

## **Summary**

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# SUMMARY

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## Introduction

This Environmental Impact Statement (EIS) is being prepared in response to an Application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299), submitted by PacifiCorp (doing business as Rocky Mountain Power, the Proponent) to the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) (UTU83067). The Proponent proposes to construct, operate, and maintain the Sigurd to Red Butte No. 2 – 345-kilovolt (kV) Transmission Project (Project) from the existing Sigurd Substation in Sevier County, Utah, to the existing Red Butte Substation in Washington County, Utah; a distance of approximately 160 miles. The Project also includes the addition of new substation equipment for interconnecting the transmission line at the existing Sigurd Substation. The original application was submitted and received on December 19, 2008, and revised by the Proponent on September 11, 2009, to reflect changes in the Project description. The BLM has prepared this EIS to evaluate and disclose the potential Project-related environmental impacts that could result from implementation of the Proposed Action and alternatives.

The BLM serves as the lead federal agency for preparing the EIS and published a Notice of Intent to prepare the EIS in the *Federal Register* on January 5, 2010. Fourteen agencies, including the USFS, are participating as cooperating agencies in preparation of the EIS (Chapter 5).

As a regulated utility, the Proponent is responsible to provide its customers with safe, reliable, and adequate transmission capacity to meet short- and long-term projected load growth via connection to generation resources and through access to energy markets. As part of a forward-looking and long-range transmission plan to meet customer requirements, the Project addresses the Proponent's need to meet these obligations by adding facilities to its transmission system that would improve reliability and increase the capacity required to serve forecasted loads in Utah. The Project would allow for potential access to renewable energy resources and other generation sources in the future and would provide increased capacity to export energy in the event of energy surpluses.

Through the course of meeting its business and regulatory obligations, the Proponent's purpose and the need for the Project is based on the following factors:

- *Need to improve capacity:* The capacity of the existing system, which includes the Sigurd to Red Butte No. 1 – 345kV transmission line, is expected to be exceeded by 2014 and the Project is intended to provide sufficient and reliable capacity for load service.
- *Need to allow power sales, transfers, and purchases:* Under the Proponent's Open Access Transmission Tariff, the Proponent has transmission-service-contract obligations for firm transmission service into and out of southwestern Utah. The Proponent has contractual commitments to deliver 400 megawatt (MW) of additional service from Utah into Nevada beginning in 2013 and has received requests for 600 MW of imported power beginning June 2012. The Project is intended to fulfill the Proponent's contractual agreements.
- *Need to Provide Reliable Transmission:* The Proponent's regulatory and governing bodies (North American Electric Reliability Corporation and Western Electricity Coordinating Council) have established regulations and criteria that require transmission providers to evaluate expected normal and potential abnormal operating conditions and plan adequate redundancy in the system (e.g., provided through construction of multiple transmission lines or locating multiple lines in

wide, geographically diverse transmission corridors) to meet expected system reliability performance. If designed in a manner that meets the Proponent's system planning criteria, the Project would provide redundancy to the existing infrastructure and substantially improve the Proponent's ability to provide reliable electrical service to its customers.

- *Service Load:* The Project would support future regional electrical load growth in southwestern Utah and also would improve the ability of the Proponent's transmission system to transport energy into central Utah.
- *Access to Potential Renewable Generation Sources:* The Project would provide improved access to existing and new generation sources, and would provide options to access other energy resources, including renewable resources.

## Proponent's Proposed Action

The Proponent's Proposed Action is to construct, operate, and maintain a single-circuit 345kV transmission line from the existing Sigurd Substation, located north of Richfield, Utah, to the existing Red Butte Substation, located west of Central, Utah in Washington County.

Permanent facilities would include:

- A single-circuit 345kV overhead transmission line (including structures, shield wires, conductors, and insulators) between the Sigurd Substation and Red Butte Substation
- Communication regeneration station associated with the transmission line
- Access roads to the 345kV transmission line structures where there is no existing access
- New substation equipment at terminus points to interconnect the Project with the existing Sigurd and Red Butte substations

## Transmission Line Alternative Routes

Thirteen alternative routes are analyzed in the Draft EIS, including the Environmentally Preferred Alternative and Proponent's Proposed Action, as well as the alternative of taking no action. The alternative routes have been organized into two segments: (1) the northern area from the existing Sigurd Substation to south of the Black Mountains, and (2) the southern area from south of the Black Mountains to the existing Red Butte Substation.

