

3.12 MINERALS

This section addresses potential impacts to mineral resources from the Preferred Route, Proposed Route, and Route Alternatives during construction, operations, and decommissioning. The primary reason to define impacts to minerals is to reduce, minimize, or mitigate effects to minerals from Project construction and operations. This section analyzes the potential impacts on exploitable mineral resources including oil, gas, geothermal, coal, trona, precious and semiprecious stones, metals, salt, sand, gravel, and clay. Related geological-type sections include Section 3.13 – Paleontological Resources, Section 3.14 – Geologic Hazards, and Section 3.15 – Soils.

The BLM's Preferred Routes for each segment of the Project are listed below. Where applicable, the preferred route identified by another federal agency or a county or state government is also noted.

- **Segment 1W:** The BLM's Preferred Route is the Proposed Route (Figure A-2). This route is also the State of Wyoming's preferred route.
- **Segment 2:** The BLM's Preferred Route is the Proposed Route (Figure A-3). This route is also the State of Wyoming's preferred route.
- **Segment 3:** The BLM's Preferred Route is the Proposed Route, including 3A (Figure A-4). This route is also the State of Wyoming's preferred route.
- **Segment 4:** The BLM's Preferred Route is the Proposed Route (Figures A-5 and A-6) except within the Caribou-Targhee NF. The portion of this route in Wyoming is also the State of Wyoming's preferred route. The Forest Service's preferred route is the Proposed Route within the NF incorporating Alternative 4G (Figure A-6).
- **Segment 5:** The BLM's Preferred Route is the Proposed Route incorporating Alternatives 5B and 5E, assuming that WECC reliability issues associated with 5E are resolved (Figure A-7). Power County's preferred route is the Proposed Route incorporating Alternatives 5C and 5E (Figure A-7).
- **Segment 6:** The BLM's Preferred Route is the proposal to upgrade the line voltage from 345 kV to 500 kV (Figure A-8).
- **Segment 7:** The BLM's Preferred Route is the Proposed Route incorporating Alternatives 7B, 7C, 7D, and 7G (Figure A-9). The Proposed Route in the East Hills and Alternative 7G will be microsited to avoid sage-grouse PPH. Power and Cassia Counties' preferred route is Alternative 7K (Figure A-9).
- **Segment 8:** The BLM's Preferred Route is the Proposed Route incorporating Alternative 8B (Figure A-10). This is also IDANG's preferred route.
- **Segment 9:** The BLM's Preferred Route is the Proposed Route incorporating Alternative 9E, which was revised to avoid PPH and the community of Murphy (Figure A-11). Owyhee County's preferred route is Alternative 9D (Figure A-11).
- **Segment 10:** The BLM's Preferred Route is the Proposed Route (Figure A-12).

3.12.1 Affected Environment

This section discusses those aspects of the locatable, leasable, and saleable mineral development that could be impacted by the Project. It starts with a discussion of the Analysis Area considered, identifies the issues that have driven the analysis, and characterizes the existing conditions across the Proposed Action in Wyoming and Idaho.¹

3.12.1.1 Analysis Area

The Analysis Area includes the geologic environment crossed by the Proposed and Alternative Routes, substations, and temporary construction areas in Wyoming, Idaho, and Nevada. The geology of southern Wyoming (Segments 1 through 4) includes large expanses of sedimentary rocks that contain economical deposits of coal, trona, phosphate, uranium, and other locatable, leasable, and saleable minerals. The state has an extensive history of mining, including many currently active mines. In addition, Wyoming currently contains extensive oil and gas wells and leases. Figure 3.12-1 shows mineral resources in Wyoming and Idaho.

Southern Idaho has different mineral resources than those found in southern Wyoming. Several phosphate mines in Caribou County, located north of the Analysis Area, are the only large-scale mining operations in southern Idaho. Phosphate and vanadium resources are currently being explored in the mountains west of Paris, Idaho, in Bear Lake County near Segment 4 but no active mining is occurring. Other mining claims exist for locatable minerals in the mountains of southern Idaho, and development of future mining projects is possible. These include current gold mining exploration in southern Cassia County within the Alternative 7K Analysis Area. The area south of Oakley, Idaho, and north of the Alternative 7K Analysis Area also contains several decorative stone quarries. Oakley Stone, a micaceous quartzite that breaks into blocks or flat stones, is a regionally recognized popular building stone. Otherwise, there are currently no active locatable mining projects within the Idaho portion of the Analysis Area.

As the routes progress west into the Snake River Valley of southern Idaho (Segments 5 through 10), basalt bedrock predominates. The predominant mineral resources here consist of materials such as sand and gravel, clay, road base, fill, or building stones. The basalt does not contain economic quantities of metallic or energy-related mineral deposits.

Most of southern Idaho contains the potential for geothermal resources within deep aquifers (DOE 2003a). U.S. Geothermal operates a 10 MW geothermal power plant on private and leased land within the Segment 7 Analysis Area in southern Cassia County (U.S. Geothermal 2007). IDWR lists over 1,000 geothermal wells in southern Idaho, many of which are used for building heating, greenhouses, and aquaculture (IDWR 2009).

¹ The Project no longer has a route in Nevada.

