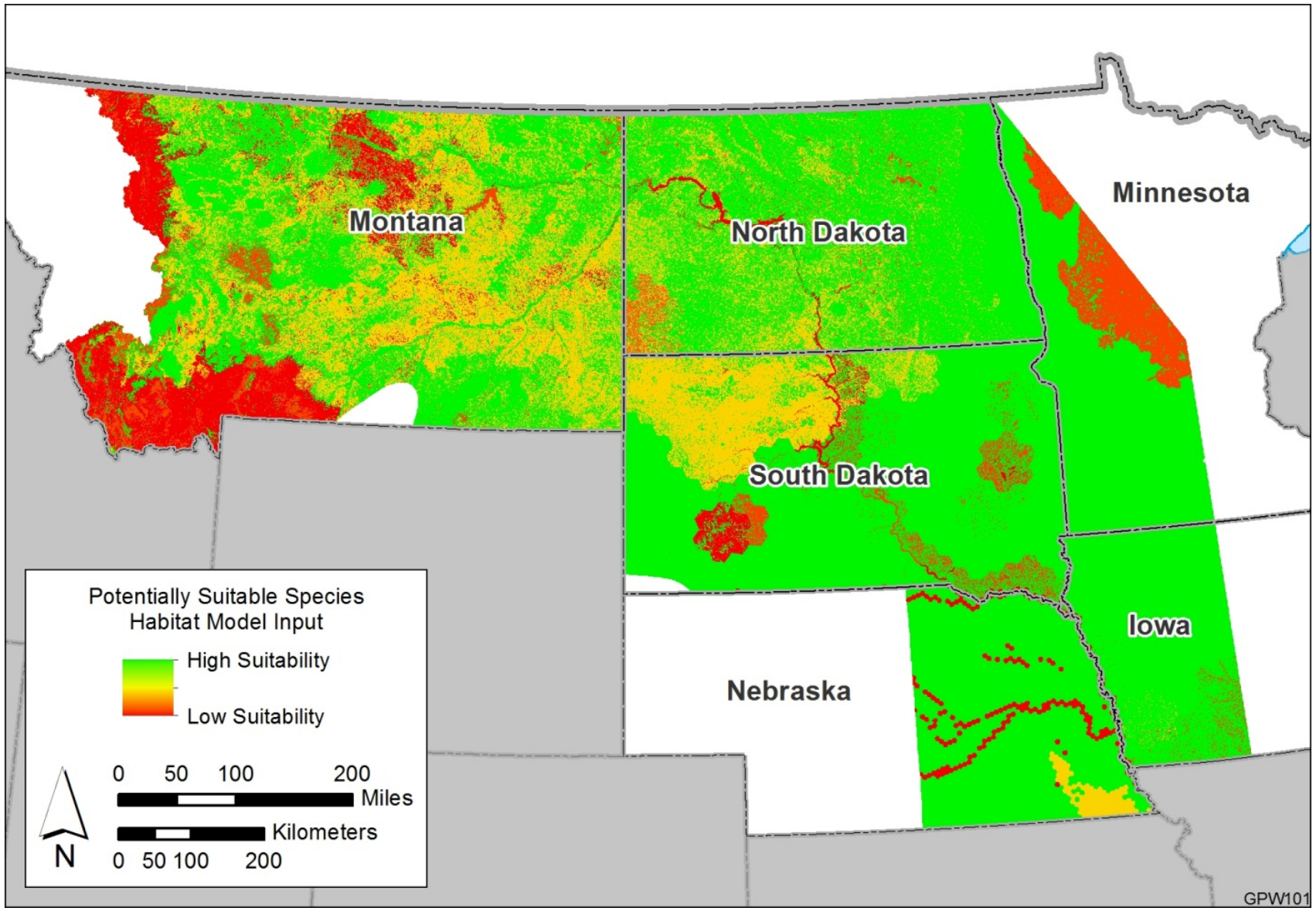

FIGURE E.2-6 Model Input Layer for Potentially Suitable Habitat for Threatened and Endangered Species

TABLE E.3-1 Suitability Analysis Model Input Layers with Weights Used in Model Runs

Model Input Layer	Raster Name	Model 1 Weight
Potentially suitable species habitat	potentially_suitable_habitat	1
Existing infrastructure	infrastructure	1
Land cover	land_cover	1
Protected areas	protected_areas	1
Slope	slope	1
Wind power class	wpc_final	1

E.4 RESULTS

For analysis, the results from Model 1 were classified into three ranges: low, medium, and high suitability, based on standard deviation. The low-suitability category is comprised of values less than one standard deviation below the mean, including zero. Zero was included in this category because the value of one standard deviation below the mean was so small, it was almost zero itself. The medium-suitability category consists of values within one standard deviation above and below the mean. The high-suitability category contains values that are greater than one standard deviation above the mean. None of the cells has a suitability value of one, meaning no land in the study area is 100 percent suitable based on the UGP Model. These categories equate to 110,868,000 acres of low-suitability land, including excluded unsuitable land, 65,093,977 acres of medium-suitability land, and 52,621,694 acres of high-suitability land in the Upper Great Plains Wind Energy PEIS study region (the Western Area Power Administration service area).

Results from the initial UGP Model run are displayed in tables E.4-1 and E.4-2 and figure E.4-1. All six States within the study region have land that falls into the three suitability categories; no State has been completely excluded from potential wind energy development based on this model. No State is lacking in low-suitability land, either. Based on the results from this analysis, nearly 50 percent of the UGP study region consists of low/unsuitable land, with at least 35 percent of each State's acreage classified as low-suitability land. See table E.4-1 for the percentage of low, medium, and high potentially suitable land for wind energy development within each State. These percentages demonstrate the suitability categorization based on each State's individual total acreage. See table E.4-2 for the breakdown of low, medium, and high potentially suitable land as a percentage of the total acreage of the UGP study region. The results are classified by State, but each number represents a percentage of the region as a whole.