### Northern Area – Sigurd Substation to South of the Black Mountains

There are six transmission line alternative routes in this segment that begin at the Sigurd Substation and end south of the Black Mountains. Each alternative route would cross Sevier, Millard, Beaver, and Iron counties. The following are the six transmission line alternative routes located in the northern area:

- **Alternative N1** Black Rock Road to Intermountain Power Project (IPP) transmission line north of Milford Wind Farm (Environmentally Preferred) – 120.7 miles
- **Alternative N2** Black Rock Road to IPP south of Milford Wind Farm – 118.2 miles
- **Alternative N3** Black Rock Road parallel to Kern River Pipeline – 117.2 miles
- **Alternative N4** Mineral Mountains to IPP south of Milford Wind Farm – 109.4 miles

- **Alternative N5** Mineral Mountains parallel to Kern River pipeline – 106.3 miles
- **Alternative N6** Mineral Mountains 1,500 feet east of Kern River pipeline (Proponent’s Proposed Action) – 105.5 miles

## **Southern Area – South of the Black Mountains to Red Butte Substation**

There are six transmission line alternative routes in this segment that begin south of the Black Mountains and end at the Red Butte Substation. Each alternative route would cross Iron and Washington counties. The following are the six transmission line alternative routes located in the southern area:

- **Alternative S1** Pinto Creek – 56.0 miles
- **Alternative S2** IPP West (Environmentally Preferred) – 49.6 miles
- **Alternative S3** Ox Valley – 57.6 miles
- **Alternative S4** IPP East – 48.9 miles
- **Alternative S5** Iron Springs and Pinto Creek (Proponent’s Proposed Action) – 59.0 miles
- **Alternative S6** Iron Springs and Ox Valley – 61.9 miles

## **Agencies’ Purpose and Need**

The purpose of this federal action is to respond to the Proponent’s application to the BLM and USFS for right-of-way for the Project across the federal lands they administer.

The purpose and need of both the BLM and USFS stems from the overarching policy and direction in the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, and its mission, which is multiple-use, sustained-yield management of the National System of Public Lands and National Forest System lands. FLPMA also provides BLM and USFS with discretionary authority to grant rights-of-way on lands they administer, taking into consideration impacts on natural and cultural resources (including historical resources). In doing so, BLM and USFS must endeavor “to minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment” through avoidance or mitigation.

The agencies’ purpose and need is further guided by the Energy Policy Act of 2005, which recognized the need to improve domestic energy production, develop renewable energy resource, and enhance the infrastructure (e.g., transmission lines) for collection and distribution of energy resources across the nation. To this end, the BLM and USFS are charged with analyzing applications of utility and transportation systems on federal lands they administer.

## **Decisions to be Made**

The decision to be made by each agency is whether or not to grant the Proponent a right-of-way to construct, operate, and maintain the proposed facilities on lands it administers and, if so, under what terms and conditions. In so doing, the BLM (as lead agency) will analyze, through the EIS, the Proponent’s plan for, and the potential environmental impacts of constructing, operating, and maintaining the Project. Based on the analysis presented in this EIS, the BLM will issue a Record of Decision (ROD) whether or not to grant a right-of-way on land administered by the BLM, and the USFS will issue a ROD whether or not to grant special-use authorization for a right-of-way on land administered by the USFS.

## **Affected Resources**

### **Climate and Air Quality**

Implementation of the Project on any of the alternative routes would have similar emissions and impacts on air quality. The same construction equipment would be used on any of the alternative routes and construction would occur over the same timeframe. Therefore, the only differences could be the amount of fugitive dust generated from earth-moving operations because each alternative could have slightly different surface disturbance based on different terrain. However, as discussed below, the differences among the alternative routes would be negligible.

Particulate-matter emissions associated with construction of the transmission line would result predominantly from fugitive dust generated by construction vehicles traveling on unpaved roads. Frequent watering, speed control, and possible application of dust suppressant would minimize these emissions.

Gaseous pollutant emissions associated with construction of the transmission line would be anticipated to result predominantly from diesel construction equipment. Proper equipment maintenance and use of equipment that meets current EPA emission standards would reduce these emissions and associated impacts on air quality.

Overall, impacts on air quality from Project construction would be temporary and localized to the vicinity of the activity (i.e., within 200 meters [approximately 600 feet] of emission source) and would quickly disperse or settle. The screening-level air quality model performed to analyze potential impacts on air quality could not rule out a potential exceedance of the 1-hour standard for nitrogen dioxide because of emissions from diesel equipment to be used during Project construction. Current modeling methodology available is inadequate to accurately characterize these impacts. Based on the conservative assumptions used in estimating the concentrations and dispersion of criteria pollutants generated from construction activities, exceedances of the National Ambient Air Quality Standards for nitrogen oxides or any other criteria pollutant resulting from Project construction would be unlikely.