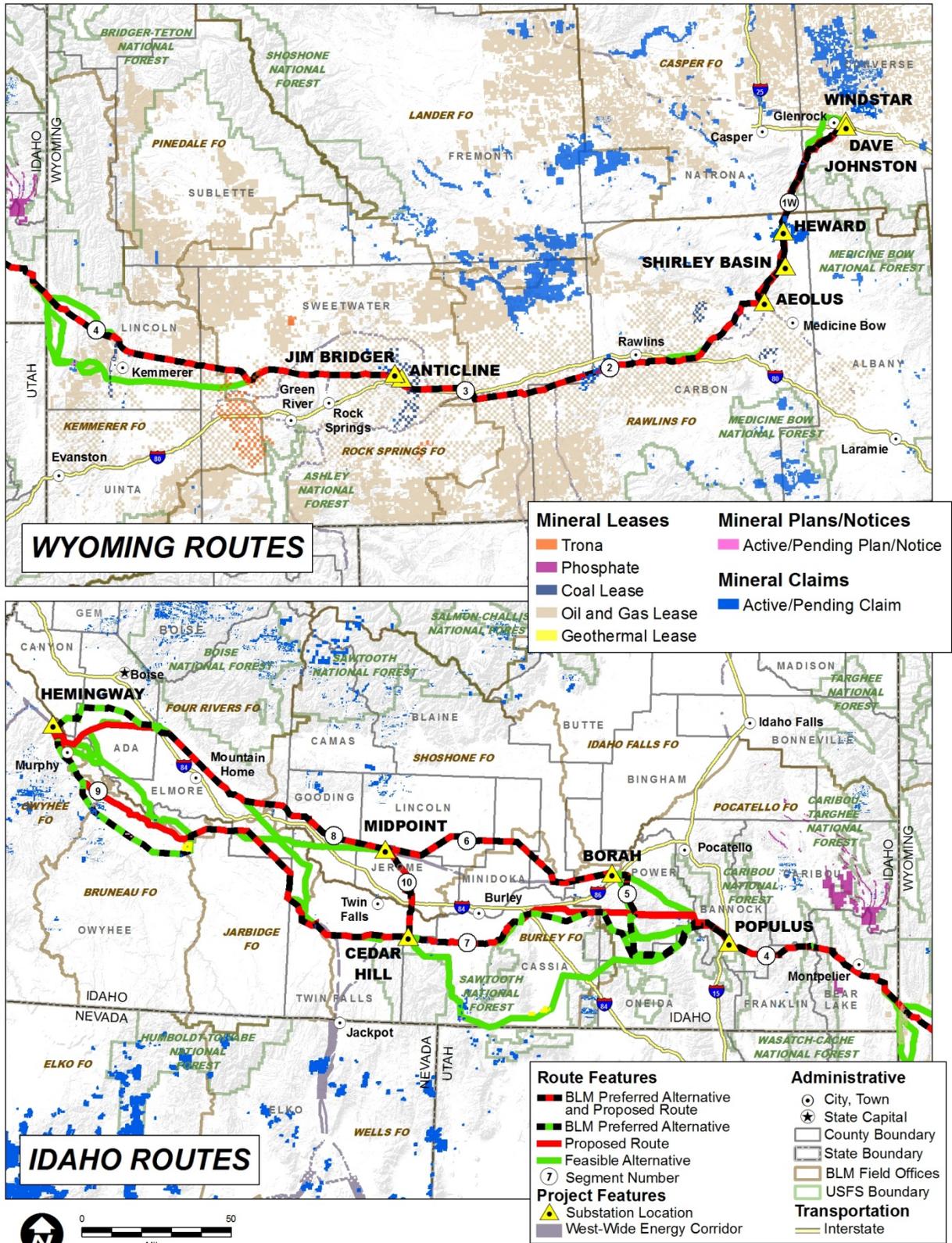


Figure 3.12-1. Mineral Resources

The Analysis Area for minerals was defined in a GIS file by buffering the centerlines of the Proposed Route and Route Alternatives 0.5 mile on either side of the centerlines. This distance was used because the 0.5 mile distance would incorporate most disturbances associated with the Project that could affect mineral exploration or mining operations.

3.12.1.2 Issues Related to Minerals

The following mineral-related comments were offered by the public during public scoping (Tetra Tech 2009) and comments on the Draft EIS, raised by federal and state agencies during scoping and agency discussions, or are issues that must be considered as stipulated in law or regulation:

- The effect that underground mining could have on possible subsidence-related hazards for the transmission line (this issue is discussed in Section 3.14 – Geologic Hazards);
- The effect the Project could have on the ability to explore or extract mineral deposits or affect mineral leases;
- The effect the Project could have on oil and natural gas wells and leases; and
- The effect the Project could have on geothermal resources.

3.12.1.3 Regulatory Framework

On federal lands, the mineral estate is administered by the BLM on behalf of the Secretary of the Interior. The BLM classifies mineral products as locatable, leasable, or saleable, and each category is administered by different programs. Locatable minerals include both metallic minerals (e.g., gold, silver, lead, copper, zinc, and nickel), nonmetallic minerals (e.g., fluorspar, mica, certain limestones, uranium, gypsum, clay, heavy minerals in placer form, and gemstones), and certain uncommon variety minerals. The exclusive right of possession of locatable minerals on public lands is a right that is protected by the General Mining Act of 1872 (30 U.S.C. §§ 22-42). The Act specifies that all citizens of the United States 18 years or older have the right to locate a lode or placer mining claim on federal lands open to mineral entry. Potential locatable mineral deposits may be claimed by filing and maintaining a mining claim with the BLM.

Since 1920, the BLM has leased land for extraction of certain mineral resources, such as oil and gas, oil shale, geothermal resources, potash, sodium, native asphalt, solid and semisolid bitumen, bituminous rock, phosphate, and coal, on public and other federal lands (see Mineral Leasing Act of 1920 and amendments [BLM 2007d]). These lands include areas managed by the BLM and the Forest Service. BLM can also lease these minerals on certain private lands, provided that the mineral rights are owned by the federal government. Most of the minerals leased under this program are used to make fertilizer, as feed stock, or for energy development. In some areas where the federal government has acquired the land, BLM leases base and precious metals under this program. The regulations that govern mineral leasing are found in 43 CFR Parts 3000 to 3590.

Saleable minerals include materials such as sand, gravel, soil, rock, and building stone, used for common construction uses. Since July 23, 1955, common varieties of saleable minerals were removed from the General Mining Law and placed under the Materials Act of 1947, as amended. BLM sells mineral materials under contract to the public and industry at fair market value and may grant free use permits to governmental agencies and non-profit organizations or, for Federal-aid Highways, may issue material site ROWs to the federal or state Departments of Transportation. Free use permits are also available to qualified non-profit organizations. Disposals of saleable minerals from BLM-managed lands are regulated by 43 CFR Part 3600. Mineral activities must comply with NEPA, ESA, and other laws.

Mineral management on NFS land is governed under 36 CFR 228 and FSM 2810. Mineral development on NFS land requires consistency with the management objectives set out in the applicable Forest Plan. Forest Plan direction provides a framework for mineral operations using BMPs. Areas may be withdrawn from mineral activity if the activity might conflict with other management objectives.

The State Board of Land Commissioners through the Idaho Department of Lands (IDL) administers mineral leases on approximately 3 million acres of state land, as well as the beds of navigable waters, which were granted to the state in trust at statehood in 1890. The state leases minerals to generate revenue for the owning endowment fund, such as Public Schools, or for the general fund when public trust lands are involved. Leases are issued for metals and other mineral commodities, oil and gas, and geothermal resources on both land and navigable waters.

In Wyoming, the Land Quality Division regulates exploration and mining activities pursuant to State statutes, including activities on the National System of Public Lands administered by the BLM. The Land Quality Division has the authority to require permitting and licensing of all operator actions of surface and underground mine facilities. The Land Quality Division's authority derives from the Federal Surface Mining Control and Reclamation Act² and the Wyoming Environmental Quality Act.³ The BLM Wyoming and the Land Quality Division jointly administer locatable mineral exploration/mining/reclamation and most mineral material disposals under MOUs. These MOUs indicate the Land Quality Division holds reclamation bonds that are jointly payable to the State and the Secretary of the Interior.

3.12.1.4 Methods

Data for mineral resources were obtained from the BLM's LR-2000 database. The effects analysis was conducted using readily available data and GIS files derived from preliminary centerline and component design for the proposed and alternative routes including ROW, access roads, staging areas, and fly yards (see Section 3.1 for details on development of these files). In all cases, after analysis of impacts was complete and where impacts were identified, Proponent-proposed measures to reduce impacts were reviewed for sufficiency. Where those measures were determined to be insufficient, additional measures were identified.

² P.L. 95-87 (30 U.S.C. §§1234-1328)

³ Wyoming Statutes §§35-11-101.

To assess the impacts to mining claims and mineral leases, the centerlines of the Proposed Route and Route Alternatives in each segment were compared to the locations of mineral resources described in the LR-2000 database and the area (in acres) was determined and expressed as a percentage of the Analysis Area for the segment. To disclose overall impacts by segment, the area containing mining claims, mineral leases, or saleable mineral permits was identified along the Proposed Route, as well as where Route Alternatives were proposed. The area of mineral impacts was then compared for each segment by alternative. BLM's LR-2000 database was also checked for individual mining claims to see whether the mineral product could be identified.

The LR-2000 database provides location information to the nearest one-quarter section (aliquot). As a conservative measure, if a mining claim or mineral lease was present in an aliquot, the entire 160-acre area was used as the location of the claim or lease. This assured that the location of a claim or lease would be included within the Analysis Area or disturbance areas when, in fact, some claims may actually be located outside of the disturbance areas. The BLM allows for up to 90 days to supply location information for mining claims; therefore, the LR-2000 database does not contain real-time mining information and recent claims may not appear. The exact location of mining claims and mineral leases will be determined by the Proponents when a final route has been selected and property negotiations occur.