In general, most of the land with high potential for wind energy development lies in the Minnesota–Iowa–South Dakota region. Reasons for this include good proximity to pre-existing electrical transmission infrastructure and a general lack of potentially suitable habitat for

TABLE E.4-1 Percentage of Potentially Low-, Medium-, and High-Suitability Land for Wind Energy Development within Each State, on the Basis of Each Location's Acreage

	Percentage in Each Location						
Potential for Wind Energy Development	Region	Iowa	Minnesota	Montana	Nebraska	North Dakota	South Dakota
Low	48.5	42.9	47.7	61.9	49.6	41.5	35.6
Medium	28.5	15.7	11.9	31.2	22.8	35.4	31.4
High	23.0	41.4	40.3	6.9	27.6	23.1	33.0

TABLE E.4-2 Percentage of Potentially Low-, Medium-, and High-Suitability Land within the Study Region, on the Basis of the Total Region's Acreage

	Percentage in Total Region			
Area	Low	Medium	High	Total
Region	48.5	28.5	23.0	100.0
Iowa	3.0	1.1	2.9	6.9
Minnesota	4.4	1.1	3.7	9.1
Montana	20.8	10.5	2.3	33.6
Nebraska	4.5	2.1	2.5	9.2
North Dakota	8.2	7.0	4.6	19.8
South Dakota	7.6	6.7	7.1	21.4

threatened and endangered species. The area also has favorable slope and land cover for wind energy development.

Montana has the most low/unsuitable land and the least highly suitable land, with respect to classification within each State and the region as a whole. Nearly 21 percent of the entire study region is low-suitability land in Montana, while 2.3 percent of the entire region's acreage is highly suitable land in Montana (see table E.4-2). Looking at the suitability categorization within the State, 61.9 percent of Montana's total acreage falls into the low-suitability category, while 6.9 percent of the State's acreage is considered highly suitable. Viewing the model input layer figures gives an indication of Montana's suitability results. Figure E.2-1 indicates that a large portion of southern Montana is designated with poor wind power class. Figure E.2-5 shows a number of excluded protected areas in the State. Figure E.2-6 denotes large areas that could be potentially suitable habitat to threatened and endangered species.

