

J U N E 1 9 9 8

# BPA/LOWER VALLEY TRANSMISSION PROJECT

Final Environmental Impact Statement  
DOE/EIS-0267



**Bonneville Power Administration**  
PO Box 3621 Portland, Oregon 97208-3621

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BPA/Lower Valley Transmission Project**

**Bonneville Power Administration  
U.S. Department of Energy  
and  
Forest Service  
U.S. Department of Agriculture**

**June 1998**

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# Final Environmental Impact Statement

**Responsible Agencies:** U.S. Department of Energy, Bonneville Power Administration (BPA); U.S. Department of Agriculture, Forest Service (USFS).

**Title of Proposed Action:** BPA/Lower Valley Transmission Project, DOE/EIS-0267

**States Involved:** Idaho and Wyoming.

**Abstract:** Bonneville Power Administration and Lower Valley Power and Light, Inc. propose to solve a voltage stability problem in the Jackson and Afton, Wyoming areas. Lower Valley buys electricity from BPA and then supplies it to the residences and businesses of the Jackson and Afton, Wyoming areas. Since the late 1980s, LVPL's electrical load has been growing by an average of 4-5 megawatts (MW) per year, and LVPL expects continued growth at about this rate. During winter, an outage of one of the BPA or LVPL transmission lines that serve these areas could cause voltage on the transmission system to dip below acceptable levels in the Jackson area and to a lesser extent in the Afton area. Low voltage levels can cause brownouts, or under certain conditions, a blackout. BPA is considering five alternatives. For the Agency Proposed Action, BPA and Lower Valley would construct a new 115-kV line from BPA's Swan Valley Substation near Swan Valley in Bonneville County, Idaho about 58 km (36 miles) east to BPA's Teton Substation near Jackson in Teton County, Wyoming. The new line would be next to an existing 115-kV line. Most of the line would be supported by a mix of single-circuit wood pole H-frame structures and single pole steel structures. About 0.8 km (0.5 mile) near Pine Creek, 4.8 km (3 miles) at Teton Pass, and 1.6 km (1 mile) near Teton Substation would be built using double-circuit structures. The Single-Circuit Line Alternative has all the components of the Agency Proposed Action except that the entire line would be supported by single-circuit wood pole H-frame structures. The Short Line Alternative has all the components of the Single-Circuit Line Alternative except it would only be half as long, from Targhee Tap near Victor in Teton County, Idaho 29 km (18 miles) east to Teton Substation. BPA would also construct a new switching station near the existing right-of-way, west or north of Targhee Tap. Targhee Tap would then be removed. For the Static Var Compensation Alternative, BPA would install a Static Var Compensator (SVC) at Teton or Jackson Substation. An SVC is a group of electrical equipment placed at a substation to help control voltage on a transmission system. The No Action Alternative assumes that no new transmission line is built, and no other equipment is added to the transmission system.

The USFS (Targhee and Bridger-Teton National Forests) must select an alternative based on their needs and objectives, decide if the project complies with currently approved forest plans, and decide if they would issue a special use permit for construction, operation, and maintenance of project facilities.

The comments received on the Draft EIS and responses to the comments are in Chapter 6.

The Final EIS looks much like the Draft EIS. Changes are underlined. Simple editorial changes and large areas that were deleted are not marked. Additional appendices have been added to respond to public comments. A listing of the general changes in each chapter is listed on the next page.

BPA expects to issue a Record of Decision (ROD) in July 1998. The Forest Service expects to issue a ROD in July 1998. Both ROD's will be mailed to agencies, groups, and individuals on the mailing list.

To request additional copies of the EIS please contact BPA's document request line: 1-800-622-4520 or write to:

Public Involvement Office

Bonneville Power Administration

P. O. Box 12999

Portland, Oregon 97212

The EIS is also available at the BPA, Environment, Fish & Wildlife Home Page: [www.efw.bpa.gov/Environment/POLICIES/NEPA](http://www.efw.bpa.gov/Environment/POLICIES/NEPA). Look for *AVAILABLE DOCUMENTS* and click on *BPA/Lower Valley Transmission Project*.



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For more information on DOE NEPA activities contact: Carol Borgstrom, Director Office of NEPA Oversight, EH-42, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, 1-800-472-2756, DOE NEPA WEB site: [www.eh.doe.gov/nepa/](http://www.eh.doe.gov/nepa/).

## Summary of Changes in the Final EIS

### Chapter 1

Information about comments received on the Draft EIS has been included. Section 1.6, Decisions to be Made, has been clarified.

### Chapter 2

More detail has been included about the alternatives, including structure types, access roads, clearing, stream crossings, and gates. The Agency Proposed Action includes two new options through the Pine Creek area.

### Chapter 3

Some resource information has been added, updated, or corrected.

### Chapter 4

Some impact information has been added, updated, or corrected.

### Chapter 5

BPA has updated information for threatened and endangered species, cultural resources, program and plan consistency, recreation resources, air quality, and special use permits.

### Chapter 6

This is a new chapter that contains the comments received on the Draft EIS and BPA's responses to the comments.

### Chapters 7, 8, 9, 10, and the Index

Corrections and additions have been made to these chapters.

### Appendices

Additional appendices have been included in the Final EIS.



## Metric Conversion Chart

Symbol	When You Know Number Of	Multiply By	To Find Number Of	Symbol
<u>in.</u>	<u>inches</u>	<u>2.54</u>	<u>centimeters</u>	<u>cm</u>
in.	inches	25.4	millimeters	mm
ft.	feet	0.3048	meters	m
yd.	yards	0.9144	meters	m
mi.	miles	1.6093	kilometers	km
yd <sup>2</sup>	square yards	0.8361	square meters	m <sup>2</sup>
ac.	acres	0.4046	hectares	ha
yd <sup>3</sup>	cubic yards	0.7645	cubic meters	m <sup>3</sup>
lb	pounds (avdp)	0.4535	kilograms	kg
ton	tons	0.4546	metric tons	t
° F	degrees Fahrenheit	5/9 (after sub- tracting 32)	degrees Celsius	° C
m	meters	3.2808	feet	ft.
km	kilometers	0.6213	miles	mi.
m <sup>3</sup>	cubic meters	263	gallons	gal.
hm	hectometers	263,000,000	gallons	gal.
ha	hectares	2.4710	acres	ac.
kg	kilograms	2.2046	pounds (avdp)	lb
t	metric ton	2.205	tons	tons
° C	degrees Celsius	9/5 (then add 32)	degrees Fahrenheit	° F

# Chapter 1 Purpose and Need

In this Chapter:

- **The Purpose of and Need for Action**
- **Finding Solutions**
- **Decisions to be Made**
- **Other Issues**

## ► For Your Information

*\*Words and acronyms in bold and italics are defined in Chapter 9, **Glossary and Acronyms**. Some are also defined in sidebars.*

*A summary of economic and technical studies done to define the need for the project is included in Appendix A, **Summary of Economic and Technical Studies**.*

*A **megawatt** is one million watts, or one thousand kilowatts. A megawatt is enough power to light 10,000 100-watt lightbulbs.*

*Four to five megawatts per year is equivalent to about 3-4% load growth per year. Normal growth rates for other areas of the Northwest are closer to 1-2% per year.*

*Lightning, trees falling into the line and other unusual events can cause **outages** on transmission lines.*

***Voltage** is the driving force that causes a current to flow in an electrical circuit.*

*A **brownout** is a partial reduction of electrical voltages that causes lights to dim and motor-driven devices to lose efficiency.*

*A **blackout** is the disconnection of the source of electricity from all electrical loads in a certain geographical area.*

Bonneville Power Administration (**BPA**)\*, a federal agency, markets power to local utilities that provide electricity for homes, businesses, and farms in the Pacific Northwest. BPA owns and operates thousands of miles of electric transmission lines. The lines move power throughout the Northwest.

The U.S. Forest Service (**USFS**), also a federal agency, manages publicly-owned forestlands through which many of BPA's transmission lines run. The USFS manages individual national forests to meet the diverse needs of people for resources such as timber and recreation, and environmental values such as wilderness and wildlife.

Chapter 1 explains a problem, or need, that exists in northeastern Idaho and western Wyoming on BPA's transmission system. This chapter specifically describes how the need was first discovered and what conditions came together to create it. This chapter also describes how BPA and the local utility, Lower Valley Power and Light, Inc. (**LVPL**), developed solutions to meet this need.

## 1.1 BPA's Purpose and Need For Action

### 1.1.1 BPA's Need

LVPL buys electricity from BPA and then supplies it to the residences, farms and businesses of the Jackson and Afton, Wyoming areas. Since the late 1980s, LVPL's electrical load has been growing by an average of 4-5 **megawatts (MW)** per year, and LVPL expects continued growth at about this rate. LVPL's customers use the greatest amount of electricity in the winter when temperatures are low and heating needs are great. During the winter season, an **outage** of one of the BPA or LVPL transmission lines that serve these areas could cause **voltage** on the transmission system to dip below acceptable levels in the Jackson area and to a lesser extent in the Afton area (see Section 1.3.1, **Reliability Criteria**). Low voltage levels can cause **brownouts**, or under certain conditions, a **blackout**.

When voltage begins to drop on a transmission system, the system tries to correct itself and voltages fluctuate up and down. If the voltage keeps dropping and the system cannot correct itself, customers using certain appliances, computers and other electrical equipment sensitive to large voltage change may suffer equipment damage, even if they have surge protectors. If the system cannot recover, it will collapse and a blackout will occur. In a blackout, homes and businesses lose electricity completely.

These conditions can be dangerous to residents, farmers, and businesses, especially in winter. The transmission system that serves the Afton and Jackson, Wyoming areas needs to be reinforced as soon as possible to maintain voltage stability.

### 1.1.2 BPA's Purpose

The purposes in the “purpose and need” statement are goals or objectives to be achieved while meeting the need for the project. These objectives are used to evaluate alternatives proposed to meet the need.

BPA will use the following objectives to choose among alternatives:

- Maintain environmental quality;
- Minimize costs while meeting BPA and LVPL's long-term transmission system planning objectives for the area;
- Maintain BPA and LVPL transmission ***system reliability***.

#### ► For Your Information

*The US Forest Service (Targhee and Bridger-Teton National Forests) manages 84 percent of the land crossed by BPA's existing transmission line.*

### 1.2 U.S. Forest Service's Purpose and Need

The USFS, represented by the Targhee and Bridger-Teton National Forests, is responsible for management of the national forests crossed by BPA's existing transmission line from Swan Valley Substation near Swan Valley in Bonneville County, Idaho east to Teton Substation, near Jackson in Teton County, Wyoming. (See Map 1, **Location Map**.) The USFS needs to evaluate the project for consistency with its Forest Plans and appropriate legislation such as the National Environmental Policy Act, the Endangered Species Act, etc. The Forest Service could then issue a special use permit for the construction, operation, and maintenance of any new facilities that cross these lands.

### 1.3 Background

*A kilovolt is one thousand volts.*

LVPL serves its customers from two 115-**kilovolt (kV)** transmission lines. One line, owned and operated by BPA, runs from Swan Valley Substation east to Teton Substation, near Jackson,

Wyoming. The second line, owned by LVPL, runs from Palisades Switchyard at Palisades Dam, southeast along the reservoir to LVPL's Snake River Substation. (See Map 1.) At Snake River Substation, the line splits; one line follows the Snake River most of the way into Jackson, the other runs south to serve the Afton area.

The existing system can reliably serve up to 125 MW of electricity to LVPL, even if one of the lines described above goes out of service. The system is built for that emergency (see Section 1.3.1, **Reliability Criteria**). However, load growth in the Jackson, Wyoming area has passed the 125 MW limit recently (see Figure 1-1).

In 1994, the system winter peak was 120 MW. In 1995, the winter peak unexpectedly hit 139.5 MW. In 1996, the peak climbed to 141.2 MW, even without another 5 MW load from a mine that was closed at the time. In 1997 and 1998, the winter peak was close to 130 MW. If one of the transmission lines had gone out of service (had an outage) during the winter peaks in 1995, 1996, or 1997, voltage would have quickly dropped.

Once the transmission system is down, it could take at least twice as much power to fully restore the system because as electrical equipment such as motors come back on line, about twice as much power is required to restart them simultaneously. Because the existing system cannot handle that much energy, LVPL, and to a lesser extent, BPA, the U.S. Bureau of Reclamation at Palisades Dam, and others must bring the system back up in stages, going from individual **feeder** line to individual feeder line. The time required to do this, which could be hours or even days depending on the weather and other conditions, could create a dangerous situation for LVPL's customers, especially those who do not have another source of fuel for heat and lights.

The reliability of BPA's transmission system is critical to LVPL's system.

