

## 1.0 INTRODUCTION

Basin Electric Power Cooperative (Basin Electric) is proposing to construct, own, operate, and maintain a new 300-megawatt (MW) net natural gas generation facility and infrastructure facilities (proposed Project). After a review of alternative site locations, Basin Electric determined that a location in eastern Brookings County, South Dakota, would best meet that need. As a result of the alternative site location studies, Basin Electric identified two potential sites. The proposed Project area is located approximately 14 miles northeast of the City of Brookings (figure 1-1). In addition to the generation facility, the proposed Project would include ancillary facilities such as a natural gas pipeline for fuel delivery, electrical transmission facilities to connect to the existing Department of Energy (DOE) Western Area Power Administration (Western) White Substation, either a water well system or water delivery from existing rural water system, and wastewater processing. Basin intends to request financing from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) to construct the proposed Project. The Federal action would consist of interconnection of the proposed Project transmission facilities with Western's transmission system at its existing White Substation, installation of terminal equipment within the substation, and or the granting of a loan or loan guarantee from RUS.

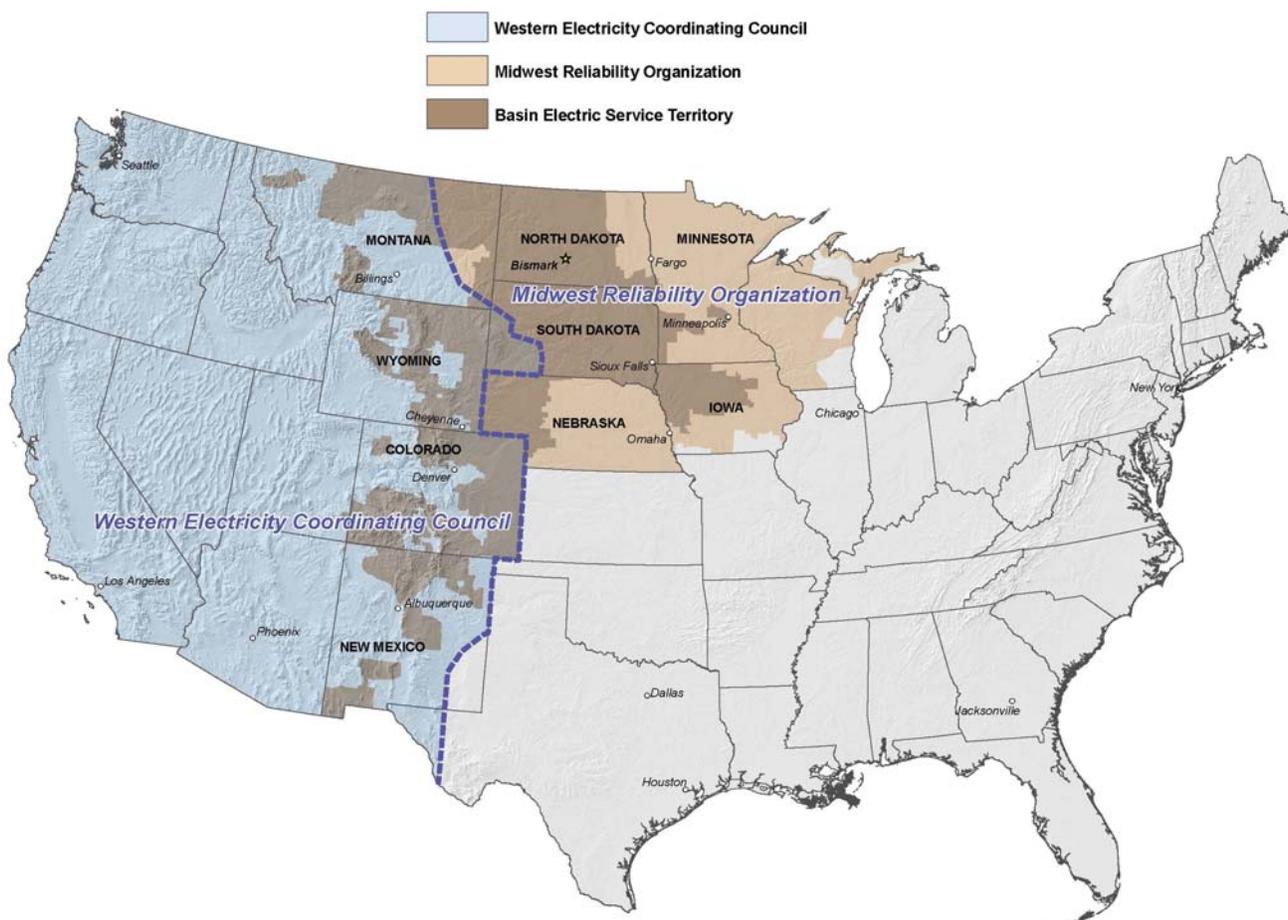
Basin Electric is a regional wholesale electric generation and transmission cooperative owned and controlled by the member cooperatives it serves. It was created in May 1961 as a result of regional efforts by electric distribution cooperatives and the Rural Electrification Administration, now RUS. Basin Electric includes more than 120 rural electric systems and is one of the largest electric generation and transmission cooperatives in the U.S. Basin Electric serves approximately 2.5 million customers in 430,000 square miles covering portions of nine states: Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming (figure 1-2).