To assess the impacts to active oil and gas wells, the centerlines of the Proposed Route and Route Alternatives in each segment were overlaid on the Wyoming Oil and Gas Commission GIS data file and the number of wells within the Analysis Area was noted by segment. To compare the number of wells within a segment, the number of wells was counted by alternative.

Aerial photographs and USGS topographic maps of the Proposed Route and Route Alternatives were reviewed for all of the segments. Mining-related features were noted within 1,000 feet on either side of the route centerlines. The mining features were described according to route segment milepost and the number of feet in distance perpendicular to the centerline. Based on the locations of mineral resources obtained from the GIS databases and map reconnaissance, some of the larger mine operators were also consulted on whether specific route locations would affect mining operations or whether mining operations would affect the transmission line.

3.12.1.5 Existing Conditions

Based on the methods described in Section 3.12.1.4, Table 3.12-1 was developed. It presents the number of oil and gas wells and the percent of the Analysis Area occupied by mining claims, mineral leases, or saleable mineral permits. Table 3.12-2 is a summary of the mineral facilities present within 1,000 feet of the route centerline. Mining disturbance observations were made from aerial photographs and USGS topographic map reconnaissance. The LR-2000 database was then queried to compare the disturbance observations with known claims or leases. Table D.12-1 (Appendix D) contains detailed information on the mineral facilities summarized in Table 3.12-2.

Table 3.12-1. Mineral Resources Within the Analysis Area (percent of area)

Segment Number	Total Analysis Area (Acres) ^{1/}	Mine Plan of Operation (Percent) ^{2/}	Active Oil and Gas Wells (Number)	Oil and Gas Leases (percent)	Trona Leases (percent)	Coal Leases (percent)	Geothermal Leases (percent)	Combined Mining Claims ^{3/} (percent)	Saleable Minerals ^{4/} (percent)
1	81,331	–	12	3	–	–	–	5	–
2	68,521	–	69	24	–	1	–	3	<1
3	33,391	–	103	34	–	3	–	–	–
4	224,082	0.3	127	20	1	–	–	<1	<1
5	99,696	–	–	–	–	–	–	–	<1
6	1,305	–	–	–	–	–	–	–	–
7	211,643	<0.1	–	–	–	–	<1	<1	<1
8	159,463	–	–	–	–	–	–	–	<1
9	225,769	0.2	–	–	–	–	1	1	<1
10	22,361	–	–	–	–	–	–	–	<1

Note: The LR-2000 database sometimes lacks or contains incorrect information concerning mineral resource type. However, it does accurately provide the presence of a mining claim or mineral lease.

1/ Numbers are rounded to the nearest acre.

2/ Includes 3809 surface management notices and plans of operation (PODs) including Case Recordation case-types 380913 (surface management notice) and 380910 (surface management plan), 380210 (PODs in wilderness or wilderness study areas), 381402 (stock raising homestead patented lands where the operator does not have surface owner consent to operate), and 371511 (use and occupancy of mining claims pursuant to the 43 CFR subpart 3715 regulations).

3/ Includes mining claims of any type or mineral.

4/ Saleable Minerals as defined in Section 3.12.1.3 are common construction materials (sand and gravel, fill, etc.).

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Table 3.12-2. Mineral Resources within 1,000 Feet of Transmission Line Routes, Observed from Aerial Photograph Reconnaissance and Topographic Maps

Segment Number	Alternative ^{1/}	Active Oil and Gas Wells	Trona/ Soda Ash	Coal	Geothermal Leases	Combined Mining Claims ^{2/}	Mineral Materials
1W	Proposed Segment 1W(a)	–	–	–	–	3	2
	Alternative 1W(a)-B	5	–	–	–	–	–
	Proposed Segment 1W(c)	–	–	–	–	4	–
2	Proposed Segment 2	17	–	9	–	2	4
	Alternative 2A	–	–	–	–	–	5
	Alternative 2B	–	–	–	–	–	2
3	Proposed Segment 3	23	–	2	–	–	–
	Proposed Segment 3A	1	–	–	–	–	–
4	Proposed Segment 4	36	5	3	–	–	4
	Alternative 4B	18	2	5	–	4	2
	Alternative 4C	18	2	3	–	4	4
	Alternative 4D	18	2	4	–	4	2
	Alternative 4E	18	2	3	–	5	3
	Alternative 4F	32	2	1	–	–	–
5	Proposed Segment 5	–	–	–	–	–	1
	Alternative 5B	–	–	–	–	–	1
	Alternative 5D	–	–	–	–	–	1
7	Alternative 7B	–	–	–	–	–	2
	Alternative 7K	–	–	–	1	5 (1 gold)	4
8	Proposed Segment 8	–	–	–	–	–	5
	Alternative 8A	–	–	–	–	–	1
	Alternative 8B	–	–	–	–	–	3
9	Proposed Segment 9	–	–	–	–	1	7
	Alternative 9A	–	–	–	–	–	2
	Alternative 9B	–	–	–	–	–	3
	Alternative 9C	–	–	–	–	–	1
	Alternative 9D	–	–	–	–	–	4
	Alternative 9E (revised)	–	–	–	1	4 (1 placer)	–
	Alternative 9F	–	–	–	–	–	1
	Alternative 9G	–	–	–	–	–	4
Alternative 9H	–	–	–	–	–	1	

1/ Some or all alternatives in Segments 5, 7, 8, 9, and 10 do not contain minerals. Alternatives without minerals do not appear in this table.

2/ Target minerals are not always provided with mining claims. They appear in parentheses where known.

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Coal

Wyoming is the top producer of coal in the United States. In 2010, Wyoming coal mines produced approximately 442 million tons of coal, which accounted for nearly 30 percent of the coal produced in the United States (WSGS 2012a). In southern Wyoming, coal occurs in generally north-south-trending formations and is mined from open pits and underground; however, coal leases occupy a very small percentage of the Analysis Area, all of which are in Segments 2 and 3, at 1 and 3 percent of area, respectively. Figure 3.12-1 presents the location of coal and trona mineral leases within the Project area.

Trona

Southwest Wyoming contains one of the largest deposits of trona in the world. The Wyoming State Geological Survey (WSGS 2012b) indicates that the Green River Basin of southwest Wyoming produces approximately 11 million tons per year, which is 95 percent of the U.S. output. The Analysis Area contains trona leases of more than 3,300 acres in Segment 4, which represents about 1 percent of the Segment 4 Analysis Area.

Geothermal

The potential for geothermal development exists across southern Idaho (Segments 5 through 10) (IDWR 2009). The Analysis Area contains land leased for geothermal energy exploration or development in Segments 7 and 9. The amount of the Analysis Area leased for geothermal development in these segments is less than 1 percent. Figure 3.12-1 shows the location of the geothermal leases.

Oil and Natural Gas

According to the Wyoming Oil and Gas Commission (2012), operators extracted 56.2 million barrels of oil and 2.37 trillion cubic feet of natural gas in 2011. Exploration is being conducted over large portions of Wyoming. Known oil and gas fields are present in Segments 1 through 4. There are 311 active oil and gas wells on just over 74,000 acres of leased land in the Segments 1 through 4 Analysis Areas. The locations of oil and gas leases are shown on Figure 3.12-1.

The Idaho Geological Survey provides a listing of oil and gas wells without stating their operational status. The Survey lists a few oil and gas wells in the Idaho Analysis Area of Segments 5, 7, and 9. Three of these wells were drilled in the 1920s, one in the 1950s, and the most recent in 1974. However, Idaho BLM indicates there are no active (producing) oil or gas wells located anywhere in Idaho.