### ► For Your Information

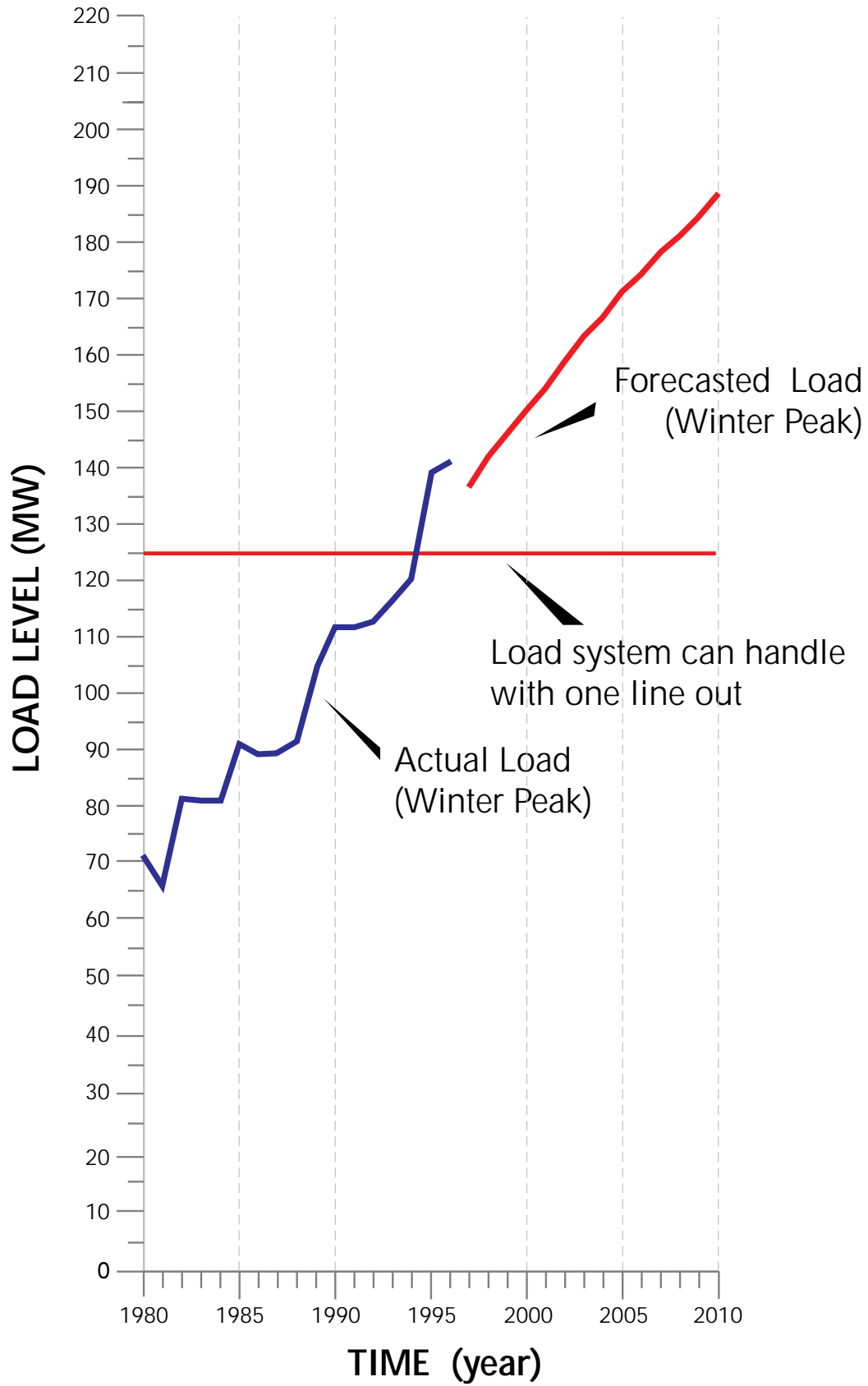
A **feeder** line is a distribution line that serves certain neighborhoods.

## 1.3.1 Reliability Criteria

Utilities strive to provide reliable service at the best value for their customers. Cost-effectiveness is evaluated from the customer's perspective. Reliability is a measure of the transmission system's ability to meet customer demands. It is measured by how often power outages occur, how long they last, and how many customers are affected. A perfectly reliable system would always satisfy customer demand. Perfect reliability is not technically feasible and even if possible, would be extremely expensive for consumers.

Using rules based on experience, utilities design and operate transmission systems to meet high performance standards that come close to this "perfect" system. These rules, called reliability

Figure 1-1. Load Growth





criteria, set standards to ensure cost-effective, reliable service. A reliable system should provide electrical service under normal and emergency conditions. A transmission line outage caused by wind, ice, lightning or other events is an example of a system emergency. Reliability criteria define acceptable service under these types of emergencies.

## 1.4 Finding Solutions

After BPA and LVPL identified the voltage stability problem in the area, they began working together to solve it. BPA and LVPL did long-range (15-30 years) studies to determine what the transmission system needs to accommodate load growth, the best actions to meet those needs, what each action costs, and how different actions would affect the entire system. From the long-range studies, BPA and LVPL developed many alternatives to solve the problem and then chose the most feasible ones to study further.

### ► For Your Information

*An **EIS** is a document that discloses the environmental impacts of a proposed action and alternatives.*

BPA also began this environmental impact statement (**EIS**) to refine alternatives, identify environmental resources and potential impacts from the alternatives, and determine other issues to consider before making any decision.

Chapter 2, **Agency Proposed Action and Alternatives**, describes the solutions developed.

## 1.5 Scoping and Major Issues

Scoping refers to a time early in a project when the public has an opportunity to express which issues should be considered in an environmental impact statement. On May 1, 1996, BPA published a Notice of Intent to prepare an EIS and to conduct public scoping meetings for the project. BPA developed a public involvement plan early in the planning process to identify ways to inform the public and others about the need for the project, and to scope issues for the environmental impact statement. The first project *For Your Involvement (FYI)* (May 3, 1996) explained the proposal, the environmental process, and how to participate (see Appendix B, **Public Involvement**). A comment sheet was included so individuals could mail their comments back to BPA. Project scoping meetings were held in the following locations: Idaho Falls, Idaho on May 20, 1996; Jackson, Wyoming on May 21, 1996; Driggs, Idaho, on May 22, 1996; and Irwin, Idaho on May 23, 1996. Written and verbal comments on the project were collected.

*The Notice of Intent is in the Federal Register (61 FR 19267). The Federal Register publishes regulations and legal notices issued by federal agencies.*

*BPA's **FYIs** provide information to interested parties and the public about individual projects.*

The second project *FYI* (July 10, 1996) contained the results of the scoping process (see Appendix B). Many issues were raised during the scoping process. Most comments were received about the following issues:

- Design and location of alternatives;
- Using other power sources such as natural gas;
- Quality of life issues such as visual resource issues and property values;
- Wildlife, vegetation, soil, water quality, and scenic quality, especially on national forest lands;
- Recreation use, especially at Teton Pass and in designated Wilderness and Wilderness Study Areas;
- Noise, *electric and magnetic fields (EMF)* and fire hazards.

This is a partial list of issues identified from the comments received. All comments received during the scoping period were logged in, characterized by subject, and forwarded to resource specialists to include in their environmental impact analyses. Issues raised during scoping and many added concerns are addressed in Chapter 4, **Environmental Consequences**.

The third project *FYI* (March 1997) contained a status report about the environmental analyses and engineering work underway at that time. It also included a schedule for release of the Draft EIS (see Appendix B).

Issues identified during the scoping process were discussed in the Draft EIS. The Draft EIS was distributed to agencies, groups, individuals and libraries in June 1997. A 45-day public review period ended on August 5, 1997. Public meetings with an open house format were held in Driggs, Idaho and Jackson, Wyoming to review and receive comments on the Draft EIS. The comment period was extended at the request of some potentially affected landowners until September 11, 1997. Chapter 6 of this Final EIS records and provides responses to the comments on the Draft EIS. This Final EIS also provides updated information developed as a result of the comments received on the Draft EIS.

## 1.6 Decisions to be Made

When a project could involve more than one federal agency, those agencies work together during the planning and decision-making process. BPA is the lead federal agency on this project and supervises the preparation of the EIS. The U.S. Forest Service is a cooperating agency and assists BPA in EIS preparation.

A project of this size contains different alternatives and options for decision makers to consider. For this project, the following kinds of decisions must be made:

### ► For Your Information

A *right-of-way* is an easement over the land of another owner.

- BPA must first choose an alternative. If the alternative is to build a new transmission line, BPA must decide where new **right-of-way (ROW)** would be needed, where structures and access roads would be placed, and the types of structures to use. If BPA chooses an alternative that requires new substation equipment only, BPA must decide where the equipment would be placed.
- If BPA chooses to build a new transmission line, the USFS (Targhee and Bridger-Teton National Forests), through the Targhee National Forest's Forest Supervisor, must decide if they will issue a special use permit and under what conditions; and whether to allow clearing of additional ROW, construction of a new line and additional access roads, management of existing and new access roads, and maintenance activities. The Targhee National Forest's Forest Supervisor also needs to decide if the project complies with currently approved forest plans, and if not, what amendments are needed.

More information about federal, state, and local consultations and permits for this project is in Chapter 5, **Consultation, Permit and Review Requirements**.

## 1.7 Other Project and Planning Activities Outside the Scope of this EIS

Long-range planning and other activities occurring in the area are outside the scope of this project, but are included here for information.

### 1.7.1 Long-Range Planning

BPA and its customers do long-range (15-30 year) transmission planning to meet their future needs. BPA and LVPL's long-range planning identifies several potential projects in the area. However, these projects depend on many uncertainties (e.g., future load growth, advances in technology, energy conversion to renewable resources, future customer needs) and are not reasonably foreseeable at this time. Alternatives described in Chapter 2 to meet the need for the BPA/Lower Valley Transmission Project are the first and most important in a series of actions identified in the long-range plan. Future planning actions that may be proposed on other parts of BPA's and LVPL's transmission systems are outside the scope of this EIS and would be studied in more depth later if the probability that they would be needed becomes more certain. Potential impacts would be studied in additional environmental documents at that time.

### **1.7.2 South Fork Snake River/Palisades Wildlife Mitigation Project**

BPA is funding the South Fork Snake River Programmatic Management Plan to compensate for losses of wildlife and wildlife habitat from hydroelectric development at Palisades Dam. The Idaho Department of Fish and Game drafted the plan, which was completed in May 1993. The plan includes land and conservation easement acquisition and wildlife habitat measures, such as fencing riparian areas and revegetation to create wildlife habitats. The measures will be completed along the South Fork Snake River and the lower portion of the Henry's Fork Snake River.

### **1.7.3 South Fork Snake River Basin Comprehensive State Water Plan**

This plan was developed by the Idaho Water Resource Board and examines existing and planned resource uses in the South Fork Snake River Basin. The plan discusses the goals, objectives, and recommendations of the Board concerning improving, developing, and conserving water resources in the public interest. The Draft plan was completed in October 1996. The final plan was presented to the Idaho Legislature in January 1997, and, with few changes, was approved in March 1997.

### **1.7.4 Targhee National Forest Plan**

The Targhee National Forest has finished updating its Forest Plan. The draft of the new plan and Draft EIS were released for public review in 1996, with the closing date for comments in June 1996. The Forest Service incorporated the comments received on the draft plan and Draft EIS, then released the *Revised Forest Plan for the Targhee National Forest (1997)* and issued the Record of Decision on April 15, 1997. The Record of Decision was published in the *Federal Register* in May 1997.

## **1.8 Organization of the Final EIS**

This environmental impact statement includes information necessary for agency officials to make decisions based on the environmental consequences of proposed actions.

Federal regulations specify the kinds of information decision-makers should have to make good decisions. This document follows those recommendations.

- Chapter 1 states the purpose and need for the project. Alternatives are evaluated based on the purpose and need.
- Chapter 2 describes the agency proposed action and alternatives, including taking no action, and summarizes the differences among alternatives, especially in potential environmental impacts.
- Chapter 3 describes the existing environment that could be affected by the project. The existing environment includes human and natural resources.
- Chapter 4 describes the possible environmental consequences of the agency proposed action and alternatives. Impacts can range from no or low impact to high impact.
- Chapter 5 reveals the licenses, permits and other approvals or conditions the alternatives must obtain or meet.
- Chapter 6 contains the written and oral comments on the Draft EIS, and BPA's responses to these comments.
- Chapters 7 through 10 list individuals who helped prepare the EIS, references used, individuals, agencies, and groups the EIS will be sent to, and a glossary.
- An index is included after Chapter 10.
- Supporting technical information is in appendices.



## Chapter 2 Agency Proposed Action and Alternatives

In this Chapter:

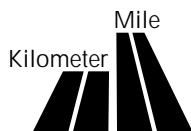
- **Agency Proposed Action**
- **Three Action Alternatives**
- **No Action Alternative**
- **Alternatives Eliminated from Consideration**
- **Comparison of Alternatives and Summary of Impacts**

BPA and LVPL have been studying ways to reinforce the transmission system that serves the Jackson and Afton, Wyoming areas. BPA and LVPL completed long-term (15-30 year) studies and developed alternatives that would reinforce the transmission system. Each alternative has different components and ability to solve the problem. This chapter describes the alternatives, summarizes how the environmental consequences differ among alternatives, and compares the alternatives against decision factors. BPA and the USFS are considering the Agency Proposed Action, and four alternatives including the No Action Alternative.

### ► For Your Information

*NEPA requires that proposed major federal actions which may have significant impacts on the environment be examined in an environmental impact statement. NEPA helps public officials make decisions that consider environmental consequences.*

*BPA uses metric measurements to comply with Public Law 100-418. See metric conversion chart on the inside of the back cover.*



*Please refer to Sections 1.4, **Finding Solutions** and 1.7.1, **Long-Range Planning** for discussions of long-term planning and future planning actions.*

Regulations implementing the National Environmental Policy Act (**NEPA**) require federal agencies to analyze the consequences of taking no action, in this case, continuing to operate the transmission system under present conditions.