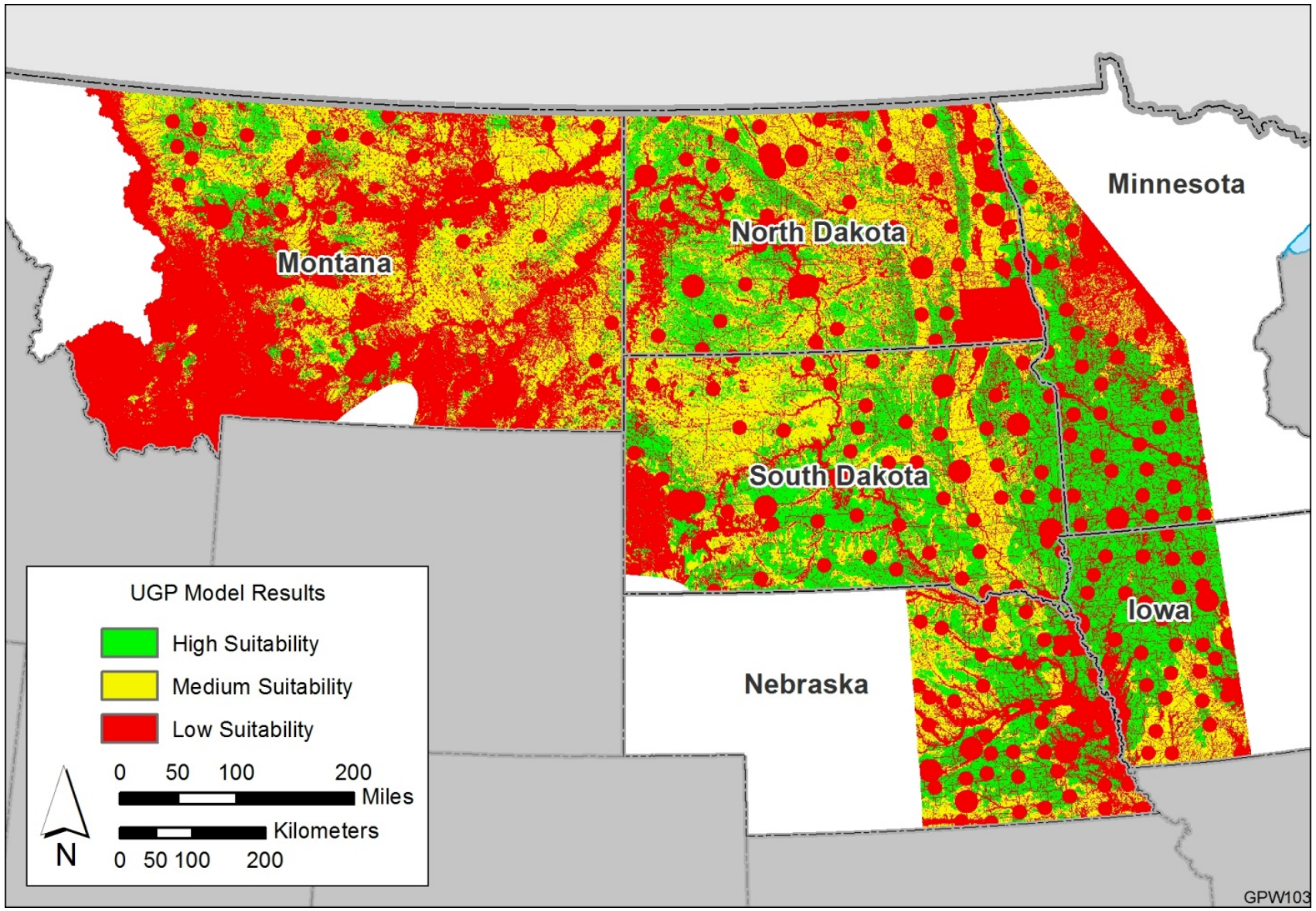

FIGURE E.4-1 UGP Model Results

Turning to the other end of the scale, in comparison to the entire UGP Region, South Dakota contains the most land with a high potential for wind energy development, at 7.1 percent (see table E.4-2). Iowa has the most highly suitable land on an individual State level, however, with 41.4 percent of its total acreage deemed highly suitable (see table E.4-1).

E.5 CONCLUSION

While a considerable number of input data sources and siting variables were considered in the UGP Model, some were determined to be out of scope for the analysis or not included because they would not affect the suitability of a location for wind development. Several of the significant issues are listed below.

- Local zoning designations and building codes;
- Locations of military aircraft training routes and special airspace areas;
- Distance zones around sensitive resources, such as national parks and scenic areas;
- Specific right-of-way routes necessary to connect a particular location to transmission infrastructure;
- Barriers (such as major rivers, protected lands, etc.) between particular locations and transmission infrastructure; and
- Newer data being published by NREL that focuses on 80-meter turbine heights or higher.

Consideration of many of these factors is necessary for siting projects, and some would be useful in a more detailed modeling effort.

The UGP Model found almost 50 percent of the total acreage of the UGP Region to have a low potential for future wind energy development. However, changes in the assumptions used in the UGP Model would affect this outcome. By altering weights assigned to the various model input layers the importance of different siting restrictions or considerations could be explored. Similarly, refinements to the various input layers used in the model based upon guidance from field experts could result in changes to the suitability values. Based upon the input values and assumptions identified above, the highest potential for wind energy development in the Western Area Power Administration's service region is in concentrated areas in Minnesota and Iowa and spread more generally throughout North Dakota, South Dakota, and Nebraska.

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APPENDIX F

SPECIES DESIGNATED AS THREATENED OR ENDANGERED UNDER STATE STATUTES IN THE UGP REGION

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TABLE F-1 Species Listed as Threatened or Endangered under State of Iowa Statutes

Scientific Name	Common Name	State Status[a]
Mammals		
Clethrionomys gapperi	Red-backed vole	Endangered
Myotis soladis	Indiana bat	Endangered
Perognathus flavescens	Plains pocket mouse	Endangered
Spilogale putorius	Spotted skunk	Endangered
Cryptotis parva	Least shrew	Threatened
Synaptomys cooperi	Southern bog lemming	Threatened
Birds		
Asio flammeus	Short-eared owl	Endangered
Buteo lineatus	Red-shouldered hawk	Endangered
Charadrius melodus	Piping plover	Endangered
Circus cyaneus	Northern harrier	Endangered
Falco peregrinus	Peregrine falcon	Endangered
Haliaeetus leucocephalus	Bald eagle	Endangered
Rallus elegans	King rail	Endangered
Sterna antillarum	Least tern	Endangered
Tyto alba	Barn owl	Endangered
Ammodramus henslowii	Henslow's sparrow	Threatened
Asio otus	Long-eared owl	Threatened
Fish		
Acipenser fulvescens	Lake sturgeon	Endangered
Etheostoma chlorosomum	Bluntnose darter	Endangered
Etheostoma microperca	Least darter	Endangered
Notropis anogenus	Pugnose shiner	Endangered
Notropis texanus	Weed shiner	Endangered
Noturus nocturus	Freckled madtom	Endangered
Scaphirhynchus albus	Pallid sturgeon	Endangered
Semotilus margarita	Pearl dace	Endangered
Ammocrypta clara	Western sand darter	Threatened
Esox americanus	Grass pickerel	Threatened
Etheostoma spectabile	Orangethroat darter	Threatened
Ichthyomyzon castaneus	Chestnut lamprey	Threatened
Lamptera appendix	American brook lamprey	Threatened
Lota lota	Burbot	Threatened
Moxostoma duquesnei	Black redhorse	Threatened
Notropis heterolepis	Blacknose shiner	Threatened
Notropis topeka	Topeka shiner	Threatened
Reptiles		
Agkistrodon contortrix	Copperhead	Endangered
Clemmys insculpta	Wood turtle	Endangered
Crotalus viridis	Prairie rattlesnake	Endangered
Eumeces obsoletus	Great Plains skink	Endangered
Heterodon nasicus	Western hognose snake	Endangered
Kinosternon flavescens	Yellow mud turtle	Endangered
Nerodia erythrogaster neglecta	Copperbelly water snake	Endangered
Sistrurus catenatus	Massasauga rattlesnake	Endangered
Carphophis amoenus vermis	Western worm snake	Threatened
Emydoidea blandingii	Blanding's turtle	Threatened
Lampropeltis getulus	Speckled kingsnake	Threatened

TABLE F-1 (Cont.)