Locatable Minerals

Locatable mineral claims are found in the Analysis Areas of Segments 1, 2, 4, 7, and 9, including 4 percent of Segment 1, 1 percent of Segment 2, and 1 percent of Segment 9. Locatable mineral claims in Segments 4 and 7 represent less than 1 percent of the Analysis Areas. The claims in Segments 7 and 9 were for gold or placer exploration. The locations of mining claims (including uranium) are shown on Figure 3.12-1.

Information from BLM's LR-2000 mining database indicated that all of the claims in Segments 1 and 2 were by companies associated with uranium production. WSGS (2012c) indicates that Wyoming has been the leading source of uranium mining in the

United States since 1995, and contains the nation's largest reserves. Uranium is extracted using mainly in situ leaching methods. A total of 2 percent of the Segment 1 Analysis Area and 3 percent of Segment 2 are located within land claimed for uranium mining.

Saleable Minerals

Saleable minerals, also known as mineral materials, are common minerals or earth deposits that are purchased or provided under free use from federal agencies, on either a per ton or per cubic yard basis. Saleable minerals within the Analysis Area include clay, pumice or cinders, gravel, sand and gravel, shale, fill material, crushed stone, riprap, and specialty stone. The WSGS website (WSGS 2012d) indicates that over 16 million tons of construction aggregate was produced in Wyoming in 2008. The Idaho Geological Survey indicates mining revenues of about \$1.1 billion for 2009, with about 9 percent of that amount (slightly less than \$100 million) for saleable minerals (IGS 2010). Although saleable minerals were identified in Segments 1, 4, 7, 8, 9, and 10, they represent less than 1 percent of any segment Analysis Area.

3.12.2 Direct and Indirect Effects

This section is organized to present effects to mineral resources from construction, then operations, followed by decommissioning activities for the proposed Project. Route Alternatives are analyzed in detail in Section 3.12.2.3.

There are no EPMS proposed for mineral resources. A comprehensive list of all EPMS, and the land ownerships to which they apply, can be found in Table 2.7-1 of Chapter 2.

Plan Amendments

Proposed amendments to BLM RMPs and MFPs are summarized in Table 2.2-1 of Chapter 2, while BLM plan amendments associated with other routes are summarized in Table 2.2-2. BLM plan amendments are discussed in detail in Appendices F-1 and G-1. Proposed amendments to Forest Plans are summarized in Table 2.2-3 of Chapter 2 and discussed in detail in Appendices F-2 and G-2. Amendments are needed to permit the Project to cross various areas of BLM-managed lands and NFS lands. Effects described for areas requiring an amendment in order for the Project to be built would only occur if the amendment were approved. Amendments that alter land management designations could change future use of these areas. No amendments specific to minerals are proposed for the Project and no impacts to minerals resulting from approving the amendments beyond the impacts of the Project are anticipated.

3.12.2.1 No Action Alternative

Under the No Action Alternative, the BLM would not issue a ROW grant to the Proponents of Gateway West and the Project would not be constructed across federal lands. No land management plans would be amended to allow for the construction of this Project. No Project-related impacts to mineral resources would occur; however, impacts would continue as a result of natural events (such as fire, drought, and severe weather) as well as from existing and planned developments within the Analysis Area and from other projects, including wind farms, agricultural, or other competing land uses. The demand for electricity, especially for renewable energy, would continue to

grow in the Proponents' service territories. If the No Action Alternative is implemented, the demand for transmission services, as described in Section 1.3, Proponents' Objectives for the Project, would not be met with this Project and the area would have to turn to other proposals to meet the transmission demand. Under No Action, impacts similar to those described below may occur due to new transmission lines built to meet the increasing demand in place of this Project.

3.12.2.2 Effects Common to All Action Alternatives

Construction

The presence of existing mineral claims and leases could interfere with plans to construct the Project. As part of the pre-construction process, the Proponents would identify active mining claims and mineral leases and either negotiate permission to use the land surface in these areas or re-locate the transmission line to avoid existing active claims and leases. However, the Mining Act of July 23, 1955, provides the opportunity for surface rights for multiple uses on mining claims established after that date. Where access to mineral resources may be restricted, the Proponents would provide compensation for damage, access rights, and easements to mine owners, claimants, and lease holders. If necessary, the Proponents would provide mine operators with mine access across the Project area during construction.

The construction of the Project could restrict exploration of mineral resources during the 2-year construction period. Construction activities could also restrict mining companies' ability to access land for mining or exploration. Construction of the Project would result in the need for saleable minerals, including fill material for grade changes, sand and gravel for concrete production, gravel for road beds, and similar uses. The use of saleable minerals would provide an economic benefit to local mineral providers but would also result in consumption of materials that would not be available for other uses.

The Project would cross areas in southern Wyoming that are assumed to contain unknown abandoned mines. Construction blasting in areas of shallow bedrock could cause subsidence in mined areas or damage to mine features, including water wells. Previously mined areas could have contaminated soil or groundwater. In coal-mining areas, methane may accumulate in abandoned mines. Depending on bedrock fracturing, bedding planes, and similar open pathways, methane could migrate into other voids in bedrock, which could pose a problem with blasting in those areas. The effects of blasting are assessed in Section 3.14 – Geologic Hazards.

Active oil and gas wells are present in the Analysis Area. As part of the siting process, the Wyoming Oil and Gas Commission GIS database was reviewed for location of active oil or gas wells. A 250-foot buffer was drawn around every active oil and gas well and the route centerline was located to avoid the 250-foot buffers. Prior to construction, the Proponents would call each state's utility locating services so that buried utilities, including oil and gas gathering lines and pipelines, could be avoided.

Operations

During the operations period, the Project could restrict the operation of new mines within the transmission line ROW. The operations area is smaller than the construction disturbance area but the time interval is much longer: 50 years for operations compared

to about 2 years for construction. The Scoping Report (Tetra Tech 2009) indicated concern that the high-voltage transmission lines would restrict access to drill rigs conducting exploration or repair of oil or gas wells. Project operations would remove acreage that would not be available for mining for the life of the Project. However, the Project would only impact a small fraction of the total resource area available.

Decommissioning

Project decommissioning would disturb an area roughly equivalent to the construction disturbance area and the time of disturbance would be approximately 2 to 3 years, including the time to remove Project structures, plus another growing season for reclamation. The Mining Law of 1872 provides public land access to existing mining claims or mineral leases. Access routes to existing claims or leases would need to be maintained during the decommissioning phase of the Project. When decommissioning is complete, mineral access due to Project activities would return to pre-Project conditions not considering changes to land ownership or land use that may have occurred during the life of the Project.

3.12.2.3 Comparison of Alternatives by Segment

This section evaluates the Proposed Route and details the differences between the Proposed Route and the Route Alternatives with respect to impacts to mining claims and mineral leases. Tables 3.12-3 and 3.12-4 present the locatable, leasable, or saleable mineral development present within the Project construction and operations disturbance areas, as noted in the LR-2000 database. Table 3.12-5 presents the number of active oil or gas wells within the construction and operations disturbance areas.