This chapter also describes other alternatives, such as burying the transmission line, that have been suggested but eliminated from detailed consideration for technical and/or economic reasons. (See Section 2.6, **Alternatives Considered and Eliminated from Detailed Consideration.**)

### 2.1 Agency Proposed Action

In the Agency Proposed Action, BPA and LVPL would construct a new 115-kV line from BPA's Swan Valley Substation near Swan Valley in Bonneville County, Idaho about 58 km (36 miles) east to BPA's Teton Substation near Jackson in Teton County, Wyoming. (See Map 1.) The Agency Proposed Action has the following components and would cost about \$14,500,000 (1997 dollars). The cost, including all potential future planning actions, is estimated to be \$19,400,000 (1997 dollars) over 30 years.

## 2.1.1 Transmission Line

### 2.1.1.1 Structures

#### ► For Your Information

A **single-circuit** line has one electrical circuit on one structure.

**Structure numbers** refer to a specific structure in a given mile (from west to east) of the existing Swan Valley - Teton No. 1, 115-kV transmission line. For example, a road near structure 6/2 is near the second structure in mile six of the existing line east of Swan Valley Substation.

A **double-circuit** line has two separate electrical circuits on the same structure.

A new 115-kV line would be built next to the existing Swan Valley-Teton No. 1, 115-kV transmission line. Most of the new line would be supported by a mix of **single-circuit** wood pole H-frame structures or steel single pole structures. (See Table 2-1 and Figure 2-1.)

BPA proposes to use 2-4 double-circuit single pole structures across from the Pine Basin Lodge in the Pine Creek area. This is described in Section 2.1.2. At Teton Pass (**structure numbers 26/2 to 29/3**), BPA proposes to use the existing structure footings and replace the body and tops of the existing structures with new **double-circuit** steel lattice structures for structures 28/3, 28/4, 29/1, and 29/2. Structures 27/5 to 28/2, 28/5, and 29/3 will need to be totally rebuilt. Coming off Phillips Ridge into Teton Substation (structure numbers 35/1 to 36/2), BPA would remove the existing single-circuit structures and replace them with double-circuit single steel pole structures. A few single circuit steel and wood poles would be used close to the substation. Both the lattice steel and single pole double-circuit structures are shown in Figure 2-2, with their general location on Map 2, Sample Structure Locations.

**Table 2-1. Structure Types Proposed along the New ROW**

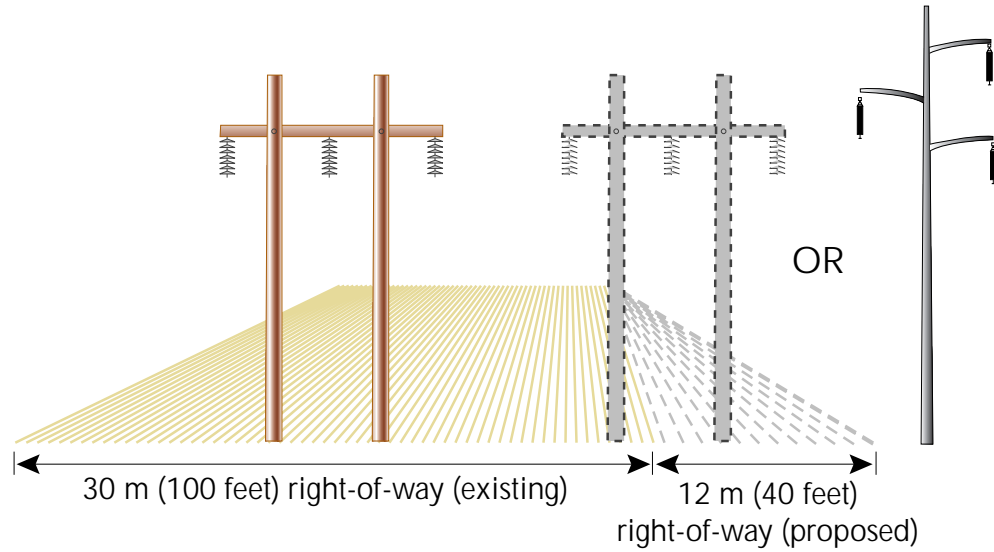
Between Structures	Structure Type	Between Structures	Structure Type
Swan Valley Substation to 4/3	single-circuit wood H-frame	26/2 - 29/3	double-circuit steel lattice
4/4	single-circuit wood pole	29/4 - 34/7	single-circuit steel pole
4/5 - 6/2	single-circuit wood H-frame	35/1 - 36/2	double-circuit steel pole
6/3 - 6/7	double-circuit steel pole	36/3	single-circuit steel poles
6/8 - 7/2	single-circuit wood H-frame	36/4 - 36/5 in Teton Substation	single-circuit wood poles
7/3 - 26/1	single-circuit steel pole		

*Table 2-1 identifies structure types along the new ROW. These structures types are proposed at this time with the best available design information known at this time. Structure types may change as more design information is known.*

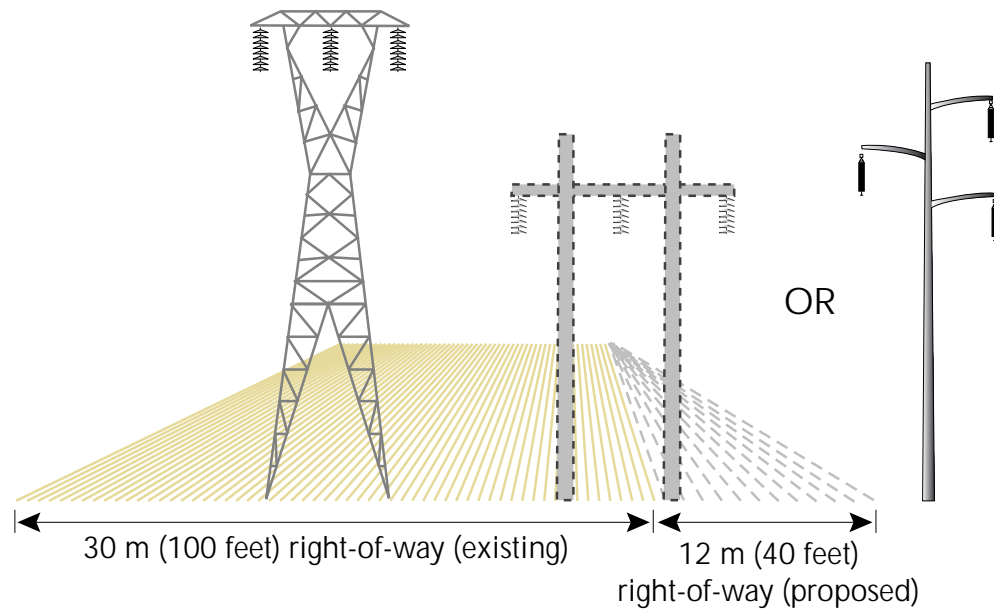


**Figure 2-1. Existing and Proposed Single-Circuit Structures and Right-of-Way**

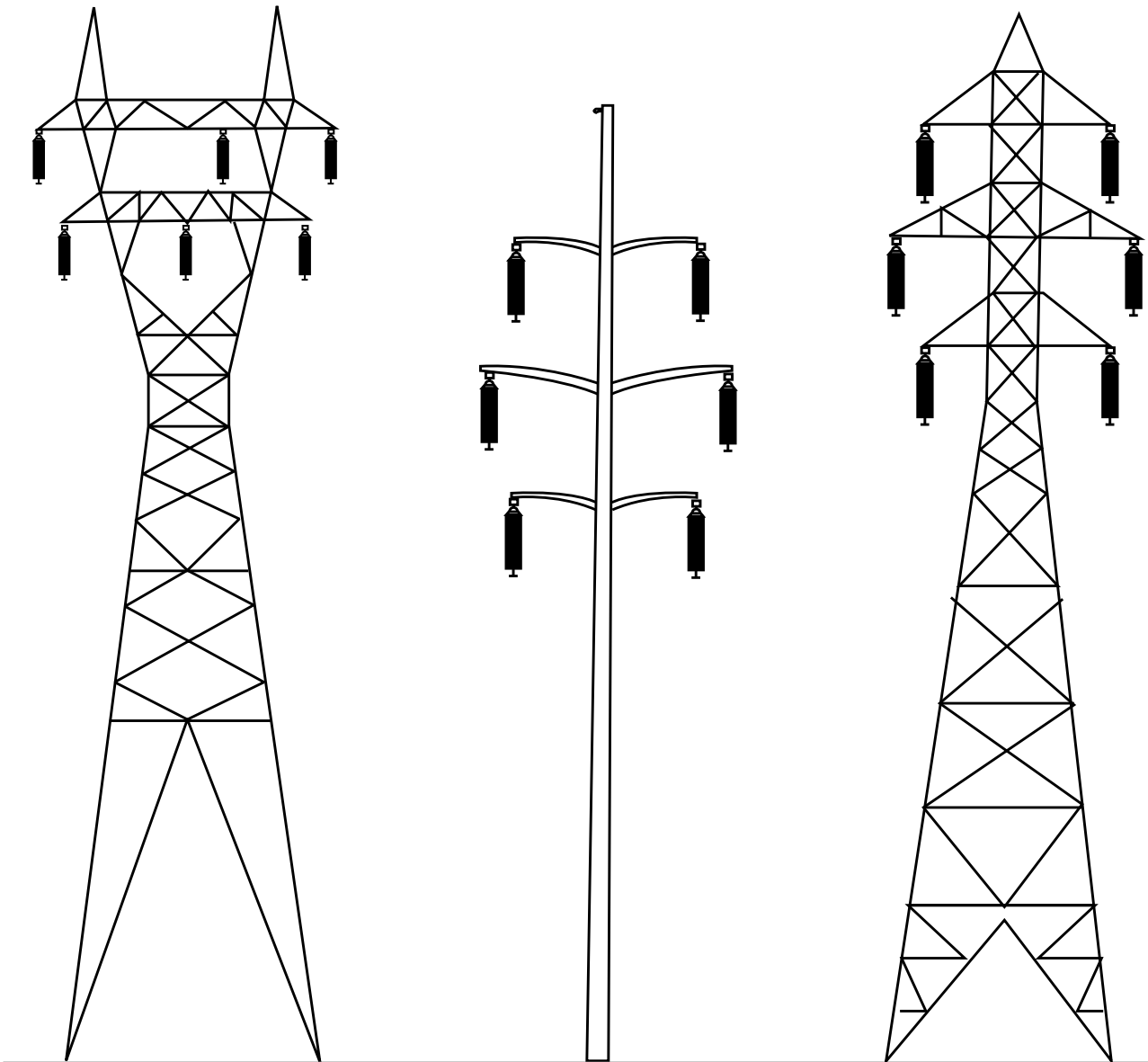
115 kV single circuit wood H-frame  
average height 26 m (85 feet)



115 kV single circuit wood/steel pole  
average height 29 m (95 feet)



**Figure 2-2. Proposed Double-Circuit Structures**



115-kV steel lattice  
average height 30 m (100 feet)

115-kV steel pole  
average height 27 m (90 feet)

115-kV steel lattice  
average height 30 m (100 feet)

### 2.1.1.2 Conductors

The wires or lines that carry the electrical current in a transmission line are called conductors. A single-circuit 115-kV line has three conductors; a double-circuit 115-kV line has six conductors. Each conductor would be about 0.24 cm (0.93 in.) in diameter.

#### ► For Your Information

*A right-of-way is an easement over the land of another owner. The exact amount of right-of-way cleared varies at any point and mostly depends on slope, tree height and growth rate, and line height. This variation in clearing requirements gives the ROW a scalloped or feathered appearance. BPA anticipates that about 25 hectares (62 acres) of clearing could occur for the transmission line and about 6 hectares (15 acres) of clearing for access roads for the Agency Proposed Action. Because clearing would be done in the national forests, location and amounts of clearing would be coordinated with the Forest Service.*

### 2.1.2 Additional Right-of-Way

Additional ROW would be needed for the new structures and line. The amount of additional ROW width needed would range from 0-30 m (0-90 feet), with the average additional width at about 12 m (40 feet). New ROW is proposed for the north side of the existing ROW except for the following areas:

- Through the Swan Valley area and into the mouth of Pine Creek (Swan Valley Substation to structure 6/1), the new ROW would be east and south of the existing line.
- Through the Pine Creek area to the Idaho State Route 33 crossing (between structures 7/3 and 21/1), the new line would be south of the existing ROW.
- In areas where double-circuit structures would be used, no additional ROW would be needed.

BPA also considered several routing options in the Pine Creek area. Several of those options require additional ROW.

#### 2.1.2.1 Pine Creek Routing Option A

From structures 6/1 to 7/2, BPA would place the new transmission line north of the existing line, up the hill about 244 m (800 feet) or more. (See Figure 2-3).

#### 2.1.2.2 Pine Creek Routing Option B

BPA would place the new transmission line next to and north of the existing line from structures 6/1 to 7/2. (See Figure 2-3).

#### 2.1.2.3 Pine Creek Routing Option C

BPA would cross State Route 31 at structure 6/1, route the line on the south side of Pine Creek up the hill behind Pine Basin Lodge, and tie into the existing ROW at structure 7/2 on the south side of the existing ROW. (See Figure 2-3.)

#### **2.1.2.4 Pine Creek Routing Option D (Preferred)**

BPA would remove up to seven existing structures from structures 6/2 to 6/8 and replace them with two to four double-circuit structures on the existing ROW. (See Figure 2-4).

#### **2.1.2.5 Pine Creek Routing Option E**

At structure 5/8, BPA would route the line to the east and cross the highway and Pine Creek (see Figure 2-4). The line would remain south of the highway and Pine Creek. Before the line reached Pine Basin Lodge, it would turn and cross the highway and Pine Creek again. The line would then return to the existing ROW at structure 6/8.