## **Earth Resources**

### **Geologic Hazards**

A potential for direct impacts on transmission reliability, the integrity of Project structures, and constructability and indirect impacts on public health and safety associated with geologic hazards, including earthquakes and landslides, would exist regardless of the alternative route selected. The alternative routes (N1 to N6) with the highest potential for impacts associated with geologic hazards are those located in the Sevier River Valley and Sulphurdale areas. Alternative routes considered for the southern segment of the Project would cross more areas with moderate susceptibility to landslides and some faults. Alternative routes considered for the northern area of the Project would be characterized by less landslide susceptibility, but more faults and seismicity.

Because all alternative routes considered for the northern area of the Project would have several links (i.e., segments of a route sharing common endpoints determined by the point of intersection with other, adjacent links) in common, the potential impacts on earth resources associated with these links would be common for all alternative routes for these links. Along these links, the potential for impacts would be associated with the concentrated areas with high susceptibility for landslides and several faults that occur

between the communities of Sigurd and Elsinore (as well as near the community of Sevier). Other areas with higher concentrations of faults occur near other links. Alternative N3 has the highest number of Quaternary faults and the second highest amount of area with steep slopes. Alternative N6 has the largest areas with moderate landslide susceptibility. Alternative N1 has the least number of Quaternary faults and the lowest amount of areas with steep slopes. Overall, Alternative N1 would have the least total potential for impacts associated with geologic hazards. The southern alternative routes have fewer areas with geologic hazards; Alternative S5 and Alternative S6 have the smallest number of Quaternary faults. Alternative S5 also has the second lowest amount of area with high impacts due to steep slopes. However, Alternative S2 would have the least overall total potential for impacts associated with geologic hazards.

## **Mineral Resources**

Alternatives N1, N2, N3, N4, N5, and N6 share common links characterized by the concentrated areas of mineral resources occurring between Sigurd and Richfield, and between Elsinore and Sevier. Alternatives N3 and N5 would be anticipated to result in the lowest impacts on mineral resources. Overall, the southern alternative routes would result in less impact on mineral resources than alternative routes in the northern area. Alternative S1 would be anticipated to have the least potential for impacts on mineral resources, as only low to moderate impacts on mineral resources located along the alternative routes were identified.

## **Soil Resources**

Soils were assessed for their potential to be affected by Project-related activities based on (1) whether the soils are capable of supporting farmland (regarded as soils susceptible to potential adverse impacts associated with Project-related construction activities) or (2) whether soils with moderate or high susceptibility to erosion. Impacts on soils would be limited to areas where ground-disturbing activities would occur—access-road cutting and grading, clearing and leveling of transmission-line structure work areas, and other work areas. Construction activities would result in short-term impacts on soils by increasing exposure of soils susceptible to water or wind erosion at the surface. This could result in degradation of the surface and loss of soils. Road construction would crush vegetative cover, expose land surfaces, compact soils, cause rutting, and increase and/or accelerate soil erosion, which could result in further degradation of the surface, soil productivity, or water quality if sediment is washed into nearby drainages. Such impacts would be reduced by minimizing ground-disturbing activities, implementing best management practices (BMPs), and applying area-specific selective mitigation. Examples of area-specific selective mitigation include spanning sensitive areas (i.e., placing tower structures so the transmission line extends across a sensitive area or resource) and measures to restrict the construction or improvement (e.g., widening) of access roads in areas with sensitive soils.

Impact on soils along the alternative routes would be mostly low; however, moderate and moderate-to-high impacts could result. In the northern area of the Project, Alternatives N1, N2, and N4 cross the least amount of soils that could result in moderate-to-high impacts (approximately 28 to 29 miles). Alternatives N3, N5, and N6 cross areas of soils (ranging from approximately 39 to 48 miles) that could result in moderate to high impacts. In the southern area of the Project, Alternative S3, (the shortest of the southern routes) crosses approximately 23 miles of soils that could result in moderate impacts. Alternative S5 (the longest of the southern routes) crosses 23 miles of soils that could result in moderate-to-high impacts. Alternatives S1, S2, S4, and S6 cross areas (ranging from approximately 24 to 28 miles) of soils that could result in moderate-to-high impacts.

## **Water Resources**

The Proposed Action could affect water resources in the Project area. Spanning rivers, perennial streams, intermittent/ephemeral streams, water bodies, and canals could result in disturbance of riparian vegetation and deposition of fill into wetlands or waters of the United States. The construction of access roads, staging areas, work areas, and stream crossings also could affect riparian vegetation and result in deposition of fill into wetlands or waters of the United States. The potential to affect water resources varies by alternative route: some effects on water resources are common to all alternative routes considered, some effects are avoidable, and other effects most likely would be unavoidable. In all cases, water resources would be protected to the extent practicable through the use of BMPs. Impacts resulting from the Project would be mitigated to the extent practicable to minimize permanent impacts on water resources. .