Table 3.12-3. Acres of Active Claims, Leases, or Saleable Mineral Areas within Construction Disturbance Areas

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{5/}
1W(a)	Preferred/Proposed – Total Length	775	–	17	–	–	–	–	42	59
	Preferred/Proposed – Comparison Portion for Alt. 1W(a)-B	148	–	7	–	–	–	–	–	7
	Alternative 1W(a)-B	271	–	34	–	–	–	–	–	34
1W(c)	Preferred/Proposed – Total Length	956	–	15	–	–	–	–	55	70
2	Preferred/Proposed – Total Length	1,778	–	302	18	–	–	6	59	376
	Preferred/Proposed – Comparison Portion for Alternative 2A	309	–	84	–	–	–	6	–	84
	Alternative 2A	355	–	106	–	–	–	<1	–	106
	Preferred/Proposed – Comparison Portion for Alternative 2B	237	–	82	–	–	–	6	–	82
	Alternative 2B	209	–	55	–	–	–	<1	–	55
3	Segment 3 (Preferred/Proposed)	832	–	312	22	–	–	–	–	312
	Segment 3A (Preferred/Proposed)	60	–	–	–	–	–	–	–	–
4	Preferred/Proposed – Total Length	3,890	–	499	19	74	–	6	–	549
	Preferred/Proposed – Comparison Portion for Alts. 4B–F	1,710	–	311	–	19	–	3	–	329
	Alternative 4B	2,080	17	688	17	51	–	1	27	750
	Alternative 4C	2,070	17	605	17	51	–	1	27	667
	Alternative 4D	2,107	17	731	17	60	–	1	27	794
	Alternative 4E	2,078	17	643	17	60	–	1	27	705
	Alternative 4F	1,725	–	247	–	19	–	3	–	266
	Preferred/Proposed – Comparison Portion for Alternative 4G	80	–	–	–	–	–	–	–	–
Alternative 4G	108	–	–	–	–	–	–	–	–	

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Table 3.12-3. Acres of Active Claims, Leases, or Saleable Mineral Areas within Construction Disturbance Areas (continued)

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{4/}
5	Preferred – Total Length	1,551	–	–	–	–	–	2	–	2
	Proposed – Total Length	1,179	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alts. 5A, B	461	–	–	–	–	–	–	–	–
	Alternative 5A	644	–	–	–	–	–	–	–	–
	Alternative 5B	842	–	–	–	–	–	2	–	2
	Proposed – Comparison Portion for Alt. 5C	731	–	–	–	–	–	–	–	–
	Alternative 5C	509	–	–	–	–	–	–	–	–
6	Preferred/Proposed – Total Length	65	–	–	–	–	–	–	–	–
7	Preferred – Total Length	2,554	–	–	–	–	–	3	–	3
	Proposed – Total Length	2,252	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alts. 7A, B	652	–	–	–	–	–	–	–	–
	Alternative 7A	774	–	–	–	–	–	–	–	–
	Alternative 7B	920	–	–	–	–	–	3	–	3
	Proposed – Comparison Portion for Alt. 7K	2,249	–	–	–	–	–	–	–	–
	Alternative 7K	2,859	10	–	–	–	38	26	29	92
8	Preferred – Total Length	2,535	–	–	–	–	–	3	–	3
	Proposed – Total Length	2,518	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alt. 8B	899	–	–	–	–	–	–	–	–
	Alternative 8B	916	–	–	–	–	–	3	–	3
9	Preferred – Total Length	3,352	11	–	–	–	60	4	26	95
	Proposed – Total Length	3,293	–	–	–	–	–	5	3	8
	Proposed – Comparison Portion for Alternative 9B	1,037	–	–	–	–	–	–	t	t
	Alternative 9B	965	–	–	–	–	–	3	–	3
	Proposed – Comparison Portion for Alternative 9C	304	–	–	–	–	–	–	t	t
	Alternative 9C	320	–	–	–	–	–	1	–	1

3.12-14

Table 3.12-3. Acres of Active Claims, Leases, or Saleable Mineral Areas within Construction Disturbance Areas (continued)

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{4/}
9 (cont.)	Proposed – Comparison Portion for Alts. 9D,F,G,H	1,145	–	–	–	–	–	1	–	1
	Alternative 9D	1,046	–	–	–	–	–	2	–	2
	Alternative 9F	1,165	–	–	–	–	–	2	–	2
	Alternative 9G	1,058	–	–	–	–	–	2	–	2
	Alternative 9H	1,162	–	–	–	–	–	2	–	2
	Proposed – Comparison Portion for Alternative 9E (revised)	1,230	–	–	–	–	–	1	–	1
	Alternative 9E (revised)	1,289	11	–	–	–	60	–	23	88
10	Preferred/Proposed-Total Length	670	–	–	–	–	–	–	–	–

Note: The LR-2000 database sometimes lacks or contains incorrect information concerning mineral resource type. However, it does accurately provide the presence of a mining claim or mineral lease.

1/ Some or all alternatives in Segments 5, 7, 8, 9, and 10 do not contain minerals. Alternatives without minerals do not appear in this table.

2/ Numbers in table are rounded to nearest acre; columns or rows may not sum exactly due to rounding. Numbers shown as <1 mean 0.1 to 0.5 acre. An entry of “t” means an area of less than 0.1 acre.

3/ Includes 3809 surface management notices and plans of operation (PODs) including Case Recordation case-types 380913 (surface management notice) and 380910 (surface management plan), 380210 (PODs in wilderness or wilderness study areas), 381402 (stock raising homestead patented lands where the operator does not have surface owner consent to operate), and 371511 (use and occupancy of mining claims pursuant to the 43 CFR subpart 3715 regulations).

4/ Includes mining claims of any type or mineral.

5/ Due to multiple claim owners or leases, and overlapping mineral interests, the total area of all claims and leases can be much less than the sum of the individual categories. The total acreage provides the most realistic estimate of the actual affected acreage.

3.12-15

Table 3.12-4. Acres of Active Claims, Leases, or Saleable Mineral Areas within Operations Disturbance Areas

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{5/}
1W(a)	Preferred/Proposed – Total Length	176	–	7	–	–	–	–	9	16
	Preferred/Proposed – Comparison Portion for Alt. 1W(a)-B	27	–	1	–	–	–	–	–	1
	Alternative 1W(a)-B	44	–	4	–	–	–	–	–	4
1W(c)	Preferred/Proposed – Total Length	124	–	2	–	–	–	–	11	14
2	Preferred/Proposed – Total Length	245	–	31	3	–	–	t	9	43
	Preferred/Proposed – Comparison Portion for Alternative 2A	28	–	6	–	–	–	t	–	6
	Alternative 2A	40	–	11	–	–	–	t	–	11
	Preferred/Proposed – Comparison Portion for Alternative 2B	21	–	6	–	–	–	t	–	6
	Alternative 2B	17	–	7	–	–	–	t	–	7
3	Preferred/Proposed Segment 3 – Total Length	140	–	39	3	–	–	–	–	39
	Preferred/Proposed Segment 3A – Total Length	12	–	–	–	–	–	–	–	–
4	Preferred/Proposed – Total Length	530	–	65	3	5	–	2	–	71
	Preferred/Proposed – Comparison Portion for Alts. 4B–F	212	–	42	–	2	–	1	–	43
	Alternative 4B	273	3	94	3	8	–	<1	4	102
	Alternative 4C	265	3	78	3	8	–	<1	4	87
	Alternative 4D	280	3	103	3	8	–	<1	4	113
	Alternative 4E	269	3	86	3	8	–	<1	4	95
	Alternative 4F	214	–	36	–	2	–	1	–	38
	Proposed – Comparison Portion for Alternative 4G	68	–	–	–	–	–	–	–	–
Alternative 4G	83	–	–	–	–	–	–	–	–	

3.12-16

Table 3.12-4. Acres of Active Claims, Leases, or Saleable Mineral Areas within Operations Disturbance Areas (continued)