Scientific Name	Common Name	State Status[a]
Reptiles (Cont.)		
Nerodia rhombifera	Diamondback water snake	Threatened
Ophisaurus attenuatus	Slender glass lizard	Threatened
Sternotherus odoratus	Common musk turtle	Threatened
Terrapene ornatua	Ornate box turtle	Threatened
Amphibians		
Ambystoma laterale	Blue-spotted salamander	Endangered
Rana areolata	Crawfish frog	Endangered
Necturus maculosus	Mudpuppy	Threatened
Notophthalamus viridescens	Central newt	Threatened
Insects		
Coenonympha tullia	Ringlet	Endangered
Hesperia dacotae	Dakota skipper	Endangered
Euphydryas phaeton	Baltimore	Threatened
Glaucopsyche lygdamus	Silvery blue	Threatened
Oarisma powesheik	Powesheik skipperling	Threatened
Poanes massasoit	Mulberry wing	Threatened
Problema byssus	Byssus skipper	Threatened
Molluscs		
Alasmidonta viridis	Slippershell	Endangered
Catinella gelida	Frigid ambersnail	Endangered
Cumberlandia monodonta	Spectacle case	Endangered
Discus macclintocki	Iowa Pleistocene snail	Endangered
Fusconaia ozarkensis	Ozark pigtoe	Endangered
Lampsilis teres anodontoides	Yellow sandshell	Endangered
Lampsilis teres teres	Slough sandshell	Endangered
Lampsilis higginsi	Higgen's-eye pearly mussel	Endangered
Novisuccinea new species A	Minnesota Pleistocene ambersnail	Endangered
Novisuccinea new species B	Iowa Pleistocene ambersnail	Endangered
Plethobasus cyphyus	Bullhead	Endangered
Pleurobema sintoxia	Ohio River pigtoe	Endangered
Tritogonia verrucosa	Buckthorn	Endangered
Vertigo briarensis	Briarton Pleistocene vertigo	Endangered
Vertigo meramecensis	Bluff vertigo	Endangered
Vertigo new species	Iowa Pleistocene vertigo	Endangered
Anodontoides ferussacianus	Cylinder	Threatened
Cyclonaias tuberculata	Purple pimpleback	Threatened
Ellipsaria lineolata	Butterfly	Threatened
Lasmigona compressa	Creek heelsplitter	Threatened
Strophitus undulates	Strange floater	Threatened
Venustaconcha ellipsiformis	Ellipse	Threatened
Vertigo hubrichti	Midwest Pleistocene vertigo	Threatened
Vertigo occulta	Occult vertigo	Threatened
Plants		
Agalinus skinneriana	Pale false foxglove	Endangered
Agastache foeniculum	Blue giant-hyssop	Endangered
Arctostaphylos uva-ursi	Bearberry	Endangered
Aronia melanocarpa	Black chokeberry	Endangered
Asclepias engelmanniana	Eared milkweed	Endangered

TABLE F-1 (Cont.)

Scientific Name	Common Name	State Status[a]
Plants (Cont.)		
Asclepias meadii	Mead's milkweed	Endangered
Asclepias stenophylla	Narrow-leaved milkweed	Endangered
Aster dumosus	Ricebutton aster	Endangered
Aster macrophyllus	Large-leaved aster	Endangered
Aster schreberi	Schreber's aster	Endangered
Aureolaria pedicularia	Fern-leaved false foxglove	Endangered
Botrychium matricariifolium	Matricary grape fern	Endangered
Callirhoe triangulata	Poppy mallow	Endangered
Carex chordorrhiza	Cordroot sedge	Endangered
Corydalis curvisiliqua	Large-bracted corydalis	Endangered
Dalea villosa	Silky prairie-clover	Endangered
Decodon verticillatus	Swamp-loosestrife	Endangered
Dichanthelium boreale	Northern panic-grass	Endangered
Drosera rotundifolia	Roundleaved sundew	Endangered
Floerkea proserpinacoides	False mermaid	Endangered
Galium labradoricum	Bog bedstraw	Endangered
Hudsonia tomentosa	Povertygrass	Endangered
Hypericum boreale	Northern St. Johnswort	Endangered
Hypericum gentianoides	Pineweed	Endangered
Ilex verticillata	Winterberry	Endangered
Isoetes melanopoda	Black-based quillwort	Endangered
Justicia americana	Water-willow	Endangered
Krigia virginica	Dwarf dandelion	Endangered
Leucospora multifida	Cleft conobea	Endangered
Lomatium foeniculaceum	Whiskbroom parsley	Endangered
Lycopodium clavatum	Running clubmoss	Endangered
Lycopodium inundatum	Bog clubmoss	Endangered
Lygodesmia rostrata	Annual skeletonweed	Endangered
Megalodonta beckii	Water marigold	Endangered
Mertensia paniculata	Northern lungwort	Endangered
Opuntia macrorhiza	Bigroot pricklypear	Endangered
Orobanche fasciculata	Clustered broomrape	Endangered
Oryzopsis pungens	Ricegrass	Endangered
Osmunda cinnamomea	Cinnamon fern	Endangered
Pellaea atropurpurea	Purple cliffbrake	Endangered
Peltandra virginica	Arrow arum	Endangered
Platanthera flava	Pale green orchid	Endangered
Platanthera leucophaea	Eastern prairie fringed orchid	Endangered
Polansia jamesii	Clammyweed	Endangered
Polygala cruciata	Crossleaf milkwort	Endangered
Polygala polygama	Purple milkwort	Endangered
Polygonella articulata	Jointweed	Endangered
Polygonum douglasii	Douglas' knotweed	Endangered
Potentilla tridentata	Three-toothed cinquefoil	Endangered
Prunus nigra	Canada plum	Endangered
Psoralea onobrychis	Frenchgrass	Endangered
Pyrola asarifolia	Pink shinleaf	Endangered
Rosa acicularis	Prickly rose	Endangered
Selaginella eclipes	Meadow spikemoss	Endangered
Solidago patula	Rough-leaved goldenrod	Endangered
Solidago uliginosa	Bog goldenrod	Endangered
Spiranthes lucida	Yellow-lipped ladies-tresses	Endangered

TABLE F-1 (Cont.)