Basin Electric, as the Applicant, has submitted requests to interconnect its proposed Project to Western's transmission system and has submitted a loan application to RUS for financing. Requests for interconnection and financial assistance are Federal actions, triggering appropriate environmental review under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations (CFR) parts 1500-1508), DOE National NEPA Implementing Procedures, 10 CFR part 1021, and RUS Environmental Policies and Procedures, 7 CFR 1794, as amended. Western is the lead Federal agency as defined at 40 CFR part 1501.5; RUS is serving as a cooperating agency.

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**Figure 1-2: Basin Electric Service Area**

Western and RUS have prepared this Environmental Impact Statement (EIS) under these regulations to describe the environmental effects of their respective Federal actions and Basin Electric's proposed Project and alternatives, including the No-Action Alternative.

### 1.1 WESTERN'S PURPOSE AND NEED

The Applicant proposes to interconnect its proposed Project with Western's White Substation. Western's purpose and need is to consider this interconnection request in accordance with section 211 of the Federal Power Act and Western's Open Access Transmission Service Tariff (Tariff). Section 211 of the Federal Power Act requires that transmission service be provided upon request if transmission capacity is available. Western's Tariff provides open access to its transmission system. If there is available capacity in the transmission system Western provides transmission services through an interconnection. This

interconnection request requires Federal action, which triggers NEPA review. When responding to the need for agency action, Western is bound by the following:

**Providing Transmission Service** - Under Western's Tariff, Western offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff complies with the Federal Energy Regulatory Commission's (FERC) Final Orders, which are intended to ensure non-discriminatory transmission system access. Western submitted revisions to its non-jurisdictional Tariff on January 25, 2005 as to certain terms and for inclusion of the Large Generator Interconnection Procedures (LGIP) and a Large Generator Interconnection Agreement (LGIA). On March 1, 2007, Western submitted revisions to its Tariff to FERC pursuant to FERC Orders No. 2003-C, 661, 661-A, 676, 676-A, 2006, 2006-A and 2006-B. The main purpose of this filing was to incorporate FERC's Small Generator Interconnection Procedures (SGIP) and Small Generator Interconnection Agreement (SGIA), and also to include revisions of certain terms relating to the LGIP and the LGIA. Western received final approval on its 2005 and 2007 filings from FERC on September 6, 2007. In order to comply with FERC's recent Order Nos. 890, 890-A, 890-B, and 890-C, and sections 35.28(e) and (f)(iv)(2) of its Regulations, Western submitted proposed revisions to its Tariff in September 2009.

**Protecting Transmission System Reliability and Service to Existing Customers** - Western must ensure that existing reliability and service is not degraded. Western's LGIP provides for transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify any system upgrades or additions necessary to accommodate the proposed Project and ensure that they are in the project scope.

## **1.2 RUS PURPOSE AND NEED**

Under the authority of the Rural Electrification Act (REA) of 1936, the Electric Programs of RUS provide loans and loan guarantees to rural electric cooperatives to finance the construction of electric distribution, transmission and generation facilities, including system improvements and replacements, energy conservation programs, and on-grid and off-grid renewable energy systems. The Applicant has requested financial assistance from RUS. This request is a Federal action; therefore, RUS has the need to respond to the Applicant's request for assistance by approving or denying the request.