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{5/}
5	Preferred – Total Length	193	–	–	–	–	–	<1	–	<1
	Proposed – Total Length	169	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alts. 5A, B	58	–	–	–	–	–	–	–	–
	Alternative 5A	80	–	–	–	–	–	–	–	–
	Alternative 5B	82	–	–	–	–	–	<1	–	<1
6	Preferred/Proposed – Total Length	61	–	–	–	–	–	–	–	–
7	Preferred – Total Length	284	–	–	–	–	–	<1	–	<1
	Proposed – Total Length	265	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alts. 7A, B	71	–	–	–	–	–	–	–	–
	Alternative 7A	93	–	–	–	–	–	–	–	–
	Alternative 7B	96	–	–	–	–	–	<1	–	<1
	Proposed – Comparison Portion for Alt. 7K	264	–	–	–	–	–	–	–	–
Alternative 7K	382	3	–	–	–	3	3	6	12	
8	Preferred – Total Length	231	–	–	–	–	–	<1	–	<1
	Proposed – Total Length	249	–	–	–	–	–	–	–	–
	Proposed – Comparison Portion for Alt. 8B	87	–	–	–	–	–	–	–	–
	Alternative 8B	69	–	–	–	–	–	<1	–	<1
9	Preferred – Total Length	379	2	–	–	–	6	1	4	1
	Proposed – Total Length	360	–	–	–	–	–	1	<1	1
	Proposed – Comparison Portion for Alternative 9B	122	–	–	–	–	–	<1	–	<1
	Alternative 9B	83	–	–	–	–	–	–	<1	<1
	Proposed – Comparison Portion for Alternative 9C	27	–	–	–	–	–	–	–	–
	Alternative 9C	26	–	–	–	–	–	<1	–	<1
	Proposed – Comparison Portion for Alts. 9D,F,G,H	106	–	–	–	–	–	<1	–	<1
	Alternative 9D	84	–	–	–	–	–	<1	–	<1
Alternative 9F	93	–	–	–	–	–	<1	–	<1	

3.12-17

Table 3.12-4. Acres of Active Claims, Leases, or Saleable Mineral Areas within Operations Disturbance Areas (continued)

Segment Number	Alternative ^{1/}	Total Acreage ^{2/}	Mine POD ^{3/}	Oil and Gas Lease	Coal Lease	Trona	Geothermal	Saleable Minerals	Mining Claims ^{4/}	Total Mineral Acreage ^{5/}
9 (cont.)	Alternative 9G	87	–	–	–	–	–	<1	–	<1
	Alternative 9H	96	–	–	–	–	–	<1	–	<1
	Proposed – Comparison Portion for Alternative 9E (revised)	116	–	–	–	–	6	<1	–	10
	Alternative 9E (revised)	135	2	–	–	–	6	–	4	10
10	Preferred/Proposed – Total Length	74	–	–	–	–	–	–	–	–

Note: The LR-2000 database sometimes lacks or contains incorrect information concerning mineral resource type. However, it does accurately provide the presence of a mining claim or mineral lease.

1/ Some or all alternatives in Segments 5, 6, 7, 8, 9, and 10 do not contain minerals. Alternatives without minerals do not appear in this table.

2/ Numbers in table are rounded to nearest acre; columns or rows may not sum exactly due to rounding.

3/ Includes 3809 surface management notices and plans of operation (PODs) including Case Recordation case-types 380913 (surface management notice) and 380910 (surface management plan), 380210 (PODs in wilderness or wilderness study areas), 381402 (stock raising homestead patented lands where the operator does not have surface owner consent to operate), and 371511 (use and occupancy of mining claims pursuant to the 43 CFR subpart 3715 regulations).

4/ Includes mining claims of any type or mineral.

5/ Due to multiple claim owners or leases, and overlapping mineral interests, the total area of all claims and leases can be much less than the sum of the individual categories. The total provides the most realistic estimate of the actual affected acreage.

3.12-18

Table 3.12-5. Number of Active Oil and Gas Wells within the Analysis Area, Construction Disturbance Area, and Operations Disturbance Area

Segment Number	Alternative	Wells in Analysis Area	Wells in Construction Area	Wells in Operations Area
1W(a)	Preferred/Proposed – Total Length	1	–	–
	Preferred/Proposed – Comparison Portion for Alternative 1W(a)-B	1	–	–
	Alternative 1W(a)-B	11	–	–
1W(c)	Preferred/Proposed – Total Length	–	–	–
2	Preferred/Proposed – Total Length	69	1	–
	Preferred/Proposed – Comparison Portion for Alternative 2A	–	–	–
	Alternative 2A	–	–	–
	Preferred/Proposed – Comparison Portion for Alternative 2B	–	–	–
	Alternative 2B	–	–	–
3	Segment 3 Preferred/Proposed – Total Length	101	–	–
	Segment 3A Preferred/Proposed – Total Length	2	–	–
4	Preferred/Proposed – Total Length	84	1	–
	Preferred/Proposed – Comparison Portion for Alts. 4B, C, D, E, F	74	1	–
	Alternative 4B	43	1	–
	Alternative 4C	43	1	–
	Alternative 4D	43	1	–
	Alternative 4E	43	1	–
	Alternative 4F	74	1	–

3.12-19

Segment 1W

The preferred routes in Segment 1W are as follows:

Segment	Preferred Route	Agency
Segment 1W(a)	Proposed Route (Figure A-2)	BLM and State of Wyoming
Segment 1W(c)	Proposed Route (Figure A-2)	BLM and State of Wyoming

Segment 1W is composed of Segments 1W(a) and 1W(c), both of which consist of single-circuit 230-kV transmission lines. Generally, Segment 1W(a) would be a new 73.8-mile-long transmission line, and 1W(c) would involve reconstruction of a 73.6-mile-long portion of the existing Dave Johnston – Rock Springs 230-kV transmission line. However, in the area approximately 5 miles to the north and to the south of Ice Cave Mountain, the lines shift east to avoid the ice cave. In this area, 1W(a) would be the reconstruction of the existing line and 1W(c) would be the new line. Segment 1W(a) has one alternative, Alternative 1W(a)-B, which is located north and west of the town of Glenrock and was the Proponents' initial proposal. However, the Proposed Route was revised following the Draft EIS public comment period in order to avoid the more populated area around Glenrock. Figure A-2 in Appendix A shows the location of the Segment 1W routes.

The mineral effects in Segment 1W(a) include 59 acres within the construction area and 16 acres in the operations area. The predominant minerals affected would be uranium claims and oil and gas leases. No active oil or gas wells would be located within construction or operations disturbance areas. Alternative 1W(a)-B would affect a greater area of mining claims or leases than the comparison portion of the Preferred/Proposed Route.

Segment 2

The preferred route in Segment 2 is as follows:

Preferred Route	Agency
Proposed Route (Figure A-3)	BLM and State of Wyoming

Segment 2 consists of one single-circuit 500-kV transmission line between the proposed Aeolus Substation and the location of the originally planned Creston Substation near Wamsutter, Wyoming (a new substation at Creston is no longer needed due to changes in anticipated demand for oil and gas field electricity). The Preferred/Proposed Route has been revised to incorporate Alternative 2C, as analyzed in the Draft EIS. Segment 2 would be approximately 91.9 miles long. Alternative 2A is being considered by the BLM because this alternative route is within the WWE corridor. Alternative 2B was initially the Proponents' Proposed Route before they responded to local suggestions and relocated the Preferred/Proposed Route farther to the south. Figure A-3 in Appendix A shows the location of the Segment 2 routes.