Scientific Name	Common Name	State Status[a]
Plants (Cont.)		
Stylisma pickeringii	Pickering morning-glory	Endangered
Talinum rugospermum	Rough-seeded fameflower	Endangered
Thalictrum revolutum	Waxy meadowrue	Endangered
Thelypteris phegopteris	Long beechfern	Endangered
Viola incognita	Large-leaved violet	Endangered
Woodsia ilvensis	Rusty woodsia	Endangered
Xyris torta	Yellow-eyed grass	Endangered
Aconitum noveboracense	Northern wild monkshood	Threatened
Agalinus gattingerii	Round-stemmed false foxglove	Threatened
Allium cernuum	Nodding wild onion	Threatened
Amorpha nana	Fragrant false indigo	Threatened
Aristolochia serpentaria	Virginia snakeroot	Threatened
Asclepias lanuginosa	Woolly milkweed	Threatened
Asclepias speciosa	Showy milkweed	Threatened
Aster furcatus	Forked aster	Threatened
Aster junciformis	Rush aster	Threatened
Aster linariifolius	Flax-leaved aster	Threatened
Berula erecta	Water parsnip	Threatened
Besseya bullii	Kittentails	Threatened
Betula pumila	Bog birch	Threatened
Blephilia ciliata	Pagoda plant	Threatened
Botrychium multifidum	Leathery grapefern	Threatened
Botrychium simplex	Little grapefern	Threatened
Cacalia suaveolens	Sweet Indian-plantain	Threatened
Callirhoe alcaeoides	Poppy mallow	Threatened
Chimaphila umbellata	Pipsissewa	Threatened
Chrysosplenium iowense	Golden saxifrage	Threatened
Commelina erecta	Dayflower	Threatened
Corallorhiza maculata	Spotted coralroot	Threatened
Cornus canadensis	Bunchberry	Threatened
Corydalis aurea	Golden corydalis	Threatened
Corydalis sempervirens	Pink corydalis	Threatened
Cypripedium reginae	Showy lady's-slipper	Threatened
Dichanthelium linearifolium	Slim-leaved panic-grass	Threatened
Dodecatheon amethystinum	Jeweled shooting star	Threatened
Dryopteris intermedia	Glandular wood fern	Threatened
Dryopteris marginalis	Marginal shield fern	Threatened
Equisetum sylvaticum	Woodland horsetail	Threatened
Eriophorum gracile	Slender cottongrass	Threatened
Erythronium americanum	Yellow trout lily	Threatened
Filipendula rubra	Queen of the prairie	Threatened
Fraxinus quadrangulata	Blue ash	Threatened
Gaylussacia baccata	Black huckleberry	Threatened
Gymnocarpium dryopteris	Oak fern	Threatened
Hybanthus concolor	Green violet	Threatened
Jeffersonia diphylla	Twinleaf	Threatened
Juniperus horizontalis	Creeping juniper	Threatened
Lechea intermedia	Intermediate pinweed	Threatened
Lechea villosa	Hairy pinweed	Threatened
Lespedeza leptostachya	Prairie bush clover	Threatened
Linnaea borealis	Twinflower	Threatened
Lomatium orientale	Western parsley	Threatened

TABLE F-1 (Cont.)

Scientific Name	Common Name	State Status[a]
Plants (Cont.)		
Lupinus perennis	Wild lupine	Threatened
Lycopodium dendroideum	Tree clubmoss	Threatened
Lycopodium porophilum	Rock clubmoss	Threatened
Marsilea vestita	Hairy waterclover	Threatened
Menyanthes trifoliata	Bog buckbean	Threatened
Mimulus alatus	Winged monkeyflower	Threatened
Mimulus glabratus	Yellow monkeyflower	Threatened
Mitchella repens	Partridge berry	Threatened
Monotropa hypopithys	Pinesap	Threatened
Oenothera perennis	Small sundrops	Threatened
Opuntia fragilis	Little pricklypear	Threatened
Osmunda regalis	Royal fern	Threatened
Panicum philadelphicum	Philadelphia panic-grass	Threatened
Penstemon gracilis	Slender beardtongue	Threatened
Platanthera hookeri	Hooker's orchid	Threatened
Platanthera hyperborea	Northern bog orchid	Threatened
Platanthera praeclara	Western prairie fringed orchid	Threatened
Platanthera psycodes	Purple fringed orchid	Threatened
Polygala incarnata	Pink milkwort	Threatened
Potentilla anserina	Silverweed	Threatened
Potentilla fruticosa	Shrubby cinquefoil	Threatened
Potentilla pensylvanica	Pennsylvania cinquefoil	Threatened
Pyrola secunda	One-sided shinleaf	Threatened
Rhexia virginica	Meadow beauty	Threatened
Rhynchospora capillacea	Beaked rush	Threatened
Ribes hudsonianum	Northern currant	Threatened
Salix lucida	Shining willow	Threatened
Salix pedicellaris	Bog willow	Threatened
Scleria verticillata	Low nutrush	Threatened
Sheperdia argentea	Buffaloberry	Threatened
Sphaeralcea coccinea	Scarlet globemallow	Threatened
Spiranthes lacera	Slender ladies-tresses	Threatened
Spiranthes ovalis	Oval ladies-tresses	Threatened
Spiranthes romanzoffiana	Hooded ladies-tresses	Threatened
Spiranthes vernalis	Spring ladies-tresses	Threatened
Streptopus roseus	Rosy twisted-stalk	Threatened
Talinum parviflorum	Fameflower	Threatened
Triglochin maritimum	Large arrowgrass	Threatened
Triglochin palustre	Small arrowgrass	Threatened
Vaccinium angustifolium	Low sweet blueberry	Threatened
Vaccinium myrtilloides	Velvetleaf blueberry	Threatened
Veratrum woodii	False hellebore	Threatened
Viola renifolia	Kidney-leaved violet	Threatened
Woodsia oregana	Oregon woodsia	Threatened

[a] Endangered = the species is in danger of extinction through all or a significant part of its range. Threatened = the species is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Source: Iowa Department of Natural Resources (2009).