## **Biological Resources**

The construction, operation, and maintenance of the Project would result in both direct and indirect effects on biological resources regardless of the alternative selected. Direct effects associated with construction activities would likely include (1) behavioral disturbance and the displacement of wildlife (temporary); (2) habitat loss, modification, and fragmentation, including increased potential for the establishment and spread of noxious weeds in disturbed areas (long-term); (3) the long-term displacement of individual animals; and (4) the potential for mortality, primarily for wildlife species with limited mobility (temporary).

Indirect effects associated with Project-related activities could result from the construction of permanent access roads, which could be used by the general public to access currently inaccessible habitats. This additional human presence and activity and vehicle noise could result in displacement, abandonment of habitat, behavioral disruption, and additional stress during critical periods. New access into previously inaccessible habitats could increase displacement of wildlife and mortality by legal hunting or poaching. Public use of access roads could facilitate the spread of noxious weeds and increase the risk of human-caused wildfire. These indirect effects would be permanent.

Alternatives N3, N5, and N6 cross an active Utah prairie dog colony and would be located within 2 miles of active sage-grouse leks. Implementation of the Project in any of the northern area alternative routes, between the Sigurd Substation and south of the Black Mountains, would affect designated sage-grouse brood-rearing habitat. Alternatives S1, S5, and S6 cross habitat where the Southwestern willow flycatcher is known to breed and forage. By implementing BMPs, including timing constraints for construction and other selective mitigation measures such as avoidance of sensitive habitats, impacts could be reduced. Additionally, preconstruction surveys and or construction monitoring would be applied in accordance with land management requirements defined in the Plan of Development (POD). The POD is a document required by BLM for the development and implementation of a project that details the methods and procedures, including BMPs and mitigation measures and environmental compliance and land use and access requirements, which would be used in construction of a project. The POD will be completed following the selection of the Agency Preferred Route.

## **Cultural Resources**

The prehistory, history, and Native Americans of southern Utah are described in the EIS. The prehistory of southern Utah is currently classified into four general phases, exhibiting major cultural changes: the

Paleoindian (ca. 12,000 before present [BP] to 8000 BP), Archaic (ca. 8000 BP to 1500 BP), Formative, which includes the Fremont Complex and Virgin Anasazi Complex (1500 BP to 700 BP), and Late Prehistoric (1300 anno domini [AD] to 1776 AD). The history of southern Utah is described in five major time periods associated with significant events and activities: the Exploration Period (1776 to 1847), Settlement Period (1847 to 1870), Community and Business Development (1870 to 1929), Depression Era (1929 to 1940), and World War II and the Post-war Era (1941 to present). Also addressed in the EIS are the two primary cultural groups indigenous to southern Utah—the Southern Paiute and Western Ute.

For this Project, baseline cultural resource data were collected within a 4-mile-wide study corridor (i.e., 2 miles on either side of the reference centerline for each alternative route). Baseline data consisted of Class I data (previously recorded cultural resource sites on file with the Utah Division of State History, Utah State Historic Preservation Office [SHPO], National Register of Historic Places [NRHP]-listed properties, and National Historic Landmarks). In addition, the county historic files of the SHPO also were reviewed to identify historic architectural properties located within each study corridor. These data sources provided information on the presence of recorded sites in locations that have been surveyed for cultural resources; however, it is important to note that the absence of sites in areas where cultural resources surveys have not been conducted is not indicative of an absence of cultural resource sites in those locations. The Class I inventory resulted in the identification of 1,716 previously recorded sites: 1,343 prehistoric sites, 265 historic sites, and 108 multi-component sites.

In the northern area of the Project, Alternative N1 crosses the fewest areas of high cultural resource sensitivity (approximately 10.7 miles) and it has the fewest number of recorded cultural resources sites (37). Much of Alternative N1 is located along existing transportation corridors and or existing corridors for other development projects (e.g., wind farms, pipelines, fiber optic lines, and transmission lines). The construction and maintenance associated with these projects has likely either compromised or destroyed cultural resources sites, or greatly reduced the likelihood of finding intact cultural resources sites with surface manifestations. In addition, Alternative N1 avoids two significant obsidian sources (Negro Mag Wash Obsidian Source and Wildhorse Canyon Obsidian Source), which cover large areas and were extensively used during prehistory and therefore have high site densities in their vicinities. Other alternative routes considered for the northern area of the Project, Alternatives N2 to N6, bisect these two important cultural resources sites.