Segment 2 would affect oil and gas leases, uranium and coal leases, and saleable mineral deposits. Approximately 376 acres would be affected during construction and decommissioning (21 percent of the construction disturbance area). The 250-foot buffers of four existing oil or gas wells would be present within the construction disturbance acreage. One existing oil or gas well would be also located within the

operations disturbance area. It would be located approximately 6 miles west of Aeolus Substation and about 450 feet north of the transmission line. The affected acreage during operations would be about 43 acres. Alternative 2B would have slightly less effect on minerals than the comparison portion of the Preferred/Proposed Route. The effects would be slightly greater for Alternative 2A. Alternative 2A would affect 22 acres (construction) and 5 acres (operations) more than the comparison portion of the Preferred/Proposed Route. For Alternative 2B, the effects would be less by 27 acres during construction, but greater by 1 acre during operations. Overall, the Preferred/Proposed Route for Segment 2 in combination with Alternative 2B would have the least potential impact on minerals.

Segment 3

The preferred route in Segment 3 is as follows:

Preferred Route	Agency
Proposed Route, including 3A (Figure A-4)	BLM and State of Wyoming

A single-circuit 500-kV line would link the former location of the Creston Substation, approximately 2.1 miles south of Wamsutter, Wyoming, to the proposed Anticline Substation near the existing Jim Bridger Power Plant. Segment 3 would be approximately 45.9 miles long. This segment also includes a 5.1-mile segment of 345 kV line to connect to the existing Jim Bridger Power Plant Substation (Segment 3A). There are no alternatives proposed along Segment 3. Figure A-4 in Appendix A shows the location of the Segment 3 routes.

A total of 312 acres of mineral interests would be affected in the Segment 3 construction disturbance area. The affected area would consist almost entirely of oil and gas leases, and 22 acres of coal leases which are also contained within the oil and gas leases. The operations area would contain 39 acres of affected area. Despite the high percentage of oil and gas leases, no oil or gas wells would be located within the disturbance areas.

Segment 4

The preferred routes in Segment 4 are as follows:

Preferred Route	Agency
Proposed Route (Figures A-5 and A-6) except within the Caribou-Targhee NF (see below)	BLM, State of Wyoming, and Lincoln County
Proposed Route within the NF incorporating Alternative 4G (Figure A-6)	Forest Service

Segment 4 would link the proposed Anticline Substation and the existing Populus Substation near Downey, Idaho with a single-circuit 500-kV line. Its proposed length is approximately 197.6 miles. The Segment 4 Preferred/Proposed Route was revised to follow Alternative 4A, as analyzed in the Draft EIS, based on public comments. This segment generally follows an existing transmission line corridor. Segment 4 has five Route Alternatives in the middle portion of its route; however the first 52 miles to the east and the last 61 miles to the west (in Idaho) do not have any route alternatives. The middle section of the Preferred/Proposed Route, for which alternatives are presented, is approximately 85.2 miles long, and its alternatives vary from approximately 87.5 to 102.2 miles long. Alternatives 4B through 4E were proposed by the BLM Kemmerer FO

(with input from various cooperating agencies), with the intent to avoid impacts to cultural resources to the extent practical. Alternative 4F was proposed by the Proponents to avoid impacts to cultural resources while still remaining north of the existing Bridger Lines. Alternative 4G was proposed by the Forest Service in order to avoid unstable soils identified along the Proposed Route during the 2012 soil assessment (located within Sections 1 and 2, Township 12 South, Range 41 East). Figures A-5 and A-6 in Appendix A show the location of the Segment 4 routes in Wyoming and Idaho, respectively.

The construction-related affected area containing minerals in Segment 4 would be 549 acres. Minerals would consist mainly of oil and gas, trona, coal, and saleable minerals. The operations effects would comprise 71 acres. Alternative 4F would have slightly less mineral effects than the comparison portion of the Preferred/Proposed Route. For Alternative 4F, the areas would be 63 acres and 5 acres less, respectively. On the other hand, Alternatives 4B, 4C, 4D, and 4E would contain greater mineral impacts than their respective comparison portions. In construction areas, the Route Alternatives would contain from 376 to 465 acres more affected area than the comparison portions of the Preferred/Proposed Route; for operations, there would be 44 to 70 acres more. No active oil or gas wells would be located within the operations disturbance area of the Preferred/Proposed Route. Overall, the Preferred/Proposed Route for Segment 4 in combination with Alternative 4F would have the least potential impact on minerals. Selection of Alternative 4G would not have a differential effect on mineral resources.

Caribou-Targhee National Forest Minerals

There are no mineral intercepts on the Caribou-Targhee NF portion of the Proposed Route, and also none on Alternative 4G.

Segment 5

The preferred routes in Segment 5 are as follows:

Preferred Route	Agency
Proposed Route incorporating Alternatives 5B and 5E ^{1/} (Figure A-7)	BLM
Proposed Route incorporating Alternatives 5C and 5E (Figure A-7)	Power County

1/ Assumes that Western Electricity Coordinating Council reliability issues associated with 5E are resolved.

Segment 5 would link the Populus and Borah Substations with a single-circuit 500-kV line that would be approximately 55.7 miles long. There are five Route Alternatives to portions of the Proposed Route in Segment 5. Alternatives 5A and 5B were proposed by the BLM to avoid crossing the Deep Creek Mountains. Alternative 5C, which crosses the Fort Hall Indian Reservation, was proposed as the preferred route by Power County; however, the Fort Hall Business Council has voted not to permit the Project across the Reservation. Alternative 5D was originally the Proponents' Proposed Route. Alternative 5E was proposed by Power County as an alternative approach to the Borah Substation. The BLM has identified a Preferred Route that includes portions of the Proposed Route with Alternatives 5B and 5E (with the assumption that reliability issues associated with Alternative 5E can be resolved). The Segment 5 Preferred Route is 73.3 miles long, compared to 55.7 miles for the Proposed Route. Figure A-7 in Appendix A shows the location of the Segment 5 routes.

As stated in the Section 3.12.1.5 (Existing Conditions), most of the minerals in the Project area would be located in Segments 1 through 4 in southern Wyoming. Therefore, Segments 5 through 10 in southern Idaho would result in impacts to fewer mineral resources. Construction and operations of the Proposed Route would result in no Segment 5 mineral impacts. Alternative 5B contains 2 acres within the construction disturbance area, and less than 1 percent in the operations area that contain saleable minerals.

Construction of the Preferred Route would affect 1,551 acres within the construction disturbance area and 193 acres in the operations disturbance area, compared to 1,179 acres and 191 acres, respectively, for the Proposed Route. The Preferred Route would affect 2 acres of saleable minerals in the construction disturbance area, and less than 1 percent saleable minerals in the operations disturbance area, compared to no mineral effects from the Proposed Route.

Segment 6

The Preferred Route in Segment 6 is as follows:

Preferred Route	Agency
The proposal to upgrade the line voltage from 345-kV to 500-kV (Figure A-8)	BLM

Segment 6 is an existing transmission line linking the Borah and Midpoint Substations; it is now operated at 345 kV but would be changed to operate at 500 kV. This segment has no Route Alternatives. Existing support structures would be used and impacts would be limited to within approximately 0.25 mile from each substation to allow for moving the entry point into the substation to the new 500-kV bay. Changes at the Borah and Midpoint Substations would allow Segment 6 to be operated at 500 kV. Figure A-8 in Appendix A shows the Preferred/Proposed Route for Segment 6. There are no mineral impacts in Segment 6.