### **2.1.3 Clearing Required**

For safe and uninterrupted operation of a transmission line, vegetation within a ROW is not allowed to grow above a certain height. Restrictions vary depending on the size of the transmission line, type of vegetation on and off the ROW, and terrain.

BPA would develop a clearing plan. The plan would identify the area on either side of the structures where existing vegetation must be removed. It also specifies the correct vegetation heights along and at varying distances from the line. Considerations that influence the amount of clearing along the line are: line voltage; vegetation species, height and growth rates; ground slope; conductor elevation above ground; and clearance distance required between the conductors and other objects.

When the original transmission line was built in 1968, contractors cleared a 100-foot ROW and in addition, cleared trees beyond the ROW out to a **backline**. Figure 2-5 shows this for existing structure 8/8. Since the old backline was cleared, trees have grown back but these trees are smaller than the trees beyond the original backline. The new line would be placed close to or within the existing ROW edge. In most cases, clearing for the new ROW would be to the new ROW edge, which in most cases would be within the old backline. Any leaning or diseased trees beyond the new ROW edge would be cleared (see Figure 2-5). In addition, to account for heavy ice loads on the conductors (wires), the new wires may hang lower than the existing wires and cause trees to be removed in the existing ROW in valleys between structures.

Merchantable timber (including timber for poles, posts, and firewood) would be sold and non-merchantable timber would be left to be lopped and scattered or piled and burned. Contractors would be required to use brush blades instead of dirt blades on bulldozers for clearing. Other best management practices for timberland would also be used.

#### **► For Your Information**

*A **backline** is a line painted on trees that identifies trees that could fall or bend into a transmission line, or that a transmission line could swing into. All trees inside the backline, including safe trees, are usually cut.*

*Burning is not BPA's preferred method of disposing of this material. Disposal methods would be coordinated with the Forest Service on all National Forest lands.*



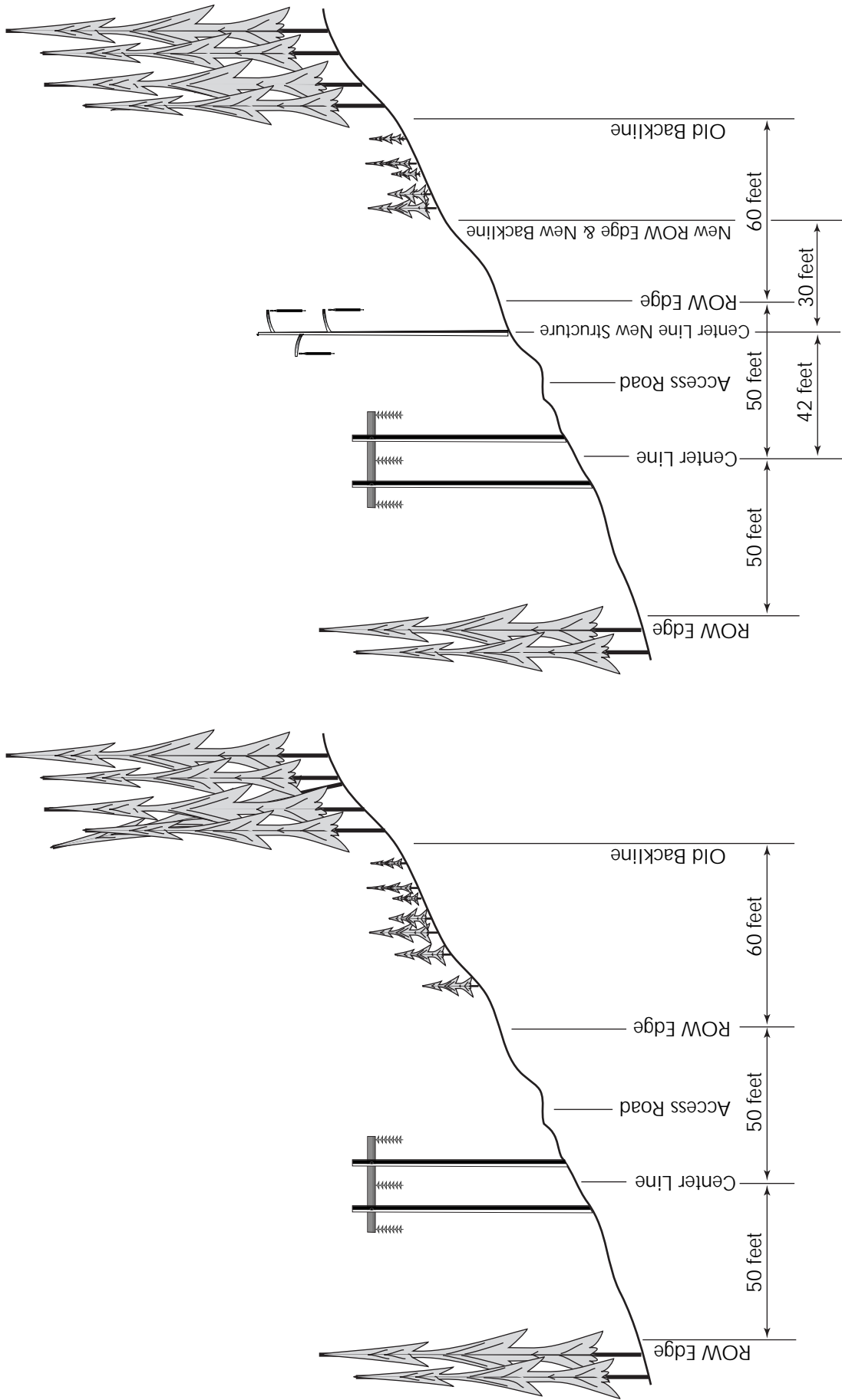








Figure 2-5. Clearing



Existing Wood H-Frame, New Steel Pole,  
and New Clearing at Structure 8/8

Existing Wood H-Frame and Clearing  
at Structure 8/8

At the structure sites, all trees, brush, stumps, and snags would be felled and removed, including root systems. The site may be graded to provide a relatively level work surface.

About 25 hectares (62 acres) would be cleared. This is based on clearing an average of 16 m (40 ft) of additional ROW.

An additional 6 hectares (15 acres) would be cleared for roads that are needed off the ROW and for roads in poor condition that BPA would upgrade. Roads are discussed in the next section.

### ► For Your Information

*BPA improves access roads by grading, improving drainage, and adding gravel to the road surface. After construction, roads are maintained for emergency access and maintenance. In some areas where access roads would not be built, helicopter construction would be used to erect structures and put up the conductor. After construction and during an emergency on a structure that has no access road to it, maintenance would need to evaluate their need for access and build a road if necessary. Maintenance would coordinate this need with the Forest Service.*

*Best management practices are a practice or combination of practices that are the most effective and practical means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.*

*Exact location and design of new roads are typically done during or after final design of the transmission line. Because some new access roads would be in national forests, their location and design is closely coordinated with the Forest Service.*

## 2.1.4 Access Roads

BPA normally acquires rights and develops and maintains permanent overground access for travel by wheeled vehicles to each structure. **Access roads** are designed for use by cranes, excavators, supply trucks, boom trucks, and line trucks for construction (including tree removal) and maintenance of the transmission line. Truck size and carrying weight help determine road specifications. BPA prefers road grades of 6 percent or less for highly erodible soils (silts), and 10 percent or less for erosion resistant soils (earth and broken rock). For short distances, maximum acceptable road gradients are 15 percent for trunk or main roads, and 18 percent for spur roads (roads that go to each structure if the structure is not located on a trunk road). Grades in excess of 18 percent would be approved by the Forest Service on lands managed by the Forest Service.

**Best Management Practices (BMP's)** are used in the construction and upgrading of access roads. These are described in Section 4.5.2.2. New or existing trunk access roads from the main highways to the ROW are rocked for construction and maintenance activities. After construction, water bars are installed on trunk access roads along the ROW. Trunk and spur access roads are also prepared for reseeding and reseeded.

### 2.1.4.1 Trunk and Spur Roads

Most of the new line could be built using existing access roads that cover over 80 percent of the line. This existing road system consists of trunk roads, which are the main roads travelled by construction and maintenance vehicles, and spur roads, which are short road segments branching off the trunk roads. Spur roads access existing structures. Trunk roads are located on and off the ROW. Existing trunk roads and structures accessible by these roads are listed in Table 2-2.

About 4.5 km (2.8 miles) of new, permanent off-ROW and about 2.7 km (1.7 miles) of new, permanent on-ROW trunk roads would be needed for construction and maintenance for the new and existing lines. Those portions of existing ROW that do not have

**Table 2-2. Existing Trunk Roads****► For Your Information**

*This table lists existing BPA access roads. Some roads are also USFS roads and are identified as such in the table.*

Structures	Accessed by:	Structures	Accessed by:
1/1-1/3	Road 1-1,1-2	18/3-18/4	Road 18-1
1/4-3/7	Bonneville County Rd.	18/5-21/2	Road 18-2,18-3, 18-4,19-1,21-1 (new gate),21-3
4/1-4/4	Bonneville County Rd.	21/3-23/4	Road 21-2,22-1, 22-2,22-3,22-4
4/5-4/7	Road 4-1	23/5-24/3	No access roads here
4/8-5/6	Road 5-1	24/4-24/5	Road 24-1 (new gate),24-2,24-3
5/7-6/1	Road 5-2 (new gate),5-3,5-4	24/6-26/7	Road 26-1,26-2,26-3 (new gate),26/4
6/2-6/9	No access roads here	26/8-27/6	Road 27-1,27-2
6/10-6/12	Road 6-2	27/7	Access from Hwy. 22
7/1-8/1	Road 7-1,7-2	28/1	Access from Hwy. 22
8/2-8/6	Road 8-1, 8-2 (USFS 250)	28/2-28/5	Road 28-1
8/7-8/10	No access roads here	29/1-29/3	No access roads here
8/6-9/4	Road 9-1,9-2,9-3	29/4-30/4	Road 29-1,29-2, 29-3,30-2
9/5-10/2	No access roads here	30/5-33/8	Road 31-1 (new gate),31-2, 32-1,32-2,32-3
10/3-11/6	Road 10-1, 10-2,10-3,11-1, 11-2,11-3 (new gate) (USFS 252),11-4	34/1-35/1	Road 34-1,34-2,34-3, 35-1-R
12/1-14/6	Road 12-1, 12-2,12-3,12-4, 12-5,13-1,13-2, 13-3,13-4,13-5, 13-6 (new gate),13-7 (new gate) (USFS 253),14-1, 14-2,14-3,14-4, 14-5	35/2-35/5	Access from Fish Creek Road
15/1-18/2	Road 15-1, 15-2,15-3,15-4, 16-1,16-2,17-1 (new gate)	35/6-36/5	Access from Moose Wilson Road

access are from structures 6/2 to 6/9, 8/7 to 8/10, 9/5 to 10/2, 23/5 to 24/3, 24/6 to 26/7, and 29/1 to 29/3. Tables 2-3 and 2-4 identify where new off-ROW and on-ROW trunk roads would be built to access some of these areas. Other areas would not have any roads because of very steep terrain. A full field survey of the existing and required new access roads would be done prior to construction and may result in changes to the summary shown in Tables 2-3 and 2-4.

Easements for new trunk roads outside the existing ROW would be 15 m (50 feet) wide. New or existing trunk roads would be graded to provide a 4.2 m (14 foot) travel surface, with an additional 1.2-1.8 m (4-6 feet) to accommodate curves. About 3 m (10 feet) on both sides of the road would be disturbed for ditches, etc.

### ► For Your Information

*In some cases, spur roads may not be built to individual structure sites if the structure can be constructed from the trunk road or by helicopter. In the future, however, BPA may need to build a spur road to the structure for maintenance if there is no other way to access it.*

Spur roads would be built from the on-ROW trunk roads to access new structures and would be on existing or new ROW. The amount of new, permanent spur roads is about 7.3 km (4.5 miles), assuming the average length is about 30 m (100 ft.). The number of spur roads by line mile is shown in Table 2-4.

Some roads would not be used after the transmission line is built. This is the case for roads developed in agricultural areas. After construction, the area used for roads located in crop fields would be restored as much as possible and farmers could plant their crops. All other roads would remain to provide access for line maintenance. All new and existing access roads proposed at this time are shown in Appendix C, **Photomaps.**

#### **2.1.4.2 Stream Crossings**

New and existing access roads would cross both perennial and intermittent streams. For construction, BPA would use or improve existing bridges, build new or replace unusable bridges, and use temporary bridges. Table 2-5 shows this information by line mile and area. New permanent or temporary roads would add four additional intermittent stream (as shown on USGS maps) crossings. At these and existing crossings, BPA would use culverts that are properly sized, designed, and armored so they do not significantly affect flow or stream gradient, and minimize long-term sediment delivery.

#### **2.1.4.3 Gates**

Access roads that cross private land and land managed by the Forest Service are typically gated and locked by BPA. Thirteen gates presently limit access to the existing ROW. Gates are constructed of heavy pipe and painted yellow on Forest Service.