In deciding whether to approve a loan or loan guarantee, RUS considers if the Applicant has provided sufficient justification for pursuing a proposal. This decision is based upon a review of an Alternatives Evaluation and Site Selection Study (AE &SSS), energy demand and transmission load forecasts, and potential environmental impacts associated with a proposal. In 2007, Basin Electric developed a Power

Supply Analysis (PSA) to assess projected needs of its members from Basin Electric's 2007 Load Forecast, which was approved by RUS on November 26, 2007. RUS has determined that approving a loan or loan guarantee for the proposed Project may constitute a major Federal action that could significantly affect the quality of the human environment; therefore, an EIS would have to be prepared prior to a decision on financing.

### **1.3 APPLICANT PURPOSE AND NEED**

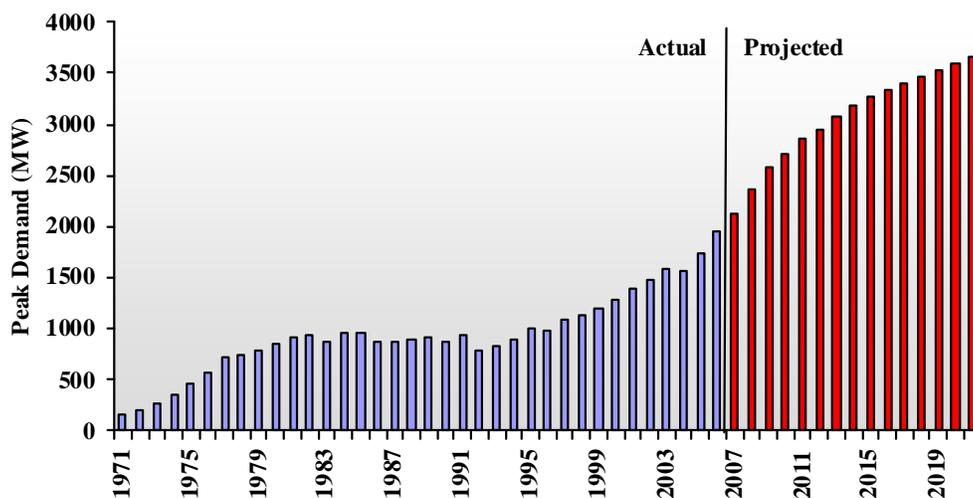
The purpose of the Basin Electric's proposed Project is to help serve the increased demand for electrical power to member cooperatives in the eastern portion of Basin Electric's nine-state service area. To meet this purpose and need, Basin Electric proposes to construct their generation facility and to connect it to Western's electrical transmission grid. An additional value of this generation is the potential to combine the operation of this combined-cycle intermediate generation with Basin Electric wind energy development on the electrical transmission grid. Under this combined Basin Electric resource operation, the gas-fired generation would be operated during periods of high demand and low wind generation, and would be backed down during periods of high wind generation.

In 2007, Basin Electric developed a PSA to assess projected needs of its members (Basin Electric 2007). This analysis identified an increasing use and demand for electricity within Basin Electric's service area due to industrial growth, energy-sector development (coal, oil, and natural gas), and new rural residential development. Figure 1-3 shows Basin Electric's actual peak demand from 1971 through 2006 and Basin Electric's forecasted peak demand from 2007 through 2021. Between 1999 and 2006, Basin Electric's total system peak demand increased 752 MW, from 1,195 MW to 1,947 MW. This is an increase of approximately 107 MW per year.

Basin Electric prepared a forecast showing load and capability surpluses and deficits through the year 2021. The forecast predicts that by 2014, there will be an anticipated deficit of 700-800 MW for the eastern portion of its service area (figure 1-4). According to the PSA, Basin Electric proposed to meet this increased demand by implementing a resource expansion plan that includes:

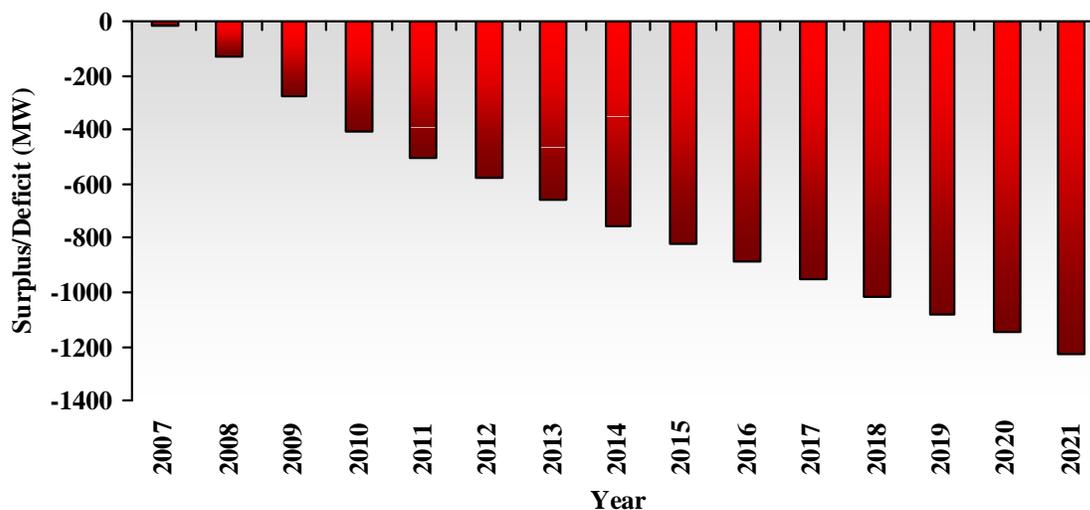
- 200 MW of peaking generation (2009)
- 300 MW of wind generation (2011)
- 250 MW of intermediate generation (2012)
- 600 MW of baseload generation (2016)

**Figure 1-3: Basin Electric Peak Demand**



Source: Basin Electric 2007

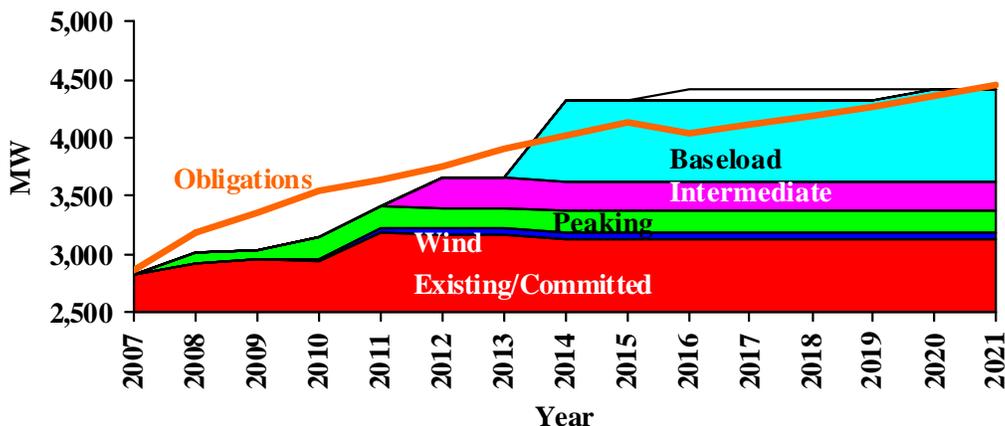
**Figure 1-4: Basin Electric Power Supply Deficit in Eastern Service Area**



Source: Basin Electric 2007

Although the study was completed in 2007, Basin Electric believes that its long-term projections are still accurate. Figure 1-5 shows the preferred resource expansion plan identified in the PSA. One recommendation of the PSA was that Basin Electric should move ahead with the development of 250 MW of intermediate generation, such as a combined-cycle combustion turbine within Basin Electric’s eastern system. The proposed Project has been identified as a means to meet the determined need for 250 MW of intermediate generation by 2012. The proposed Project has been sized for 300 MW in order to meet the 250 MW need and have a 50 MW reserve to meet peak intermediate needs.

**Figure 1-5: Basin Electric Power Supply Expansion Plan**



Source: Basin Electric 2007

### 1.4 AUTHORIZING ACTIONS

The proposed Project must comply with all Federal, State, and local regulations requiring permits or approvals. Table 1-1 lists agencies and their respective permit/authorizing responsibilities with respect to the proposed Project. The South Dakota Public Utilities Commission (SDPUC) has jurisdiction over the siting of power plants within the State of South Dakota. The Applicant submitted applications for an Energy Conversion Facility Permit and a natural gas pipeline to support the facility on July 28, 2009 (SDPUC 2009a; SDPUC 2009b). If granted, the SDPUC permit would authorize construction of the proposed Project under South Dakota rules and regulations.