Segment 7

The preferred routes in Segment 7 are as follows:

Preferred Route	Agency
Proposed Route incorporating Alternatives 7B, 7C, 7D, and 7G (Figure A-9). The Proposed Route in the East Hills and Alternative 7G will be microsited to avoid Preliminary Priority Sage-grouse Habitat (PPH).	BLM
Alternative 7K (Figure A-9)	Power and Cassia Counties

Segment 7 would link the Populus Substation and the proposed Cedar Hill Substation with a single-circuit 500-kV line that would be approximately 118.2 miles long. Several alternatives to the Proposed Route are being considered. Route Alternatives 7A and 7B have been proposed by the BLM to avoid crossing the Deep Creek Mountains. Alternatives 7C, 7D, 7E, 7F, and 7G were proposed by local landowners to avoid private agricultural lands. Alternative 7K (also called the Goose Creek Alternative) was identified during the public comment period as a shorter alternative to the Proposed Route than either 7I or 7J (refer to Chapter 2 of the Draft EIS for a description of these routes). The alignment for Alternative 7K was developed in cooperation with Cassia County. Alternatives 7H, 7I, and 7J, which were analyzed in the Draft EIS, are no

longer under consideration. The BLM has identified a Preferred Route that includes portions of the Proposed Route with Alternatives 7B, 7C, 7D, and 7G. The Segment 7 Preferred Route is 130.2 miles long, compared to 118.2 miles for the Proposed Route. Figure A-9 in Appendix A shows the location of the Segment 7 routes.

The mineral effects from Segment 7 would be low. The Proposed Route for Segment 7 would not affect minerals. Alternative 7K contains 92 acres with mineral resources within the construction area and 12 acres in the operations area. These consist of gold claims, geothermal claims, and saleable mineral commodities. Known mineral resources near Alternative 7K include Oakley Stone, a popular building stone. However, the Oakley Stone quarries are located north of the Analysis Area. US Geothermal's operating geothermal energy facility is within the construction disturbance area on Alternative 7K. Based on the mining claims and leases, none of the alternatives would greatly affect mineral resources, except for Alternative 7K.

Construction of the Preferred Route would affect 2,554 acres within the construction disturbance area and 284 acres in the operations disturbance area, compared to 2,252 acres and 265 acres, respectively, for the Proposed Route. The Preferred Route would affect 3 acres of saleable minerals in the construction disturbance area, and less than 1 percent saleable minerals in the operations disturbance area, compared to no mineral effects from the Proposed Route.

Segment 8

The preferred routes in Segment 8 are as follows:

Preferred Route	Agency
Proposed Route incorporating Alternative 8B (Figure A-10)	BLM and IDANG

Segment 8 would link the Midpoint and Hemingway Substations. This 131.5-mile single-circuit 500-kV transmission line would stay north of the Snake River generally parallel to an existing 500-kV transmission line, before ending at the Hemingway Substation. There are five Route Alternatives to the Proposed Route. Alternative 8A follows the WWE corridor but crosses the Snake River and I-84 twice (while the Proposed Route would stay north of this area). Alternatives 8B and 8C were originally proposed by the Proponents as parts of the Proposed Route but were later dropped from the Proposed Route to avoid planned developments near the cities of Kuna and Mayfield, respectively. Alternative 8D would rebuild a portion of an existing 500-kV transmission line to move it away from the National Guard Maneuver Area. Alternative 8D would be constructed within the ROW currently occupied by the existing line. Alternative 8E was proposed by the BLM in order to avoid crossing the Halverson Bar non-motorized portion of a National Register Historic District (see the discussion of 8E under Segment 9). The BLM has identified a Preferred Route that includes portions of the Proposed Route with Alternative 8B and generally avoids the SRBOP. The Segment 8 Preferred Route is 132.0 miles long, compared to 131.5 miles for the Proposed Route. Figure A-10 in Appendix A shows the location of the Segment 8 routes.

Construction of the Preferred Route would affect 2,535 acres within the construction disturbance area and 231 acres in the operations disturbance area, compared to 2,518

acres and 249 acres, respectively, for the Proposed Route. The Preferred Route would affect 3 acres of saleable minerals in the construction disturbance area, and less than 1 percent of saleable minerals in the operations disturbance area, compared to no mineral effects from the Proposed Route.

Segment 9

The preferred routes in Segment 9 are as follows:

Preferred Route	Agency
Proposed Route incorporating Alternative 9E, which was revised to avoid PPH and Murphy (Figure A-11)	BLM
Alternative 9D (Figure A-11)	Owyhee County

Segment 9 would link the Cedar Hill and Hemingway Substations with a 162.2-mile single-circuit 500-kV transmission line which skirts the Jarbidge and Owyhee Military Operating Areas to the north, then follows the WWE corridor just north of the Saylor Creek Air Force Range, passing through Owyhee County before entering the Hemingway Substation. There are eight Route Alternatives proposed. Alternative 9A was the Proponents’ Proposed Route until that route was revised to avoid the Hollister area. Alternative 9B is being considered by the BLM because it follows the WWE corridor and parallels existing utility corridors. Alternative 9C was the Proponents’ Proposed Route until that route was revised to avoid the Castleford area. Alternatives 9D through 9G were proposed by the Owyhee County Task Force in order to reduce impacts to private land. Alternatives 9F and 9H were proposed to avoid crossing the non-motorized area south of C.J. Strike Reservoir and as an alternate route if Alternative 8E is selected. Figure A-11 in Appendix A shows the location of the Segment 9 routes. A portion of Alternative 9D/F uses the same path as Alternative 8E in Segment 8; therefore, 8E and 9D/F could not both be selected. Alternative 9E has been revised to avoid sage-grouse PPH and to incorporate a recommended route change submitted by Owyhee County that avoids a planned subdivision near Murphy. The Segment 9 Preferred Route is 171.4 miles long, compared to 162.2 miles for the Proposed Route.

The Proposed Route for Segment 9 would contain approximately 8 acres of mineral effects in the construction area and 1 acre in the operations area, consisting of unknown mineral claims and commodities. The Segment 9 alternatives would all have similar acreages to the Proposed Route except Alternative 9E, which would affect claims or leases on 84 acres (construction) and 10 acres (operations). Minerals would consist of several unknown mineral claims in the Owyhee Mountains and a geothermal lease located on the east end of the alternative. Therefore, avoiding Alternative 9E would greatly reduce the potential conflicts with minerals in Segment 9. The Proposed Route and the other alternatives would have much less impact and be similar to each other, so a distinction is not warranted based on mineral impacts.

Construction of the Preferred Route would affect 3,352 acres within the construction disturbance area and 379 acres in the operations disturbance area, compared to 3,293 acres and 360 acres, respectively, for the Proposed Route. The Preferred Route contains Alternative 9E, the alternative with the greatest amount of effects to mineral

resources. Therefore, the Preferred Route would result in greater effects to mineral resources than the Proposed Route.

Segment 10

The Preferred Route in Segment 10 is as follows:

Preferred Route	Agency
Proposed Route (Figure A-12)	BLM

Segment 10 would link the Cedar Hill and Midpoint Substations with a 34.4-mile single-circuit 500-kV line. Segment 10 would follow a WWE corridor for most of the route. The Proposed Route would also be adjacent to the existing 345-kV line most of this length and has been sited to follow the same alignment of the planned SWIP. Either the SWIP or Gateway West would be built, but not both. There are no Route Alternatives proposed along this segment. Figure A-12 in Appendix A shows the location of the Preferred/Proposed Route in Segment 10. No mineral effects were identified in Segment 10.