TABLE F-2 Species Listed as Threatened or Endangered under State of Minnesota Statutes

Scientific Name	Common Name	State Status[a]
Mammals		
Spilogale putorius	Eastern spotted skunk	Threatened
Birds		
Ammodramus bairdii	Baird's sparrow	Endangered
Ammodramus henslowii	Henslow's sparrow	Endangered
Anthus spragueii	Sprague's pipit	Endangered
Calcarius ornatus	Chestnut-collared longspur	Endangered
Charadrius melodus	Piping plover	Endangered
Rallus elegans	King rail	Endangered
Speotyto cunicularia	Burrowing owl	Endangered
Cygnus buccinator	Trumpeter swan	Threatened
Falco peregrinus	Peregrine falcon	Threatened
Lanius ludovicianus	Loggerhead shrike	Threatened
Phalaropus tricolor	Wilson's phalarope	Threatened
Podiceps auritus	Horned grebe	Threatened
Sterna hirundo	Common tern	Threatened
Reptiles		
Sistrurus catenatus	Massasauga	Endangered
Clemmys insculpta	Wood turtle	Threatened
Crotalus horridus	Timber rattlesnake	Threatened
Emydoidea blandingii	Blanding's turtle	Threatened
Amphibians		
Acris crepitans	Northern cricket frog	Endangered
Fish		
Polyodon spathula	Paddlefish	Threatened
Molluscs		
Arcidens confragosus	Rock pocketbook	Endangered
Elliptio crassidens	Elephant-ear	Endangered
Fusconaia ebena	Ebonyshell	Endangered
Lampsilis higginsi	Higgins eye	Endangered
Lampsilis teres	Yellow sandshell	Endangered
Novasuccinea n. sp. Minnesota B	Iowa Pleistocene ambersnail	Endangered
Plethobasus cyphyus	Sheepnose	Endangered
Quadrula fragosa	Winged mapleleaf	Endangered
Quadrula nodulata	Wartyback	Endangered
Vertigo hubrichti hubrichti	Midwest Pleistocene vertigo	Endangered
Actinonaias ligamentina	Mucket	Threatened
Alasmidonta marginata	Elktoe	Threatened
Cumberlandia monodonta	Spectaclecase	Threatened
Cyclonaias tuberculata	Purple wartyback	Threatened
Ellipsaria lineolata	Butterfly	Threatened
Epioblasma triquetra	Snuffbox	Threatened
Megalonaias nervosa	Washboard	Threatened
Novasuccinea n. sp. Minnesota A	Minnesota Pleistocene ambersnail	Threatened
Pleurobema coccineum	Round pigtoe	Threatened
Quadrula metanevra	Monkeyface	Threatened
Simpsonaias ambigua	Salamander mussel	Threatened

TABLE F-2 (Cont.)

Scientific Name	Common Name	State Status[a]
Molluscs (Cont.)		
Tritogonia verrucosa	Pistolgrip	Threatened
Venustaconcha ellipsiformis	Ellipse	Threatened
Vertigo hubrichti variabilis	Variable Pleistocene vertigo	Threatened
Vertigo meramecensis	Bluff vertigo	Threatened
Butterflies and Moths		
Erynnis persius	Persius dusky wing	Endangered
Hesperia comma assiniboia	Assiniboia skipper	Endangered
Hesperia uncas	Uncas skipper	Endangered
Lycaeides melissa samuelis	Karner blue	Endangered
Oeneis uhleri varuna	Uhler's arctic	Endangered
Hesperia dacotae	Dakota skipper	Threatened
Hesperia ottoe	Ottoe skipper	Threatened
Oarisma garita	Garita skipper	Threatened
Caddisflies		
Chilostigma itascae	Headwaters chilostigman	Endangered
Tiger Beetles		
Cicindela fulgida fulgida	Subspecies of crimson saltflat tiger beetle	Endangered
Cicindela limbata nympha	Sandy tiger beetle	Endangered
Cicindela denikei	Laurentian tiger beetle	Threatened
Cicindela fulgida westbournei	Subspecies of crimson saltflat tiger beetle	Threatened
Cicindela lepida	Little white tiger beetle	Threatened
Vascular Plants		
Agalinis auriculata	Eared false foxglove	Endangered
Agalinis gattingeri	Round-stemmed false foxglove	Endangered
Asclepias stenophylla	Narrow-leaved milkweed	Endangered
Astragalus alpinus	Alpine milk-vetch	Endangered
Bartonia virginica	Virginia bartonia	Endangered
Botrychium gallicomontanum	Frenchman's Bluff moonwort	Endangered
Botrychium oneidense	Blunt-lobed grapefern	Endangered
Botrychium pallidum	Pale moonwort	Endangered
Cacalia suaveolens	Sweet-smelling Indian-plantain	Endangered
Caltha natans	Floating marsh-marigold	Endangered
Carex formosa	Handsome sedge	Endangered
Carex pallescens	Pale sedge	Endangered
Carex plantaginea	Plantain-leaved sedge	Endangered
Castilleja septentrionalis	Northern paintbrush	Endangered
Cheilanthes lanosa	Hairy lip-fern	Endangered
Chrysosplenium iowense	Iowa golden saxifrage	Endangered
Cristatella jamesii	James' polanisia	Endangered
Dodecatheon meadia	Prairie shooting star	Endangered
Draba norvegica	Norwegian whitlow-grass	Endangered
Eleocharis wolfii	Wolf's spike-rush	Endangered
Empetrum eamesii	Purple crowberry	Endangered
Empetrum nigrum	Black crowberry	Endangered
Erythronium propullans	Dwarf trout lily	Endangered
Escobaria vivipara	Ball cactus	Endangered
Fimbristylis puberula var. *interior*	Hairy fimbristylis	Endangered
Glaux maritima	Sea milkwort	Endangered

TABLE F-2 (Cont.)