In the southern area of the Project, Alternative S3 crosses the fewest areas of high cultural resource sensitivity (approximately 1.0 mile) and it has the fewest number of recorded cultural resources sites. Similar to Alternative N1, a portion of Alternative S3 is located along existing transportation corridors and or existing corridors for other development projects (e.g., wind farms, pipelines, fiber optic lines, and transmission lines). The construction and maintenance associated with these projects has likely either compromised or destroyed cultural resources sites, or greatly reduced the likelihood of finding intact cultural resources sites with surface manifestations. In addition, Alternative S3 is not in the vicinity of any known significant historic cultural resources sites (e.g., Mountain Meadows Massacre Site, Old Spanish Trail) nor is it situated in an area of significance for prehistoric cultural resources sites. Alternatives S2 to S6 are each located in proximity to either significant historic cultural resources sites or in areas of prehistoric use with numerous significant prehistoric cultural resources sites.

To minimize impacts on cultural resources, recorded cultural resources sites would be avoided and a Historic Properties Treatment Plan would be developed in consultation with the agencies, SHPO, tribes, and consulting parties.

Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires the BLM and the cooperating federal agencies to consider the effect of the agencies' undertakings on properties listed in or eligible for the NRHP, which can include a diversity of archaeological, historic, and traditional cultural

resources. Regulations for Protection of Historic Properties (36 CFR 800) implement Section 106 and define a process for federal agencies to use in consulting with SHPOs and other interested parties, as appropriate in assessing the effects of undertakings. Pursuant to those regulations, the BLM Cedar City Field Office is serving as the lead for Section 106 compliance and initiated Section 106 consultation with the Utah SHPO in April 2010. Those consultations in connection with the Project are ongoing and will continue during post-EIS phases of Project implementation. The BLM also invited the Advisory Council on Historic Preservation (ACHP) to participate in the Section 106 process. The ACHP accepted the invitation and will consult on the Project.

A purpose of the Section 106 consultations in connection with the Project is to solicit expressions of concern, collect relevant data, obtain reviews of the analysis of the collected information, and can include negotiation of a Programmatic Agreement specifying how cultural resources would be considered during the EIS and post-EIS phases of Project-planning and implementation. A Programmatic Agreement is being developed among the various agencies and consulting parties (including special interest organizations and the Proponent) involving the Project. Signatories to the Programmatic Agreement include the BLM, USFS, ACHP, Bureau of Indian Affairs, SHPO, Utah School and Institutional Trust Lands Administration, and the Utah Department of Transportation. Representatives of these agencies are participants in the Cultural Resources Task Group, a formalized group that meets once a month to discuss Project status, issues, and the cultural resource study approach. One invited signatory, the Proponent, and 17 concurring parties also are participating in the Programmatic Agreement.

Tribal consultation is required in all steps of the NHPA Section 106 process when a federal agency undertaking may affect historic properties that are either (1) located on tribal lands or (2) when any tribe attaches religious or cultural significance to the historic property, regardless of the property's location. In such cases, the federal agency must notify the potentially affected tribes of the undertaking and give those tribes the opportunity to consult should they wish to do so.

Early in this EIS process, the BLM initiated contact with several tribes in accordance with NHPA and other laws and Executive Orders. In December 2009, the BLM Cedar City Field Office sent a letter and Project area map to 14 tribes to solicit input from them regarding any cultural resource concerns they might have. The Project alternative routes do not cross Indian Reservation lands; however, these 14 tribes may have interest in cultural resources in the Project area.

In addition, BLM initiated consultation meetings with the tribes in October 2009, meeting with the Navajo Nation, Hopi Tribe, Moapa Band of Paiutes, Paiute Indian Tribe of Utah, Northwest Band of Shoshone, and Goshute-Ibapah Tribe. The tribes did not express specific concerns or objections to the Project. All requested to be kept informed of Project developments and updated on the EIS process. As part of the Section 106 process, BLM will continue to meet with the tribes for the duration of the Project.

Additional information on formal consultation conducted by BLM under the requirements of the NHPA is presented in Chapter 5.

## **Paleontological Resources**

Paleontological resources, the fossilized remains, traces, or imprints of organisms preserved in the Earth's crust, provide information about the history of life on Earth. Paleontological resources occurring on federal and state lands are afforded protection by federal and state law and regulation. Geologic units in the Project area (and crossed by the alternative routes) range in age from Proterozoic to Cenozoic. There are 16 known fossil localities in these geologic units, some of which are considered to be scientifically

significant by the BLM, USFS, and the state of Utah because they contain vertebrate fossils and/or scientifically significant invertebrate or plant fossils.