**Table 2-3. Changes to Off-ROW Trunk Road System****► For Your Information**

*A full field survey of the existing and required new access would be done prior to construction and could result in some changes to the summary shown in Tables 2-3 and 2-4.*

Mile	Near Structure:	Action
4	4/2	Build 600 ft. of temporary road in agricultural field and retain permanent rights
5	5/8	Build 1600 ft. of new road if Pine Creek Routing Option E is chosen
6	6/2 6/4 6/5	Build 1600 ft. of new road Build 250 ft. of new road Build 250 ft. of new road
7	7/1 7/1 7/2	Buy 2900 ft. of good existing road Release 700 ft. of Road 7-1 Build 400 ft. of new road
8	8/1 8/6	Buy 1200 ft. of fair existing road Build 1000 ft. of new road
9	9/3 9/4 9/8	Buy 900 ft. of poor existing road Buy 1200 ft. of fair existing road Build 500 ft. of new road
10	10/7	Release 1395 ft. of Road 10-3
21	21/2	Build 400 ft. of new road
22	22/10	Buy 600 ft. of poor existing road (new gate)
23	23/5 23/10	Build 1000 ft. of new road Build 1400 ft. of new road
24	24/3	Build 1200 ft. of new road
26	26/2 26/1 26/1	Buy 1000 ft. of poor existing road Release 150 ft. of Road 26-2 Release 310 ft. of Road 26-1
27	27/7	Buy 1400 ft. of poor existing road
28	28/1 28/4 28/4	Build 3000 ft. of new road Build 1200 ft. of new road Buy 600 ft. of fair existing road
30	30/1 30/4 30/3	Release 800 ft. of Road 30-1 Build 600 ft. of new road (new gate) Buy 800 ft. of poor existing road
31	31/8	Buy 900 ft. of good existing road
35	35/1	Buy unknown length of access to Road 35-1-R

**Table 2-4. Changes to On-ROW Trunk Road System and New Spur Roads**

Mile	Between Structures:	Trunk Road Action	Number of New Spurs
1	1/3-2/1	Build 4600 ft. of temporary road in agricultural field	6 temporary
2	2/1-3/1	Build 4700 ft. of temporary road in agricultural field	7 temporary
3	3/1-3/7	Build 4700 ft. of temporary road in agricultural field	7 temporary
4	4/1-5/1	Build 5000 ft. of temporary road in agricultural field	9 temporary
5	5/1-5/6 5/7 5/8-5/9 5/10-6/1	Rebuild 2300 ft. permanent road (new gate b/t 5/1-2) Nothing needed here Rebuild 700 ft. of permanent road Build 800 ft. of new permanent road	6 permanent 1 permanent 2 permanent 2 permanent
6	6/1 6/4 6/5 6/8-6/12	Nothing needed here Nothing needed here Nothing needed here Rebuild 1600 ft. of permanent road	1 permanent 1 permanent 1 permanent 5 permanent
7	7/1-7/2 7/3-8/1	Nothing needed here Rebuild 4600 ft. of permanent road	2 permanent 8 permanent
8	8/1 8/2-8/5 8/6-8/8 8/8-9/1	Nothing needed here Rebuild 1800 ft. of permanent road Build 1000 ft. of new permanent road Rebuild 1900 ft. of permanent road and build 500 ft. of new permanent road	1 permanent 4 permanent 3 permanent 2 permanent
9	9/1 9/2 9/3 9/4-9/8	Nothing needed here Nothing needed here Nothing needed here Build 3100 ft. of new permanent road	1 permanent 1 permanent 1 permanent 5 permanent
10	10/1-10/3 10/3-11/1	Build 1300 ft. of new permanent road Rebuild 3600 ft. of permanent road	3 permanent 6 permanent
11	11/1-11/6	Rebuild 4100 ft. of permanent road	6 permanent
12	12/1-13/1	Rebuild 400 ft. of permanent road	7 permanent
13	13/1-14/1	Rebuild 400 ft. of permanent road	6 permanent
14	14/1-14/2 14/3-14/5 14/6	Rebuild 200 ft. of permanent road Rebuild 1000 ft. of permanent road Nothing needed here	2 permanent 3 permanent 1 permanent
15	15/1-15/2 15/3-15/7	Rebuild 400 ft. of permanent road Rebuild 2500 ft. of permanent road	2 permanent 5 permanent
16	16/1-17/1	Rebuild 5100 ft. of permanent road	7 permanent
17	17/1-18/1	Rebuild 5700 ft. of permanent road	7 permanent
18	18/1-18/2 18/3-18/4 18/5-18/7 18/8-19/1	Rebuild 400 ft. of permanent road Rebuild 700 ft. of permanent road Nothing needed here Rebuild 1000 ft. of permanent road	2 permanent 2 permanent 3 permanent 1 permanent

**Table 2-4. continued**

Mile	Between Structures:	Trunk Road Action	Number of New Spurs
19	19/1-20/1	Rebuild 6100 ft. of permanent road	1 permanent
20	20/1-20/10	Rebuild 4700 ft. of permanent road	10 permanent
21	21/1-21/2 21/3-22/1	Build 500 ft. of new permanent road Rebuild 4400 ft. of permanent road	4 permanent 8 permanent
22	22/1-23/1	Rebuild 4400 ft. of permanent road	10 permanent
23	23/1-23/4 23/5-23/10	Rebuild 1800 ft. of permanent road Build 1200 ft. of new permanent road	4 permanent 6 permanent
24	24/1-24/3 24/4-24/5	Build 700 ft. of new permanent road Nothing needed here	3 permanent 2 permanent
<b>Note: No access roads proposed from 24/6-26/1</b>			
26	26/2 26/3-26/7 26/8-27/1	Nothing needed here No access roads proposed Rebuild 600 ft. of permanent road	1 permanent none needed 1 permanent
27	27/1-27/2	Rebuild 2000 ft. of permanent road (new gate between 27/7 and 28/1)	7 permanent
28	28/1-28/5	Nothing needed here	5 permanent
29	29/3-30/1	Rebuild 3500 ft. of permanent road	6 permanent
30	30/1-30/3 30/4 30/5-31/1	Rebuild 1100 ft. of permanent road Nothing needed here Rebuild 3500 ft. of permanent road	3 permanent 1 permanent 7 permanent
31	31/1-32/1	Rebuild 5900 ft. of permanent road	10 permanent
32	32/1-33/1	Rebuild 5500 ft. of permanent road	10 permanent
33	33/1-33/8	Rebuild 5500 ft. of permanent road	8 permanent
34	34/1-35/1	Rebuild 3200 ft. of permanent road	5 permanent
35	35/2-35/5 35/6-36/1	Build 2200 ft. of temporary road Build 2100 ft. of temporary road	4 temporary 4 temporary
36	36/1-36/4	Build 1200 ft. of temporary road	3 temporary

**Table 2-5. Stream Crossings**

Mile	Intermittent Stream Crossing	Perennial Stream Crossing	Type of Crossing
6		Pine Creek	existing bridge
6	Flume Canyon Creek (Options C and E)		existing road
7	Canal Canyon Creek		existing road
8		Pine Creek	replace existing bridge
8	unnamed		new road
9		Pine Creek	existing ford for maintenance only
9		Poison Creek	existing culverts
10	unnamed		existing culvert
11		Pine Creek	existing bridge
11		Tie Creek	new bridge or culvert
14		Coalmine Creek	existing double culverts
15		Little Pine Creek	new bridge
15		Murphy Creek	existing road
16	Allen Canyon		existing road



**Table 2-5. continued**

<b>Mile</b>	<b>Intermittent Stream Crossing</b>	<b>Perennial Stream Crossing</b>	<b>Type of Crossing</b>
18		Pole Creek	existing culvert
19	Nordeli Canyon		existing road
21		Trail Creek	existing bridge
22	unnamed		existing road
24	Hungry Creek		existing road
24	tributary to Hungry Creek		new road
27	3 unnamed		improve culverts
28	unnamed		new road
30		north fork of Trail Creek	existing road
34		Phillips Canyon Creek	improve bridge
35		Phillips Canyon Creek	temporary bridge or culvert
35		Lake Creek	temporary bridge or culvert
35		Fish Creek	temporary bridge or culvert

land. All parties that have a right to use the road would have access to it. At this time, BPA estimates installing about 13 new gates. Gate locations are identified in Tables 2-2, 2-3, 2-4 and in Appendix C.

### 2.1.5 Staging Areas

During construction of the transmission line, areas would be needed off the main highways, near the existing ROW, where equipment such as steel, spools of conductor, and other construction materials would be stored until the material is needed for construction.

BPA has identified five areas that could be used as staging areas. All of these areas are located off Highways 31, 33, and 22 between Swan Valley and Jackson and are shown on Map 1; four sites are shown on photomaps in Appendix C. Two are located on Forest Service land near structure 21/2 and Mike Harris Campground on the north and south side of Highway 33. The third site is located on Forest Service land in a pullout area at the top of Pine Creek Pass. The fourth site is located on Forest Service land in a pullout area on the south side of Highway 22 and south of structures 25/5 and 25/6. The fifth site is in a pullout area east of Teton Pass summit on the south side of Highway 22 where the Old Pass road meets the highway.

### ► For Your Information

*The Bureau of Reclamation manages the land that the Swan Valley Substation occupies and has granted BPA a right-of-way for the operation of the Swan Valley Substation.*

### 2.1.6 Line Termination and Equipment

The new line would terminate at Swan Valley and Teton substations. Terminating a line requires special types of equipment. New equipment would be placed on BPA property within the substation yard at Teton Substation. The fenced yard at Swan Valley Substation would be expanded east into an existing parking lot.

The following equipment would be installed at Swan Valley and Teton substations. The equipment is shown in Figure 2-6.

**Power Circuit Breakers** — A breaker is a switching device that can interrupt a circuit in a power system during **overload** or fault conditions. Faults are caused by lightning, trees falling into the line and other unusual events. Several kinds of breakers have been used in substations. The breakers planned for this project, called gas breakers, are insulated by special non-conducting gas (sulfur hexafluoride). Small amounts of hydraulic fluids are used to open and close the electrical contacts within gas insulated breakers. The hydraulic fluid is the only toxic or hazardous material that would be used. One breaker would be installed at each substation.





**Substation Dead Ends** — Dead ends are structures within the confines of the substation where incoming and outgoing transmission lines end. Dead ends are typically the tallest structures in a substation. Both substations will require a new substation dead end. At Teton Substation, the existing deadends are 16.5 m (54 feet) high.

**Transmission Line Dead End** — The last transmission line structure on both the incoming and outgoing sides of the substation are called dead end structures. These structures are built with extra strength to reduce conductor tension on substation dead ends and provide added reliability to the substation. The single wood pole structure inside the Teton Substation is 20 m (65.5 feet) high. Both substations would require a new transmission line dead end. At Teton Substation, the dead end would be a single wood pole structure.

### ► For Your Information

*Ground wire is wire that is strung from the top of one structure to the next; it shields the line against lightning strikes.*

**Ground wire** — One or two overhead *ground wires*, depending on structure type, would be placed along the entire line. The wire would be placed about 3 m (10 feet) above the transmission line to protect the line and substations from lightning strikes. The thickness would vary from 0.95-1.6 cm (0.375-0.625 in.) depending on elevation and known ice conditions.

**Substation Fence** — This chain-link fence with barbed wire on top provides security and safety. Space to maneuver construction and maintenance vehicles is provided between the fence and electrical equipment.

**Substation Rock Surfacing** — An 8-cm (3-inch) layer of rock selected for its insulating properties is placed on the ground within the substation to protect operation and maintenance personnel from electrical danger during substation electrical failures.

**Disconnect Switches** — Switches are devices used to mechanically disconnect or isolate equipment. Switches are normally placed on both sides of circuit breakers. Three new switches would be installed at each substation.

**Bus Tubing, Bus Pedestals** — Power moves within a substation and between breakers and other equipment on rigid aluminum pipes called bus tubing. Bus tubing is elevated by supports called bus pedestals.

## 2.1.7 Communication Equipment

BPA has an existing communications network in place that delivers signals from control centers to operate substation equipment in remote locations. This network also provides voice communication for substation operators and maintenance

► **For Your Information**

*In 1994, BPA prepared an Environmental Assessment on the fiber optics program, entitled, BPA's Operational Telecommunications Fiber Optics Project.*

personnel. BPA uses a combination of fiber optics, microwave, and radio communication at Swan Valley Substation. For Teton Substation, BPA uses the transmission line as a carrier for communication signals.

BPA is proposing to install fiber optic cable on the new line for communication. Fiber optics transmit messages using light pulses. Glass fibers, which are almost as thin as human hair, carry the light pulses. Glass fibers are wrapped in polyurethane sheaths and are grouped in cables. The cables would be installed on the new transmission structures and new telecommunication equipment would be placed in the substation control house. Because ground wire would be installed along the entire line, the fiber optic cable could be contained within the ground wire, otherwise, the new cable could be installed on the structures underneath the conductors and would be about 1.6 cm (0.625 in.) thick.

### **2.1.8 Maintenance**

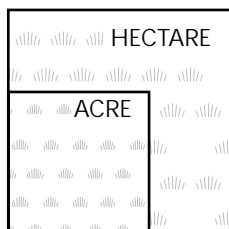
BPA would perform routine, periodic maintenance and emergency repairs on structures, substations, and accessory equipment. These activities typically include replacing poles, crossarms, and insulators. Within substations, BPA may need to replace equipment periodically. If BPA develops new access to structures, this access would remain throughout the life of the line so BPA can perform routine and emergency maintenance on the line. BPA would also need to maintain existing roads. Maintenance activities on existing roads include road grading, and clearing and repairing ditches and culverts. A new ROW Management Plan would be developed within a year of project completion. Using the knowledge and experience of maintaining the existing line and roads since 1968, BPA would include in the plan specific maintenance activities for the new line and roads. The plan would be developed in cooperation with the Forest Service.