**Table 1-1: Authorizations and Agencies**

Law/Regulation	Agency
<b>Federal</b>	
NEPA	Western / RUS
Clean Water Act (CWA), section 404 Nationwide Permit (NWP)	U.S. Army Corps of Engineers (USACE)
CWA, section 401 (Water Quality Certification)	South Dakota Department of Environment and Natural Resources (SDDENR)
National Pollutant Discharge Elimination System (NPDES) Permit	U.S. Environmental Protection Agency (EPA)
Migratory Bird Treaty Act (MBTA)	United States Fish and Wildlife Service (USFWS), Western/RUS
Endangered Species Act (ESA)	USFWS, RUS
Bald and Golden Eagle Protection Act (BGEPA)	USFWS, Western
Interconnection/Transmission Service Agreement	Western

<b>Law/Regulation</b>	<b>Agency</b>
NHPA	Western/RUS, South Dakota State Historic Preservation Office (SHPO), Federally Recognized Tribes
Native American Grave Protection and Repatriation Act	Western/RUS, SHPO
American Indian Religious Freedom Act	Western
Oil Pollution Prevention and Spill Prevention Control and Countermeasure Plans	EPA
<b>State</b>	
Temporary Water Rights Permit (if dewatering is required)	SDDENR
Easement Grants and Road Crossing Permits	South Dakota Department of Transportation (SDDOT)
Highway Access Permit/Utility Permit	SDDOT
Stormwater Discharge Permit and Stormwater Construction Discharge Permit	SDDENR
Facilities Permit (for Project)/Siting Authorization	SDPUC
State Threatened and Endangered Species	South Dakota Department of Game, Fish and Parks (SDGFP)
<b>County</b>	
Soil Erosion and Sediment Control Plan	Brookings and Deuel Counties
Zoning Ordinance	Brookings and Deuel Counties

## 1.5 AGENCY CONSULTATION AND PUBLIC INVOLVEMENT

Agency and public scoping occurred during February 6, 2009, to April 7, 2009. During that period public notices were published, a scoping meeting was conducted and 14 written comments were received.

### 1.5.1 Scoping Process

A Notice of Intent to prepare an EIS was drafted by Western and published in the *Federal Register* on February 6, 2009. The scoping meeting for the proposed Project was held approximately 2 miles west of the Project Area, at the McKnight Community Center in White, South Dakota, on February 24, 2009. Western mailed letters announcing the scoping meeting to Federal, State, Tribal, local agencies and landowners near the proposed Project sites during early February, 2009. RUS was not involved in the scoping process, since Basin Electric had not yet approached that agency for Project funding.

Notice of the public scoping meeting was published in two local newspapers. The notice was published in the Brookings Register on February 6, February 13, and February 20, 2009, and in the White Tri-City Star on February 12 and February 19, 2009. Radio spots announcing the scoping meeting were aired seven times a day during February 16-20, 2009, on both Brookings radio station KBRK-FM 93 and

Watertown radio station KWAT-AM. Additionally, flyers publicizing the scoping meeting were distributed to local businesses.

Basin Electric participated in lease negotiations with area landowners during the development of the proposed Project, and consulted with various local, State, and Federal agencies to provide information about and identify concerns regarding the proposed Project.

During the scoping meeting, project factsheets and comment response/distribution list request forms were available for all meeting participants. Western and Basin Electric also provided display boards to present project information for public viewing.

### **1.5.2 Identified Issues**

During the scoping period, letters requesting project-related comments were mailed to Federal, State, and local agencies as well as Native American tribes located near the proposed Project area. During the scoping meeting, attendees were provided with comment forms. They were asked to write down any comments and either return the forms at the meeting or mail them in order that they would be received or postmarked by the close of the scoping period, which ended on April 7, 2009. Western received a total of 12 written comments from agencies and two written comments from individuals. Listed below are the topics identified in the comments received and Western's responses. A Scoping Summary has been prepared and is included as appendix A.

#### **Cultural Resources**

One comment requested that Western initiate the section 106 process and consult with the South Dakota SHPO, Native American tribes, and other concerned parties with regard to protection of historic properties. Potential impacts to cultural resources are addressed in section 4.14.