In the northern area of the Project, Alternatives N1 to N6 cross a similar area of paleontological sensitivity (i.e., between approximately 10 to 12 miles in high sensitivity areas and between 2 and 5 miles in moderate/undetermined sensitivity areas). Alternatives N1, N2, and N4 cross the least areas of high sensitivity; whereas, Alternative N6 crosses the most area of high sensitivity. Geological units with high sensitivity for paleontological resources along these alternative routes include the Green River, Crazy Hollow, Flagstaff, and Sevier River formations. In the southern area of the Project, Alternatives S1 to S6 cross varying amounts of areas of paleontological sensitivity: between approximately 1 and 6 miles of high sensitivity areas and between approximately 2 and 8 miles in moderate/undetermined sensitivity area. Alternative S1 crosses the least area of high sensitivity; whereas, Alternative S5 crosses the most area of high sensitivity. Geological units with high to moderate/undetermined sensitivity for paleontological resources along these alternative routes include the Iron Springs Formation, Mancos Shale, Claron Formation, and Flagstaff Formation.

Mitigation measures would be implemented in areas of high or moderate/undetermined sensitivity before and during construction. Mitigation would include a preconstruction survey to describe and collect scientifically significant fossils, monitoring of ground-disturbing activities during construction in order to collect scientifically significant fossils, curation of any fossils collected during the survey or monitoring, and deposition of the fossils into a federally approved repository for future scientific study and education.

## **Visual Resources**

Regional landscapes in the Project area range from developed urban and suburban landscapes in the northern area of the Project to rural areas and areas of intact character in the southern area of the Project. The urban growth parallels Interstate 70 from Sigurd to Joseph to the Fishlake National Forest boundary. Foothills and mountains, including the Pahvant, Tushar, and Mineral mountains, occur in the northern Project area. Sagebrush basins surrounded by foothills comprise the central Project area. Foothills and mountains, including the Bull Valley, Atchison, and Pine Valley mountains, comprise the southern Project area. Agricultural development, such as center-pivot farming, dryland agriculture, and livestock grazing lands are integral to the character of the areas around the Sevier River, Escalante Desert, Ox Valley, Mountain Meadows, and along Pinto Creek.

To characterize and assess visual resources for all alternative routes, regardless of jurisdiction, the following components were inventoried (1) landscape scenery; (2) sensitive viewers; and (3) federal agency resource management objectives.

In the northern area of the Project, impacts on visual resources are similar among all alternative routes. Alternatives N1, N2, and N3 avoid crossing the Mineral Mountains while Alternatives N4, N5, and N6 cross the Mineral Mountains; therefore, these alternatives would have an increased impact on landscape scenery. Alternatives N3, N5, and N6 cross areas exhibiting stronger project contrast since these alternative routes do not parallel the IPP transmission line.

In the southern area of the Project, impacts on visual resources are similar among all six alternative routes from Link 163 to the Newcastle area. Alternatives S1, S3, S5, and S6 traverse intact landscapes with few modifications and, therefore, higher impacts on residences and scenic quality in these areas would result. Alternative S4 parallels an existing transmission line, but also crosses an inventoried roadless area (IRA) with a high existing scenic integrity. Alternative S2 also parallels the existing transmission line and does

not traverse an IRA, but could result in higher impacts on residences and the Mountain Meadow Massacre Site and proposed national landmark.

## **Land Use and Recreation Resources**

All alternative routes cross various types of land uses and recreational opportunities. Given the predominately rural character of the Project area, agriculture, particularly livestock grazing, is the primary land use. Irrigated agriculture is common near populated areas located along interstate and state highways. The city of Richfield and the surrounding Sevier Valley are the most urbanized areas, with a concentration of residential, industrial, commercial, and quasi-public uses.

Designated recreation areas are located predominately in the Pahvant, Tushar, and Pine Valley mountain ranges. Unimproved, dispersed recreation opportunities occur throughout the Project area on BLM- and USFS-administered lands.

Impacts on existing land uses would be predominately low, short-term, and common to all alternative routes. Potential impacts on future land use, specifically other proposed energy projects, could include constraints on the development (e.g., placement) of facilities (e.g., wind turbines, solar panels, transmission lines, etc.). The intensity and extent of impacts on specific future development activities could not be assessed due to the preliminary nature of these projects. The study areas for other proposed projects were avoided to the extent possible during the identification of alternative routes for the Project, limiting the extent of the areas that could be affected. It would be anticipated that any remaining impacts could be mitigated by engineering design of the future facilities. Impacts on recreation could result from potential conflicts with the prescribed management for certain recreation opportunity spectrum designations on both the Fishlake and Dixie National Forests associated with the increased access to these areas common to all alternatives. Impacts on recreational uses could result along alternative routes crossing off-highway vehicle trails and scenic backways, which could limit the use of these facilities during construction of the Project. Mitigation could include installing physical barriers on temporary access roads after they are reclaimed following construction to impede future access by the public for general and undesired use.