Scientific Name	Common Name	State Status[a]
Vascular Plants (Cont.)		
Hydrastis canadensis	Golden-seal	Endangered
Iodanthus pinnatifidus	Purple rocket	Endangered
Isoetes melanopoda	Blackfoot quillwort	Endangered
Lechea tenuifolia	Narrow-leaved pinweed	Endangered
Lesquerella ludoviciana	Bladder pod	Endangered
Listera auriculata	Auricled twayblade	Endangered
Malaxis paludosa	Bog adder's-mouth	Endangered
Marsilea vestita	Hairy water clover	Endangered
Montia chamissoi	Montia	Endangered
Oryzopsis hymenoides	Indian ricegrass	Endangered
Osmorhiza berteroi	Chilean sweet cicely	Endangered
Oxytropis viscida	Sticky locoweed	Endangered
Paronychia fastigiata	Forked chickweed	Endangered
Parthenium integrifolium	Wild quinine	Endangered
Platanthera flava	Tubercled rein-orchid	Endangered
Platanthera praeclara	Western prairie fringed orchid	Endangered
Polemonium occidentale ssp. *lacustre*	Western Jacob's-ladder	Endangered
Polygala cruciata	Cross-leaved milkwort	Endangered
Polystichum braunii	Braun's holly fern	Endangered
Potamogeton bicupulatus	Snailseed pondweed	Endangered
Potamogeton diversifolius	Diverse-leaved pondweed	Endangered
Psoralidium tenuiflora	Slender-leaved scurf pea	Endangered
Sagina nodosa ssp. *borealis*	Knotty pearlwort	Endangered
Saxifraga cernua	Nodding saxifrage	Endangered
Scleria triglomerata	Tall nut-rush	Endangered
Sedum integrifolium ssp. *leedyi*	Leedy's roseroot	Endangered
Selaginella selaginoides	Northern spikemoss	Endangered
Senecio canus	Gray ragwort	Endangered
Talinum rugospermum	Rough-seeded fameflower	Endangered
Tofieldia pusilla	Small false asphodel	Endangered
Xyris torta	Twisted yellow-eyed grass	Endangered
Achillea sibirica	Siberian yarrow	Threatened
Allium cernuum	Nodding wild onion	Threatened
Allium schoenoprasum var. *sibiricum*	Wild chives	Threatened
Ammophila breviligulata	Beachgrass	Threatened
Arabis holboellii var. *retrofracta*	Holboell's rockcress	Threatened
Arnica lonchophylla	Long-leaved arnica	Threatened
Arnoglossum plantagineum	Tuberous Indian-plantain	Threatened
Asclepias hirtella	Prairie milkweed	Threatened
Asclepias sullivantii	Sullivant's milkweed	Threatened
Asplenium trichomanes	Maidenhair spleenwort	Threatened
Aster shortii	Short's aster	Threatened
Aureolaria pedicularia	Fernleaf false foxglove	Threatened
Besseya bullii	Kitten-tails	Threatened
Botrychium lanceolatum	Triangle moonwort	Threatened
Botrychium lunaria	Common moonwort	Threatened
Botrychium rugulosum	St. Lawrence grapefern	Threatened
Carex careyana	Carey's sedge	Threatened
Carex conjuncta	Jointed sedge	Threatened
Carex davisii	Davis' sedge	Threatened
Carex festucacea	Fescue sedge	Threatened
Carex garberi	Garber's sedge	Threatened

TABLE F-2 (Cont.)

Scientific Name	Common Name	State Status[a]
Vascular Plants (Cont.)		
Carex jamesii	James' sedge	Threatened
Carex katahdinensis	Katahdin sedge	Threatened
Carex laevivaginata	Smooth-sheathed sedge	Threatened
Carex laxiculmis	Spreading sedge	Threatened
Carex sterilis	Sterile sedge	Threatened
Crassula aquatica	Pigmyweed	Threatened
Crataegus douglasii	Black hawthorn	Threatened
Cyperus acuminatus	Short-pointed umbrella-sedge	Threatened
Cypripedium arietinum	Ram's-head lady's-slipper	Threatened
Diplazium pycnocarpon	Narrow-leaved spleenwort	Threatened
Dryopteris marginalis	Marginal shield-fern	Threatened
Eleocharis nitida	Neat spike-rush	Threatened
Eleocharis olivacea	Olivaceous spike-rush	Threatened
Eleocharis rostellata	Beaked spike-rush	Threatened
Eupatorium sessilifolium	Upland boneset	Threatened
Floerkea proserpinacoides	False mermaid	Threatened
Heteranthera limosa	Mud plantain	Threatened
Huperzia porophila	Rock clubmoss	Threatened
Lespedeza leptostachya	Prairie bush clover	Threatened
Melica nitens	Three-flowered melic	Threatened
Moehringia macrophylla	Large-leaved sandwort	Threatened
Napaea dioica	Glade mallow	Threatened
Nymphaea leibergii	Small white waterlily	Threatened
Paronychia canadensis	Canadian forked chickweed	Threatened
Phegopteris hexagonoptera	Broad beech-fern	Threatened
Plantago elongata	Slender plantain	Threatened
Poa paludigena	Bog bluegrass	Threatened
Polystichum acrostichoides	Christmas fern	Threatened
Rhynchospora capillacea	Hair-like beak-rush	Threatened
Rotala ramosior	Tooth-cup	Threatened
Rubus chamaemorus	Cloudberry	Threatened
Salicornia rubra	Red saltwort	Threatened
Saxifraga paniculata	Encrusted saxifrage	Threatened
Scleria verticillata	Whorled nut-rush	Threatened
Scutellaria ovata	Ovate-leaved skullcap	Threatened
Shinnersoseris rostrata	Annual skeletonweed	Threatened
Silene nivea	Snowy campion	Threatened
Subularia aquatica	Awlwort	Threatened
Sullivantia sullivantii	Reniform sullivantia	Threatened
Vaccinium uliginosum	Alpine bilberry	Threatened
Valeriana edulis	Valerian	Threatened
Viola lanceolata	Lance-leaved violet	Threatened
Viola nuttallii	Yellow prairie violet	Threatened
Woodsia glabella	Smooth woodsia	Threatened
Woodsia scopulina	Rocky Mountain woodsia	Threatened
Lichens		
Buellia nigra	Lichen	Endangered
Caloplaca parvula	Lichen	Endangered
Dermatocarpon moulinsii	Lichen	Endangered
Leptogium apalachense	Lichen	Endangered
Lobaria scrobiculata	Lichen	Endangered