#### **Water Resources**

Five comments were received requesting discussion and analysis of potential impacts to groundwater, surface water, drinking water, irrigation waters, and floodplains as a result of the construction and operation of the proposed Project. Two of these comments also addressed potential impacts to Wellhead Protection Areas and impacts to local groundwater supply near the proposed well site for the proposed Project. Two comments specifically requested compliance with section 404 of the CWA. Appropriate permitting requirements and potential impacts to water resources within the proposed Project area are discussed in section 4.3.

### **Wetland Resources**

Three comments were received requesting analysis of potential impacts to wetlands within the proposed Project area, and two of these comments specifically requested compliance with section 404 of the CWA. These comments also requested that the EIS include mitigation measures if avoidance of wetlands is not possible. Regulatory compliance with section 404, along with potential wetland impacts, is discussed in section 4.4.

### **Biological Resources**

Three comments were received that included biological resources concerns. Two of these comments requested prevention of the introduction and spreading of invasive plants and noxious weeds. One comment requested evaluation of the effects of the proposed Project on vegetation, wildlife, and hunting and fishing opportunities. Two comments also expressed concern over threatened and endangered species possibly occurring in the proposed Project area, and requested an evaluation be completed to determine if impacts to any species is expected, and that measures be put into place to protect any sensitive species that are encountered. One comment expressed a concern for avian mortality resulting from collisions with transmission lines associated with the proposed Project, and recommended incorporating measures to prevent line strike and electrocution hazards for avian species. All potential impacts to biological resources, including threatened and endangered species, are discussed in detail in section 4.5.

### **Air Quality**

Two comments were received regarding impacts to air quality in the proposed Project area. One comment recommended an evaluation of potential contribution to near and far-field air quality and greenhouse gas (GHG) emissions resulting from the construction and operation of the proposed Project. One comment recommended a detailed plan for addressing dust suppression during construction of the proposed Project, and one commenter expressed concern over general air pollution resulting from the proposed Project. Air quality issues and potential impacts are discussed in detail in section 4.1.

### **Socioeconomics**

Two comments were received regarding socioeconomic concerns or issues. One comment requested the disclosure and evaluation of any environmental justice impacts, and one comment requested information on economic benefits to the communities of Toronto, Astoria, and White. This comment also requested information on the long-term outlook for wind energy in the area. Socioeconomic issues and impacts related to the proposed Project are discussed in section 4.6.

**Transportation**

Three comments were received regarding transportation issues related to the proposed Project. Two comments focused on impacts to local roads and bridges, and their ability to handle heavy loads and increased traffic associated with the proposed Project. One commenter expressed concern over impacts to living conditions, traffic congestion, and dust from gravel roads impacting residences. One comment requested that Western contact Federal Aviation Administration (FAA) Technical Operations, Brookings Municipal Airport, and White Airport to identify possible impacts to aircraft navigation and/or communication equipment. This comment also requested that the design, construction, and operation of the proposed Project not create a hazardous wildlife attractant to surrounding airports. Transportation issues, including regulatory issues from FAA, are discussed in section 4.9.

**Soil/Land Resources**

Three comments regarding soil or land resources were received during the scoping period. One comment requested that, should contaminated soil or materials be encountered during construction activities, the contamination would be reported to the appropriate agency, and that contaminated soil will be stockpiled and sampled to determine disposal requirements. One comment requested the completion of the Farmland Conversion Impact Rating form for the proposed Project site to determine impacts to prime farmland, and another comment stated that there are no Farm Service Agency (FSA) mortgages or Conservation Reserve Program (CRP) tracts known to be in place within the proposed Project area. Contaminated soil is discussed in section 4.12 and farmland is discussed in section 4.2.

**Hazardous Materials**

One comment was received regarding hazardous materials associated with the proposed Project. The commenter suggested that additional research be conducted regarding past petroleum and chemical releases in the area that could affect the proposed Project area. Issues relating to hazardous materials are discussed in section 4.12.

**Safety**

One comment was received regarding a concern for worker safety due to weather during the construction phase of the proposed Project. Safety during construction and operation of the proposed Project is discussed in section 4.12.

**Cumulative Impacts**

One comment was received requesting a cumulative impacts analysis for resources of concern.

Cumulative impacts are discussed with each environmental resource in section 4 following discussion of direct and indirect impacts.

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