## **Wildland Fire Ecology and Management**

The potential effects on wildland fire ecology and management associated with the Project include the (1) risk of potential fire caused by construction activities; (2) presence of transmission lines and the limited ability of the agencies to manage fire in remote mountain areas; and (3) potential effect on operation of the transmission line in the event of a wildland fire.

The alternative routes do not conflict with the Southern Utah Support Area Fire Management Plan and Richfield Fire Management Plan. Given the fire-safety and mitigation protocols that the land-management agencies would require to be in place, it is not anticipated the implementation of the Project would have significant impacts on wildland fire ecology and management. However, during construction there would be an increased risk of ignitions due to construction activities. During operation of the line, it would be unlikely the Project facilities would cause fires, except in the rare case of arcing from the power line to the ground or nearby vegetation. In the event of a lightning strike, ground wires on the structures would ground the current. Potential indirect effects include increased fire frequency due to increased traffic on access roads. Studies have shown road density may be related to the frequency of human-caused ignitions. Mitigation could include limiting the construction of new access roads in areas of concern and limiting public access to new permanent access roads (i.e., those to be used for maintenance) or

temporary access roads reclaimed following construction by installing physical barriers to impede future access for general and undesired use. Construction equipment would be equipped with spark arrestors to reduce the chance of ignition.

Wildland fires have the potential to affect the operation of the Project facilities and, consequently, the reliability of the transmission system in the region. The alternative routes in the northern area from Sigurd to Lund Road (Alternatives N1 to N6), in particular, would be susceptible to outages due to the incidence of wildfires in the area. Wildfires generate heat and smoke and have been documented to cause line outages in Utah and other parts of the western United States. The Tushar and Mineral mountains are highly susceptible to lightning strikes, and cheatgrass in the area allows fires to grow and spread rapidly. Wildfires can damage transmission line structures and smoke can cause transmission lines to arc, putting them out-of-service.

## **Social and Economic Conditions**

The five counties in central and southwestern Utah—Beaver, Iron, Millard, Sevier, and Washington counties—within which the Project area is located, comprise the study area of approximately 17,070 square miles. The purpose of the study was to identify the existing social and economic conditions in the area and assess the potential effects of implementing the Project. The inventory of social and economic resources includes conditions and trends in each of the counties for demographics (i.e., population trends and projections, income), transportation, economic characteristics (i.e., employment, economic base), and local resources (i.e., housing, schools, public services). Also addressed is environmental justice with the intent of avoiding disproportionately high and adverse health and environmental effects on minority and low-income populations.

The construction, operation, and maintenance of the proposed transmission line and related facilities under all alternative routes would be expected to result in minimal long-term impacts on local employment. The largest potential impact from the Project on employment would occur during the construction phase. However, construction is expected to be staggered over approximately two years, so average direct employment is not expected to exceed 200 people at any one time and would be dispersed across the study area. It is anticipated that a large percentage of the construction workforce would commute to the Project work areas from their residences rather than relocate. Impacts on population, housing, and government services are expected to be minimal.

For all alternative routes, construction and operation of the Project could affect private property values. The impacts are difficult to measure, would vary among individual properties, and would be influenced by a number of interplaying factors such as proximity of residential properties to towers and lines, types and size of lines, and locations of landscaping and surrounding topography. Impacts would tend to decline with distance from a particular line and over time (i.e., less impact on private property values after the transmission line has been constructed and is in operation).

While potential environmental justice populations exist in the study area near all the alternative routes, it does not appear that these populations would be disproportionately affected by the development or operation of the Project.

The construction and operation of the Project would generate additional property taxes to counties where the transmission line would be located. The magnitude of these tax revenues range by alternative route from \$0.88 million to \$2.0 million in the first year of operation and \$85,000 to \$198,000 in following years the line is in operation. The counties would each receive their proportional share of such tax revenues.

## **Public Health and Safety**

The existing and proposed transmission lines (circuits) between the Sigurd and Red Butte substations are sources of electric and magnetic fields, audible noise, and radio noise. The calculated magnetic field levels associated with the operation of the Project would be below limits for the general public recommended by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the International Committee on Electromagnetic Safety (ICES). Because the Project would increase transfer capability between the Sigurd and Red Butte substations, operation of the Project would decrease magnetic fields on the route of the existing Sigurd to Red Butte No. 1 – 345kV transmission line. The highest calculated electric-field level associated with the operation of the Project would be below limits recommended by the ICNIRP and the ICES for the general public outside the right-of-way.

The levels of audible noise from alternating current transmission lines are higher in inclement/stormy weather than fair weather. In fair weather, the audible noise from the additional line would be hard to detect and would be lower outside the right-of-way than the Environmental Protection Agency's recommendations.