Another large part of maintenance activities is vegetation control. During the transmission line design phase, clearing specialists develop a clearing plan for the project. Specialists consider the kind of line, the height and growth habits of the vegetation, slope, allowable conductor height, and wind and snow patterns, to determine which vegetation must be removed. (See Section 2.1.3, **Clearing Required.**)

After construction, maintenance crews assume responsibility for the line. This includes controlling **noxious weeds**, and managing for tall growing vegetation in and adjacent to the ROW. The ROW Management Plan would identify methods used to manage vegetation. At that time BPA would work with the Forest Service to identify the manual, mechanical, biological, and chemical

methods needed to manage vegetation. Those methods chosen would be evaluated under the Vegetation Management EIS presently being updated by BPA in cooperation with the Forest Service. If required, additional site-specific NEPA environmental work (categorical exclusion or environmental assessment) would be completed at that time and would tier off of the Vegetation Management EIS.

### ► Reminder



Hectare: about two and one-half acres

*Please refer to Sections 1.4, **Finding Solutions** and 1.7.1, **Long-Range Planning** for discussions of long-term planning and future planning actions.*

### ► For Your Information

**Tap** - The point at which a transmission line is connected to a substation or other electrical device to provide service to a local load.

A **bay** is an area set aside in a substation for special equipment.

## 2.2 Single-Circuit Line Alternative

The Single-Circuit Line Alternative has all the components of the Agency Proposed Action except the entire line would be supported by the single-circuit wood pole H-frame structures shown in Figure 2-1. There would be no double-circuit structures. The entire line would be located on the north side of the existing ROW and would require about 23 m (75 feet) of additional ROW width. About 73 hectares (181 acres) of forestland would be cleared. This alternative does not include the Pine Creek Routing Options.

This alternative would cost about the same as the Agency Proposed Action (\$14,200,000 [1997 dollars]). There would be some cost savings from not using double-circuit structures but that may balance out with having to get additional ROW easements for the single-circuit structures and doing additional clearing. The cost including all potential future planning actions is estimated to be about \$19,100,000 (1997 dollars) over 30 years.

## 2.3 Short Line Alternative

The Short Line Alternative has all the components of the Single-Circuit Line Alternative from Targhee **Tap** to Teton Substation. BPA and LVPL would construct the new line from Targhee Tap near Victor in Teton County, Idaho 29 km (18 miles) east to Teton Substation (see Map 1). Like the Single-Circuit Line Alternative, all new structures would be single-circuit (shown in Figure 2-1) and the new ROW would be located on the north side of the existing ROW.

BPA would also construct a new switching station on or close to the existing ROW near Targhee Tap. Targhee Tap would then be removed. Two potential station sites are shown on Map 1.

**Preferred Site on the ROW** — This site would be located between structures 18/3 and 18/4 just west of Targhee Tap in timberland. The new switching station would require about 0.4 hectare (1 acre), which includes the existing ROW, and would be similar to Teton Substation, but with one additional bay. (See Figure 2-6.)

► **Reminder**

*Please refer to Sections 1.4, **Finding Solutions** and 1.7.1, **Long-Range Planning** for discussions of long-term planning and future planning actions.*

**Site off the ROW** — This site would be located between structures 18/3 and 18/4, north of Targhee Tap in agricultural land. The new switching station would also cover about 0.4 hectares (1 acre) but BPA would acquire about 1-2 hectares (3-5 acres) of land for the agricultural site. A parking area, substation entrance road, electrical service, and a small control house would also be needed. These are described below.

This alternative would cost about \$11,100,000 (1997 dollars). The cost including all potential future planning actions is estimated to be about \$19,300,000 (1997 dollars) over 30 years.

**Substation Entrance Road** — Substation entrance roads are high-quality roads for construction, operation and maintenance crews and their equipment to access the site. Some of the electrical equipment installed at the substation is very heavy and construction and maintenance trucks have wide turning radii. An 18-m (60-foot) road right-of-way would be acquired. A 6-m (20-foot) wide rock road surface with 1.5-m (5-foot) wide shoulders would be needed for the road.

**Electrical Service** — Electrical needs at the switching station would be supplied by BPA or the local utility. The existing distribution system serving the area would need minor equipment adjustments that depend on the site selected for the new switching station.

**Control House** — Equipment that is used to perform certain functions at a substation can be housed inside a small building called a control house. Equipment might include fans, and communication and computer equipment.

► **For Your Information**

*A **var** is a unit of measurement of reactive power in a circuit.*

***Thyristors** are semiconductor switches.*

## 2.4 Static Var Compensation Alternative

BPA would install a Static **Var** Compensator (**SVC**) at Teton or Jackson substations. (See Map 1.) An SVC is a group of electrical equipment placed at a substation to help control voltage on a transmission system. Equipment includes a transformer, capacitors, reactors, **thyristor** valves, a cooling system, and computer controls. Some components are housed together in a small building at the substation and others remain outside in the substation yard.

Teton Substation is the preferred location for the SVC because it is BPA-owned, easier to access and maintain, has existing communication facilities, and can house the SVC without BPA buying additional property. Jackson Substation is owned by LVPL and would need to be expanded about 0.2 hectare (0.5 acre) to house the new facility.

This alternative would cost about \$6,200,000 (1997 dollars). The cost including all future planning actions is estimated to be about \$20,100,000 (1997 dollars) over 30 years.



A portion of the west fence line at Teton Substation would be moved on existing BPA property for the following new equipment, which would require about 46 m x 46 m (150 feet x 150 feet) of added space. (See Figure 2-7.) If chosen, Jackson Substation would require the same equipment.

**Transformer** — A transformer is a device for transferring electrical energy from one circuit to another. A new 30-70 megavolt ampere (*MVA*) 115-kV transformer would be installed.

**Shunt Capacitors** — Shunt capacitors are generally located in substations and used to increase the voltage at the end of a line. Three new 25 MVar capacitor groups would be installed at the north end of Teton Substation, west of the existing two capacitor groups.

**Reactors** — Reactors are devices used to control voltage. Three reactors would be installed at the southwest end of Teton Substation.

**Thyristor valves** — Thyristors are semiconductor switches. Three valves would be installed between the transformer and the reactors.

**Control House** — An additional small control house would be installed to house the computer controls and cooling system.

## 2.5 No Action Alternative

The No Action Alternative is traditionally defined as the no build alternative. This No Action Alternative assumes that no new transmission line is built, and no other equipment is added to the transmission system. The existing transmission line and substations would be operated and maintained as they are now.

## 2.6 Alternatives Considered and Eliminated from Detailed Consideration

BPA and LVPL studied a variety of alternatives to meet the need. After study, the following alternatives were eliminated from further consideration because they either could not meet the need for the project or they were considered unreasonable.

### 2.6.1 Conservation

Conservation was suggested as an alternative during the scoping process. Conservation programs are typically used to solve problems and modify electricity use patterns in limited geographic areas at specific times of the day and year.

#### ► For Your Information

*An average megawatt is the unit of energy output over a year, equivalent to the energy produced by the continuous operation of one megawatt of capacity over a period of time.*

LVPL has participated in conservation programs, many sponsored by BPA, since 1983. Programs have accomplished electrical savings of 3.305 **average megawatts (aMW)** (see Table 2-6). BPA no longer provides conservation funding to LVPL, but LVPL is working with the Town of Jackson Building Department to develop building codes that include conservation measures such as increased insulation in buildings.

**Table 2-6. Conservation Programs in the LVPL Service Area**

Program	aMW Savings
Weatherwise (residential retrofit)	0.2356
Super Good Cents	0.3456
Water Heaters	0.0379
Shower Heads	0.1593
Aerators	0.2284
Energy Smart Design (new and existing commercial)	0.1256
Energy Saving Plan (industrial)	1.083
Solar Water Heaters	0.0077
Waterwise (Irrigation)	0.0067
Street and Area Lighting	1.075
<b>Total</b>	<b>3.305</b>

Though conservation programs do reduce the need for power in the area, the magnitude of energy savings that can be accomplished is too small (less than one year of load growth) to defer the need for system reinforcement. Also, load projections include conservation savings. Still load growth has far outpaced the energy savings and the total load cannot be kept below the present system limit of 125 MW.





Because conservation programs cannot meet the need, they were eliminated from further consideration.

## 2.6.2 Transmission System Plans

BPA's and LVPL's initial study identified transmission plans that could potentially meet the need. Another transmission plan was suggested during scoping. These plans contain many actions over the 30-year planning period at and between different substations in northeastern Idaho and western Wyoming; the major actions are described in Section 2.6.2.2, **System Plans**.

After engineers studied the plans, the plans were eliminated from further consideration because of their high cost.

### 2.6.2.1 Cost Considerations

BPA is mandated by the Northwest Power Act to recover its costs sufficiently to repay the U.S. Treasury after first meeting its other costs. The electric energy industry is changing rapidly, with increased competition that has lowered the price of power and transmission services from BPA's competitors. As the electric industry changes, BPA must be able to recover its costs and compete with other suppliers in the western United States. BPA must balance its responsibilities to its ratepayers, customers and the environment and set its rates at the lowest possible level consistent with sound business principles. BPA looks for alternatives that would help keep its rates low. Alternatives that may meet the need, but that have costs sufficiently greater than other alternatives were eliminated from consideration to respond to BPA's need to remain competitive in the long term.

LVPL, in order to stay competitive with other public utilities, also needs to make sound financial decisions. Like BPA, they will consider alternatives that meet the need for the project but will eliminate those with relatively higher costs.

If LVPL wanted to borrow the full amount to pay for an alternative that costs \$10,000,000, the utility would use common electric industry debt ratios as a guide for weighing the financial impact. Table 2-7 lists these ratios as percentages for LVPL, compares them to an average figure for other utility cooperatives, and then shows the change when \$10,000,000 of debt is added.

The first ratio, *Total Debt to Total Asset*, measures how much of the utilities total assets have been financed using borrowed money (both in the short and long term). The higher the percentage, the more other people's money is being used to generate profits. At the end of 1995, LVPL had financed 58 percent of its total assets with borrowed money. Choosing an alternative that costs about

\$10,000,000 would raise this percentage to 64 percent. The average 1994 percentage for utility cooperatives is 5 percent. The 1994 data is the most up-to-date data available but the averages do not change much from year to year with so many utilities included in the average.

**Table 2-7. LVPL and Utility Cooperatives Average Debt Ratios**

Ratio Type	Co-op Average	LVPL	with additional \$10,000,000 debt
Total Debt to Total Asset	5%	58%	64%
Long-Term Debt to Total Asset	49%	48%	55%
Long-Term Debt to Total Capitalization	47%	60%	67%
Total Debt to Total Capitalization	50%	73%	77%
Times Interest Earned	1.97	1.98	not applicable

The second ratio, *Long-Term Debt to Total Asset*, is similar to the first ratio but only looks at long-term debt used to finance assets. This ratio is looked at much more closely since long-term debt commits a utility over the long term to pay interest and eventually to repay the borrowed amount. A greater percentage shows less financial flexibility and a greater possibility the utility may default on a loan. At the end of 1995, LVPL had financed 48 percent of its total assets with long-term financing. Adding \$10,000,000 of debt would raise this percentage to 55 percent. The average 1994 percentage for utility cooperatives is 49 percent.

The third ratio, *Long-Term Debt to Total Capitalization*, indicates the extent to which the utility has used long-term debt in its permanent financing. If this percentage is high, the utility has less financial flexibility to meet its needs because it is locked into the interest payment on the debt. At the end of 1995, LVPL had obtained 60 percent of its permanent financing from debt sources. Adding \$10,000,000 debt increases this percentage to 67 percent. The average 1994 utility cooperative percentage is 47 percent.

**► For Your Information**

*BPA recognizes that there are an infinite number of possibilities of locating a transmission line from the Swan Valley Substation to Teton Substation. When locating new transmission lines, BPA tries either to replace existing lines, or to use or parallel an existing ROW. Following this ROW practice can greatly reduce costs and environmental impacts. For example, adding a transmission line next to an existing one can cause less visual impact than a new, totally separate line, and the need for new access roads can be kept to a minimum by using existing access roads. This is especially important in this area where much of the land is publicly owned and managed for national parks, forests, and wilderness areas.*

The fourth ratio, *Total Debt to Total Capitalization*, is another measure of debt leverage. LVPL's ratio is 73 percent, while the average utility cooperative ratio is 50 percent. LVPL's ratio would increase to about 77 percent if LVPL finances another \$10,000,000.