TABLE F-2 (Cont.)

Scientific Name	Common Name	State Status[a]
Lichens (Cont.)		
Parmelia stictica	Lichen	Endangered
Pseudocyphellaria crocata	Lichen	Endangered
Umbilicaria torrefacta	Lichen	Endangered
Cetraria oakesiana	Lichen	Threatened
Coccocarpia palmicola	Lichen	Threatened
Parmelia stuppea	Lichen	Threatened
Mosses		
Schistostegia pennata	Luminous moss	Endangered
Fungi		
Fuscoboletinus weaverae	Fungus	Endangered
Psathyrella cystidiosa	Fungus	Endangered
Psathyrella rhodospora	Fungus	Endangered

[a] Endangered = the species is threatened with extinction throughout all or a significant portion of its range within Minnesota. Threatened = The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.

Source: Minnesota Department of Natural Resources (2007).

TABLE F-3 Species Listed as Threatened or Endangered under State of Nebraska Statutes

Scientific Name	Common Name	State Status[a]
Mammals		
Mustela nigripes	Black-footed ferret	Endangered
Vulpes velox	Swift fox	Endangered
Glaucomys volans	Southern flying squirrel	Threatened
Lutra canadensis	River otter	Threatened
Birds		
Grus americana	Whooping crane	Endangered
Numenius borealis	Eskimo curlew	Endangered
Sternula antillarum athalassos	Interior least tern	Endangered
Charadrius melodius	Piping plover	Threatened
Charadrius montanus	Mountain plover	Threatened
Reptiles		
Sistrurus catenatus	Massasauga	Threatened
Fish		
Macrhybopsis gelida	Sturgeon chub	Endangered
Notropis heterolepis	Blacknose shiner	Endangered
Notropis topeka	Topeka shiner	Endangered
Scaphirhynchus albus	Pallid sturgeon	Endangered
Acipenser fulvescens	Lake sturgeon	Threatened
Phoxinus eos	Northern redbelly dace	Threatened
Phoxinus neogaeus	Finescale dace	Threatened
Insects		
Cincindela nevadica lincolniana	Salt Creek tiger beetle	Endangered
Nicrophorus americanus	American burying beetle	Endangered
Mussels		
Leptodea leptodon	Scaleshell mussel	Endangered
Plants		
Gaura neomexicana coloradensis	Colorado butterfly plant	Endangered
Penstemon haydenii	Hayden's (blowout) penstemon	Endangered
Salicornia rubra	Saltwort	Endangered
Cypripedium candidum	Small white lady's slipper	Threatened
Panax quinquefolium	Ginseng	Threatened
Platanthera praeclara	Western prairie fringed orchid	Threatened
Spiranthese diluvialis	Ute lady's-tresses	Threatened

[a] Endangered = nearing extinction. Threatened = facing endangerment.

Source: Nebraska Game and Parks Commission (2009).

TABLE F-4 Species Listed as Threatened or Endangered under State of South Dakota Statutes

Scientific Name	Common Name	State Status[a]
Mammals		
Mustela nigripes	Black-footed ferret	Endangered
Lutra canadensis	River otter	Threatened
Vulpes velox	Swift fox	Threatened
Birds		
Falco peregrinus	Peregrine falcon	Endangered
Grus americana	Whooping crane	Endangered
Numenius borealis	Eskimo curlew	Endangered
Sternula antillarum athalassos	Interior least tern	Endangered
Charadrius melodius	Piping plover	Threatened
Cinclus mexicanus	American dipper	Threatened
Haliaeetus leucocephalus	Bald eagle	Threatened
Pandion haliaetus	Osprey	Threatened
Reptiles		
Tropidoclonion lineatum	Lined snake	Endangered
Graptemys pseudogeographica	False map turtle	Threatened
Heterodon platirhinos	Eastern hognose snake	Threatened
Fish		
Fundulus diaphanous	Banded killifish	Endangered
Macrhybopsis meeki	Sicklefin chub	Endangered
Notropis heterolepis	Blacknose shiner	Endangered
Phoxinus neogaeus	Finescale dace	Endangered
Scaphirhynchus albus	Pallid sturgeon	Endangered
Catostomus catostomus	Longnose sucker	Threatened
Macrhybopsis gelida	Sturgeon chub	Threatened
Margariscus margarita	Pearl dace	Threatened
Phoxinus eos	Northern redbelly dace	Threatened

[a] Endangered = nearing extinction. Threatened = facing endangerment.

Source: South Dakota Department of Game, Fish, and Parks (2008).

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