The existing and proposed transmission lines meet the criterion for fair-weather radio noise recommended in the Electrical and Electronics Engineers Radio Noise Design Guide.

## **Summary Comparison of Alternatives**

Following the assessment of potential impacts, the alternatives were screened, compared, and ranked from the least to the most environmental effects. The comparison process resulted in the identification of the Environmentally Preferred Alternative, which is the combination of Alternative N1 and Alternative S2.

The Agency Preferred Alternative on federal lands will be identified after the public has provided comments on the Draft EIS.

The Proponent identified its preferred, or proposed route, which is the combination of Alternatives N6 and S5. Alternative N6 was selected by the Proponent because it provides physical separation from other high-voltage transmission lines (e.g., IPP 500kV transmission line) and underground pipelines (e.g., Kern River). Similarly, Alternative S5 was selected by the Proponent because it best meets the company's need to provide safe, reliable, adequate, and efficient service to southwestern Utah by providing physical separation from other existing high-voltage transmission lines (e.g., IPP 500kV transmission line and Sigurd to Red Butte No. 1 – 345kV transmission line).

## **Consultation and Coordination**

Integrated with the planning, analysis, and review activities of EIS preparation, the BLM is conducting a comprehensive program of agency coordination and public participation, commencing with scoping early on and continuing throughout the EIS process. The intent of the program is to proactively encourage interaction between the BLM and other federal, state, and local agencies and the public to keep them informed about the Project through dissemination of information and to solicit information that assists in analysis and decision-making.

Agencies and organizations having jurisdiction and/or specific interest in the Project were contacted at the beginning of scoping, during the resource inventory, and prior to the publication of the EIS to inform

them of the Project, verify the status and availability of existing environmental data, request data and comments, and solicit their input about the Project. The organizations participating as cooperating agencies in preparing the EIS are the USFS (Dixie and Fishlake National Forests) and U.S. Army Corps of Engineers; Utah Public Land Policy Coordination Office and School and Institutional Trust Lands Administration; and the local governments of Beaver, Iron, Millard, Sevier, and Washington counties and the municipalities of Enterprise and St. George.

The BLM has initiated consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act and with the State Historic Preservation Officer under Section 106 of the National Historic Preservation Act. A Programmatic Agreement is being finalized among the various agencies and consulting parties (including special interest organizations and the Proponent) involved with authorizing the Project. The Programmatic Agreement outlines the stipulations that would be followed concerning the identification, assessment, and treatment of cultural resources for the Project, including the cultural resource study conducted for this EIS.

The Project alternative routes do not cross Indian Reservation lands; however, early in the EIS process, the BLM initiated contact with Indian tribes that may attach religious or cultural significance to cultural resources in or near the Project area. In December 2009, the BLM sent a letter and Project area map to 14 tribes to solicit input from them regarding cultural resource concerns.

Scoping, a process open to the public and conducted early in the Project (February and March 2010), served to identify the range or scope of issues to be addressed during the environmental studies in the EIS. Activities associated with scoping included (1) agency and interagency meetings; (2) four public scoping meetings; (3) newsletter mailings (distributed to interested parties on the Project mailing list, which includes federal, state, and local government agencies, special interest groups, and individuals—a total of 5,322 parties), media releases, and legal notices to inform the public of the Project, EIS preparation; and (4) establishing a BLM Project website ([http://www.blm.gov/ut/st/en/fo/cedar\\_city/planning/sigurd\\_to\\_red\\_butte.html](http://www.blm.gov/ut/st/en/fo/cedar_city/planning/sigurd_to_red_butte.html)) and posting project information to the BLM Environmental Notification Bulletin Board (<https://www.blm.gov/ut/enbb/index.php>). In general, comments from both the public and agencies related to Project need, benefits, and impacts on the environment. These comments received during this early process are documented in the *Sigurd to Red Butte No. 2 – 345kV Transmission Line Project EIS Scoping Report*, which is available for viewing at the BLM field offices and on the BLM Project website.

In addition, the Proponent convened two Community Working Groups (CWGs) representing diverse interests within the Project area, including representatives from cities, counties, and stakeholders in the northern and southern portions of the Project area. While the CWGs were not decision-making entities on the Project, the members of the CWGs were asked to provide feedback on the Project and consider the views of the group, as well as the views of their respective organizations and/or communities. The Proponent also mailed a letter to landowners within 1 mile of the reference centerline for the alternative routes to be presented during public scoping for recommendation for detailed analysis in the EIS and conducted meetings with the landowners, to discuss the Project and answer their questions, prior to the BLM's public scoping meetings.

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