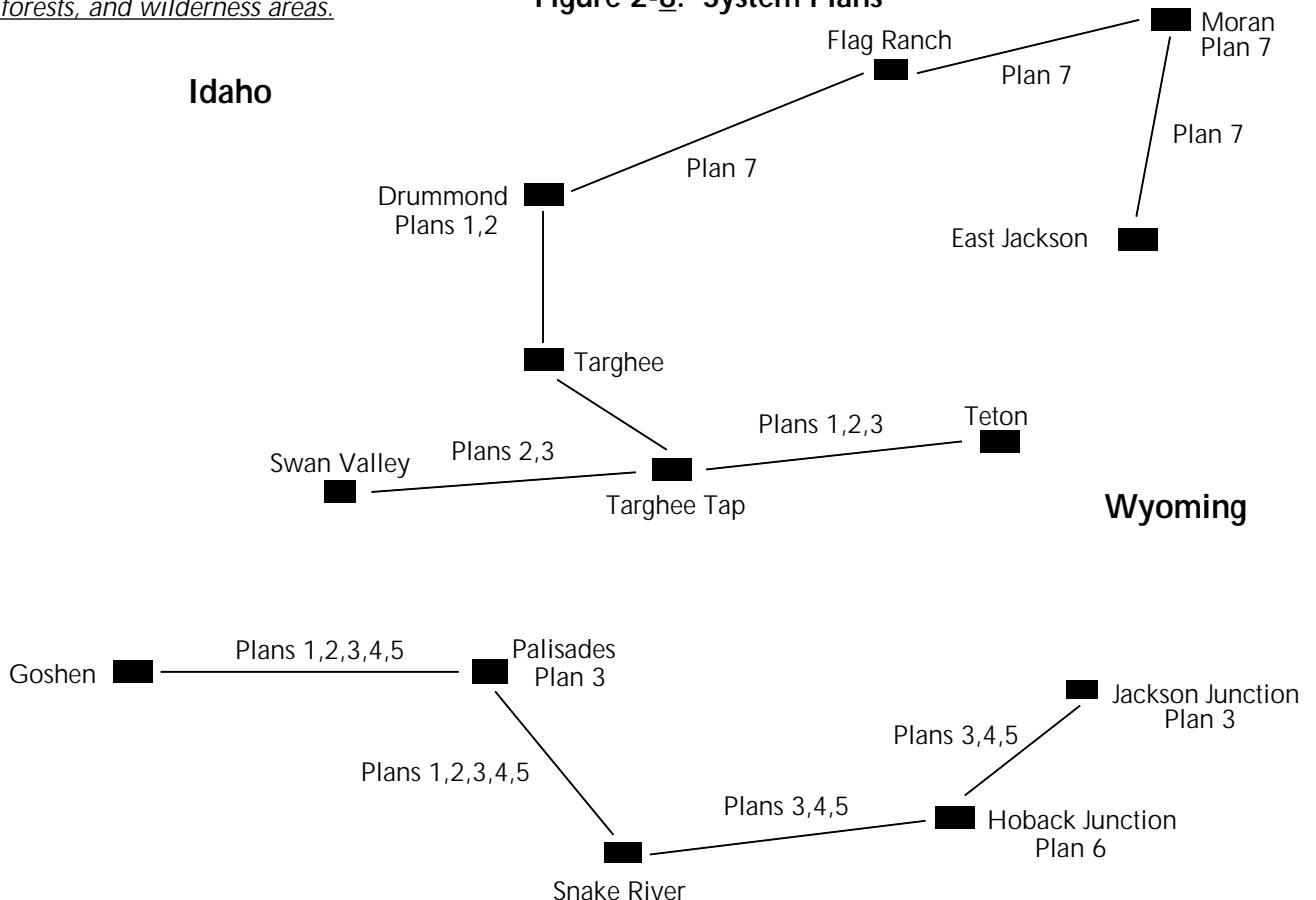
The final ratio, *Times Interest Earned*, indicates a utility's ability to meet their interest payments out of their annual operating earnings. LVPL's ratio is 1.98. The average cooperatives' ratio is 1.97. Financiers frequently require utilities to maintain this ratio at 1.5 or greater.

More expensive alternatives (e.g., undergrounding transmission lines) increase these percentages further and decrease LVPL's ability for future borrowing. LVPL wants to make fiscal decisions that allows it to remain flexible and competitive in today's market.

**2.6.2.2 System Plans**

This section describes the major actions of transmission system plans that were studied by BPA and LVPL (Plans 1-6), but eliminated from further consideration because of either the high costs and/or transmission system reliability. These plans are shown schematically in Figure 2-8. Plan 7 was suggested during scoping.

**Figure 2-8. System Plans**



**► For Your Information**

*Cost estimates for these plans include all planning actions for each plan (not just the major actions identified here) and are in 1994 dollars while the agency proposed action and alternatives described earlier are given in 1997 dollars. Analysts studied the plans in this section in 1994 and assumptions about inflation, cost of equipment, interest rates, etc. are in 1994 dollars. The agency proposed action and alternatives were developed in late 1995 and 1996 and are in 1997 dollars. Because the plans in this section were eliminated, it was not cost-effective to update the cost estimates to 1997 dollars.*

**Plan 1** — This plan would rebuild the Targhee Tap-Teton transmission line to double circuit. This plan would cost about \$13,700,000 (**1994 dollars**).

**Plan 2** — Plan 2 would rebuild the Swan Valley-Teton transmission line to double circuit. This plan would cost about \$16,200,000 (1994 dollars).

**Plan 3** — Plan 3 would operate the southern corridor (through the Snake River Canyon), Palisades-Jackson Junction, at 161-kV. A new 161/115-kV transformer would be installed at Jackson Junction and Palisades. This plan would cost about \$21,500,000 (1994 dollars).

**Plan 4** — Plan 4 would rebuild the Palisades-Snake River-Jackson Junction 115-kV line (also the Snake River Canyon) to double circuit. This plan would cost about \$17,700,000 (1994 dollars).

**Plan 5** — Plan 5 would build a new parallel second single-circuit line along the southern corridor (Snake River-Jackson Junction) and double circuit Palisades-Snake River. This plan would cost about \$15,600,000 (1994 dollars).

**Plan 6** - Plan 6 would install series compensation (series capacitors) along the southern corridor at Hoback Junction. The amount of series compensation required to serve the full load during a line outage would cause overvoltages in both normal and outage conditions. The series capacitors could be distributed over several locations, which is technically feasible, but expensive. This plan was eliminated because it is technically complex making it too expensive.

**Plan 7** — Plan 7 was suggested during the scoping period. In this plan, about 56 km (35 miles) of 115-kV line would be built from Drummond to Flag Ranch; about 48 km (30 miles) of 115-kV would be built from Flag Ranch to Moran Substation; and about 53 m (33 miles) of 69-kV line from Moran Substation to Kelly Substation to East Jackson would be rebuilt to 115-kV because the present spacing, insulation, conductor and structures are not capable of energization at 115-kV. Moran and Kelly substations would be converted from 69-kV to 115-kV. These stations are in Grand Teton National Park. About 32 km (20 miles) would be in the Grand Teton National Park and a large part of the line from Kelly to East Jackson would be in the National Elk Refuge. Part of the proposed line would be near the southern border of Yellowstone National Park.

When locating new transmission lines, BPA tries either to replace existing lines, or to use or parallel an existing transmission right-of-way. Following this right-of-way practice can greatly reduce costs and environmental impacts. For example, adding a



transmission line next to an existing one can cause less visual impact than a new, totally separate line, and the need for new access roads can be kept to a minimum by using existing access roads.

This alternative may not work technically or would be less effective to meet the need compared to some other plans. It also requires more transmission line and would be more expensive than other plans. Potential environmental impacts to national parks could be high. This plan was eliminated from further consideration for these reasons.

### **2.6.3 Routing the Transmission Line Outside the Palisades Wilderness Study Area**

A small portion of the existing transmission line is within the boundaries of the Palisades Wilderness Study Area (WSA) on the Bridger-Teton National Forest. The transmission line was built before the passage of the Wyoming Wilderness Act of 1984, which created the wilderness study area. When the line was built, BPA and the Forest Service jointly decided on the existing route to meet long-range plans for forest and recreational development and aesthetics, and to avoid difficult terrain such as avalanche areas (Williams, August 30, 1966).

BPA considered rerouting the proposed transmission line outside the WSA in this area. The WSA continues south of the existing line on the Bridger-Teton National Forest, so building to the south would not avoid the WSA. BPA considered routing the line north of the WSA, but this area has extremely steep terrain and is susceptible to avalanches. Access to build the line would be difficult. A new section of line to the north would also be more visible from other areas because it would create a new ROW. Because the terrain is difficult to build on, costs would also be more than building next to the existing line.

It is possible that any wilderness designation could exclude the existing line by express exemption or adjustment of the boundary of the WSA. It is also possible that a rebuild of the existing line to double circuit on the existing ROW could be no more obtrusive on wilderness characteristics than the existing line, and would thus not impair its wilderness character and potential for inclusion in the National Wilderness Preservation System.

BPA considered the increased costs of this alternative and its potential for greater environmental impact and eliminated it from further consideration.

#### **2.6.4 Double-Circuit Structures 29/3-32/6**

The proposed single-circuit, single pole steel structures require less ground disturbance and fewer access road improvements. Using these structures would require about 6 m (20 feet) of new ROW, and the small trees in this new ROW would be cleared. This additional clearing may be visible from a distance.

At the request of the Bridger-Teton National Forest, BPA considered using double-circuit structures instead of single-circuit structures from structures 29/3 to 32/6. This is a highly scenic area in the viewshed east from Teton Pass. Double-circuit structures are taller than single-circuit structures, disturb more ground at each site, and require that roads be upgraded to accommodate large construction equipment. No trees would be cleared. Using double-circuit structures in this area would increase the cost of construction by \$1,150,000.

BPA eliminated using double-circuit structures in this area from further consideration because of the increased costs.

#### **2.6.5 Burying the Transmission Line**

During the scoping process, many people suggested burying the proposed transmission line. Putting 58 km (36 miles) of transmission line underground is technically feasible. Burying and operating the transmission line underground was primarily eliminated from further consideration because of high costs.

The costs of burying a line are high and depend on terrain and soil conditions. General costs for undergrounding a line in flat terrain with deep soils and cobbles are about \$775,000/km (\$1,240,000/mile) (1998 dollars).

While these general costs are for undergrounding in a flat area, the terrain crossed by most of the proposed line is rugged, especially near Teton Pass, with many steep and rocky areas. General costs to bury the line across this kind of mountainous terrain would be about \$1,075,000/km (\$1,720,000/mile) (1998 dollars). In comparison, the cost for building the overhead single-circuit 115-kV transmission line is about \$252,000/km (\$403,000/mile) (1997 dollars).

Building and maintaining a line underground has environmental impacts similar to a buried pipeline. For example, to create a trench to bury the cable, vegetation, soil and rocks would be removed along the length of the line. In areas where there is bedrock at the surface, such as Teton Pass, rock would likely need to be blasted. To cross streams such as Fish Creek, a tunnel would be excavated underneath the creek for the cable,

disturbing streambanks and potentially affecting groundwater and surface water quality. Construction equipment and activities would create noise, disturbing local residents near Teton Substation and Targhee Tap, and wildlife along the length of the line. Until vegetation is reestablished, disturbed areas along the line would be visible as would any new transition stations. New access roads would be needed for construction and maintenance of the buried line.

### **2.6.6 Substation Locations for the SVC**

BPA and LVPL considered Hoback Junction, Rafter J, East Jackson, Wilson, and Crystal substations as potential locations for the SVC. Because BPA does not own any of these substations, BPA does not have communication into these substations, making remote operation impossible. Maintenance also would be difficult. Because of location (in some cases next to steep slopes, rivers, backyards or roads), expansion of the existing substation yards would be difficult. In addition, Hoback Junction is located far from the main load center.

### **2.6.7 Local Generation**

Building local *generation* was suggested during the scoping process. The Northwest Power Act prevents BPA from building or owning generation facilities. In the future, LVPL plans to operate as a combined electric and gas utility, making it possible for LVPL to build or own a gas generation facility. Included in LVPL's future natural gas plan is construction of a natural gas transportation pipeline into its service area, and a natural gas combustion turbine generating plant. Initial gas distribution is to be from a liquefied natural gas (LNG) pilot program in its service area. LVPL is just starting this program and results are uncertain. If this program is successful, a natural gas pipeline and combustion turbine plant may become reasonably foreseeable.

As part of its planning process, LVPL looked at different locations for siting a natural gas combustion turbine. In 1992, an area between Alpine and Afton, Wyoming was studied but LVPL and BPA found that new generation in this area would only defer any transmission investment for 1-2 years. Conversely, siting a plant in or near the load center of Jackson, east of the Teton Range, would effectively eliminate the need to move more than 125 MW of power over the existing lines.

With the present load forecast, a 60 MW generation source in or near the Jackson area would delay the need for a new transmission facility about 10 years (about 2010). A 100 MW source of generation would delay the need to 2021. The cost of

new generation (e.g., combustion turbine) would be many times the cost of the Agency Proposed Action, about \$10,000,000-10,500,000/10 MW unit.

Environmental impacts would depend on fuel source (e.g., nuclear, coal, natural gas) and the site of the generation plant. If located away from Jackson, new transmission lines and facilities would be needed to integrate the power into the local transmission system.

This alternative was dropped from further consideration because of high costs and the potential environmental impacts and challenges of locating generation facilities in the Jackson area.

## **2.7 Comparison of Alternatives and Summary of Impacts**

This section compares all the alternatives described in this chapter using the project purposes from Chapter 1 and the predicted environmental impacts from Chapter 4. Tables 2-8 and 2-9 summarize the environmental impacts and compare the alternatives.

### **2.7.1 Environmental Impacts**

#### **2.7.1.1 Land Use**

The Agency Proposed Action proposes double-circuit structures in some sensitive locations, which decreases the need for land disturbance and new ROW. Single-circuit steel poles proposed in some locations also require less land taken from production. Agricultural land and timberland would be taken out of production. Low to moderate impacts would occur. Rangeland, and residential and commercial land would not be impacted.

The Single-Circuit Line Alternative would take slightly more land out of production than the Agency Proposed Action because only single-circuit structures would be used.

The Short Line Alternative would impact less land than the Agency Proposed Action and the Single-Circuit Line Alternative. A new switching station would be built. If the new switching station is built on agricultural land, it would permanently remove some land from production. If the new switching station is built at the preferred location under the existing ROW just west of Targhee Tap, no land would be taken out of agricultural production but additional clearing of timberland would be needed.











**Table 2-9. Alternatives Compared to Project Purposes**

Project Purposes or Objectives	Agency Proposed Action	Single-Circuit Line Alternative	Short Line Alternative	SVC Alternative	No Action (No Construction)
<p><b>Minimize negative impacts to the environment</b></p>	<p>Double-circuit structures help lessen impacts to some environmental resources.</p>	<p>Has the most environmental impacts of all alternatives.</p>	<p>No or low to high impacts on the environment but only on the Targhee Tap to Teton portion (the eastern part of Targhee and the Bridger-Teton National Forests).</p>	<p>Lower environmental impacts than line alternatives but impacts are more concentrated in a commercial and/or residential environment.</p>	<p>No disturbance to natural resources. Could have negative socioeconomic (including public health and safety) impacts depending on frequency, extent, and length of outages in winter.</p>
<p><b>Minimize costs while meeting BPA and LVPL's long-term transmission system planning objectives for the area</b></p>	<p>About a \$300,000 difference in both the up-front costs (\$14,500,000) and the 30-year costs (\$19,400,000) of this alternative and the Single-Circuit Line Alternative. This alternative is slightly more expensive.</p>	<p>About a \$300,000 difference in both the up-front costs (\$14,200,000) and the 30-year costs (\$19,100,000) of this alternative and the Agency Proposed Alternative. This alternative is slightly less expensive.</p>	<p>Least expensive of the line alternatives to build in 2000 (\$11,100,000). About the same costs as other line alternatives and less expensive than the SVC to meet long-term planning objectives (\$19,300,000).</p>	<p>Least expensive of the construction alternatives to build in 2000 (\$6,200,000) but most expensive if long-term planning objectives are to be met (\$20,100,000).</p>	<p>Least expensive of all the alternatives in 2000 but does not meet long-term planning objectives. Could be the most expensive alternative if blackouts occur.</p>
<p><b>Maintain BPA and LVPL transmission system reliability</b></p>	<p>Because of the double-circuit structures, this alternative is the second most reliable alternative after the Single-Circuit Line.</p>	<p>A new line on separate structures makes this the most reliable alternative.</p>	<p>Not as reliable as the Single-Circuit Alternative or Agency Proposed Action. Building a new line back to Swan Valley is needed by 2020 to maintain system reliability.</p>	<p>Emergency maintenance during winter could compromise system reliability. A new line would be needed in 2007 to maintain system reliability.</p>	<p>Does not maintain system reliability.</p>

The SVC Alternative is located in residential and commercial areas that surround the substations under consideration. No changes in land use are expected so no impacts would occur.

The No Action Alternative has no immediate impacts to land use. All transmission facilities are located in land use zones that allow for their operation and maintenance.

### **2.7.1.2 Visual Resources**

The Agency Proposed Action responds to public concerns about and emphasizes decreasing impacts to visual resources. It proposes using double-circuit structures in sensitive areas to decrease visual impacts. The addition of double-circuit structures near Pine Basin Lodge, through Teton Pass, and just below Phillips Ridge to Teton Substation makes the Agency Proposed Action more responsive to these concerns than other alternatives. Impacts to visual resources would generally be low or moderate, but high impacts would occur to visual resources at Teton Pass and from Fish Creek Road to Teton Substation.

The Single-Circuit Line Alternative uses single-circuit structures in the areas identified as sensitive and emphasizes reliability over concern for visual resources.

The Short Line Alternative includes a new switching station that would be located to minimize visual impacts.

The SVC Alternative would create high impacts to residents surrounding Teton Substation. Visual impacts would be low around Jackson Substation because the substation is in a mixed use (residential and commercial) area.

The No Action Alternative has no visual impacts beyond what is occurring from operation and maintenance of the existing transmission line.

### **2.7.1.3 Recreation Resources**

The Agency Proposed Action makes the same trade-offs in recreation areas as for visual resources. Double-circuit structures have fewer impacts to recreation. Impacts would be low to moderate. Construction could interfere with recreation temporarily, and some roads open to the public would be gated and closed after construction.

The Single-Circuit Line Alternative uses single-circuit structures in the areas identified as sensitive and emphasizes reliability over concern for recreation resources.

The Short Line Alternative includes a new switching station, but no impacts are expected at the switching station.

No impacts are expected to recreation from the SVC Alternative.

The No Action Alternative has no recreation impacts beyond what is occurring now from operation and maintenance of the existing line.

#### **2.7.1.4 Wilderness, Wilderness Study Areas, Recommended Wilderness and Roadless Areas**

The existing utility corridor and associated access roads had lost all wilderness character when wilderness, wilderness study areas, recommended wilderness and roadless areas were designated. The Agency Proposed Action would rebuild the existing line to double-circuit on existing ROW in the Palisades Wilderness Study Area and would not change its potential for future designation as wilderness. The Agency Proposed Action would not affect the future designation of the roadless area it would cross as wilderness. The Single-Circuit Line Alternative and the Short Line Alternative would require more ROW and clearing for the single-circuit line and roads. Expanding the ROW could compromise the character of the Palisades WSA and affect its future designation as wilderness. The SVC Alternative and the No Action Alternative would not affect these areas.

#### **2.7.1.5 Public Health and Safety**

The Agency Proposed Action uses some double-circuit structures, which would decrease the transmission line magnetic field levels near Teton Substation relative to the No Action Alternative. Substation magnetic field levels are not expected to increase to residences near Teton Substation.

For the Single-Circuit Line Alternative, transmission line magnetic fields would decrease on the south side and increase on the north side of the ROW relative to the No Action Alternative.

Both the Single-Circuit Line and Short Line Alternative (structures would look the same as what is there now) would result in somewhat lower field levels on the south side of the ROW compared to the No Action Alternative. Since the new line would be located north of the existing line, field levels would be higher than the No Action Alternative on the north side of the ROW.

Since no new transmission line is included in the SVC Alternative, no change to the magnetic field level is expected when compared to the No Action Alternative.

None of the transmission line alternatives are expected to increase the magnetic field environment at the residences near Teton Substation.

If the SVC Alternative is selected, the specialized SVC equipment would result in an additional, and somewhat unique, magnetic field source within Teton or Jackson substations. Increases to nearby residences are possible, and the amount of any potential increase at either site would depend on the design, location and operating modes of the SVC equipment. Like the transmission line alternatives, the SVC is proposed to be located on the far side of the substation away from residences (see Figure 2-7.) Magnetic field increases to nearby residences are possible and the amount of any increase would depend on the design, location and operating modes of the SVC equipment. Noise would increase depending on background noise and equipment operation, but would stay within local standards.

#### **2.7.1.6 Water Quality, Soils and Geology**

The Agency Proposed Action uses some double-circuit structures in sensitive areas. Building these structures would disturb less soil and cause fewer impacts to water quality and soils. Some original footings may also be used which would disturb less soil. Impacts to water quality and soils range from no impact to high impacts and the degree is dependent on the type of soil affected and the success of erosion control measures.

Slightly more land would be disturbed where single-circuit structures are used instead of double-circuit structures for the Single-Circuit Line Alternative and the Short Line Alternative.

The SVC Alternative would disturb the area of the substation only.

No impacts are expected from the No Action Alternative except those already occurring from operation and maintenance of the existing line.

#### **2.7.1.7 Floodplains and Wetlands**

The transmission line alternatives would have similar impacts to floodplains and wetlands. Wetlands would experience no to high impacts from construction but these could be minimized with prudent placement of erosion control measures. The SVC Alternative would have no impacts to floodplains and wetlands. No impacts are expected to floodplains and wetlands from the No Action Alternative except those already occurring from operation and maintenance of the existing line.

### 2.7.1.8 Vegetation

The Agency Proposed Action would disturb about half of the vegetation compared with the Single-Circuit Line. Impacts to vegetation would be low to high depending on the amounts cleared and the ability of an area to revegetate. Using double-circuit structures would decrease the area and vegetation disturbed. The Short Line Alternative is half the length of these alternatives and would disturb less vegetation.

The SVC Alternative would only disturb any existing vegetation at existing substation sites.

The No Action Alternative would create no impacts to vegetation except those already occurring from operation and maintenance of the existing line.

### 2.7.1.9 Wildlife

Impacts to wildlife from the Agency Proposed Action range from none to moderate. Less vegetation would be disturbed because this alternative would use double-circuit structures in some locations. The potential to impact threatened and endangered species is also less because in some locations the existing structure bases and footings would be used. Less shrub area would be converted, which could impact some species negatively. Bird collisions could be increased if **mitigation** measures are not used.

The Single-Circuit Line Alternative would disturb more vegetation and wildlife using the vegetation.

The Short Line Alternative would have fewer impacts to wildlife because it is half as long.

The SVC and No Action Alternatives would create no impacts to wildlife except those already occurring from operation and maintenance of the existing line.

### 2.7.1.10 Fisheries

The Agency Proposed Action would follow best management practices, would disturb less soil and vegetation because it would use double-circuit structures in some locations, and would have fewer impacts to water quality and to local fisheries. Impacts to fish range from low to moderate and depend on impacts to stream turbidity.

The Single-Circuit Line Alternative would disturb more soil because single-circuit structures would be used for the entire line.

The Short Line Alternative would have similar impacts as the Single-Circuit Line Alternative east of Targhee Tap.

#### ► For Your Information

*Mitigation lessens the impacts predicted for each resource. Mitigation may include reducing or minimizing the impact, avoiding it completely, or rectifying or compensating for the impact.*

The SVC and No Action Alternatives would have no impacts to fisheries except those already occurring from operation and maintenance of the existing line.

#### **2.7.1.11 Cultural Resources**

Two historic resources were found that are eligible to the National Register of Historic Places (**NRHP**). BPA has made a determination of no adverse effect as portions of these sites could be affected by construction but the effect would not be harmful. BPA has coordinated this determination with the State Historic Preservation Office (**SHPO**) and the Advisory Council on Historic Preservation. Mitigation in the form of recordation is proposed. These sites are located in areas affected by the Agency Proposed Action, Single-Circuit Line Alternative and Short-Line Alternative. The sites would not be affected by the SVC and No Action Alternatives.

Tribes were consulted and no traditional cultural property was identified in or near the ROW.

#### **2.7.1.12 Socioeconomics**

Construction would create a positive impact on employment for the local economy for all the action alternatives. No impacts are expected for the No Action Alternative.

#### **2.7.1.13 Air Quality**

Impacts from vehicle emissions and construction dust are expected to be low for all action alternatives. No impacts are expected for the No Action Alternative except those already occurring from operation and maintenance of the existing line.

#### **2.7.2 Reliability**

The Agency Proposed Action is less reliable than the Single-Circuit Line Alternative because double-circuit structures would be used and separate lines on separate structures are safer in avalanche and slump prone areas. Steep terrain and extreme weather conditions in the project area combine to increase avalanche hazard and the certainty that both lines would go out of service if a double-circuit structure goes down. However, this alternative meets BPA's standards of providing power to LVPL with a high probability that power would be available when LVPL needs it.

The Single-Circuit Line Alternative is the most reliable of all the alternatives. It meets BPA's standards of providing power to LVPL with a higher probability that the power would be available when LVPL needs it. Separate lines on separate structures are safer in avalanche and slump prone areas.

The Short Line Alternative is not as reliable as the Agency Proposed Action or the Single-Circuit Line Alternative. Some reliability is compromised if the existing Swan Valley to Teton line goes down because power would need to flow north to Drummond and back down to Jackson. It is more reliable than the SVC Alternative.

The SVC Alternative would be a short-term solution to the problem. This alternative may not be as reliable as the transmission line alternatives. Because the SVC Alternative consists of electrical equipment, there are more switching mechanisms and moving parts. This may require more emergency maintenance compared to a line that has more routine, scheduled maintenance. As a result, the line is more likely to be available when it is needed.

The No Action Alternative is the least reliable alternative and would lead to voltage collapse if a critical line is lost on the system. Collapse of the system could continue over a long period (hours or even days) if outages occur in winter when deep snows make access to the existing transmission system difficult.

### ► For Your Information

*Line loss is the power lost during the transfer of power from one place to another. More power moved over a smaller number of lines increases line loss.*

### 2.7.3 Costs

The Agency Proposed Action has fewer transmission *line losses* than most alternatives. This helps make the line more economical to build over the long term. There is an estimated \$300,000 difference in both up-front and long-term costs between the Agency Proposed Action and the Single-Circuit Alternative. Higher material and labor costs associated with double-circuit structures would make the up-front costs higher. The margin of error present in the calculations to do the 30-year costs essentially makes the long-term costs about the same. Also, over a 30-year period this alternative would cost about the same to build as the Short Line and would be slightly cheaper to build than the SVC Alternative.

The Single-Circuit Line Alternative also has fewer transmission line losses than most alternatives. This helps make the line more economical to build over the long term. Like the Agency Proposed Action, this alternative would be initially more expensive to build but over a 30-year period, it would cost about the same to build as the Short Line and would be slightly cheaper to build than the SVC Alternative.

The Short Line Alternative is a short-term fix to the problem. Though up-front construction costs are less than the Agency Proposed Action or the Single-Circuit Line Alternative, over the 30-year planning period it costs about the same to build the Short Line Alternative because by 2020, the line would need to be extended from Targhee Tap to Swan Valley Substation. Over 30 years, costs are less than the SVC Alternative.

The SVC Alternative has more line losses than the other alternatives. It has significantly lower up-front costs than other alternatives but over the 30-year planning period it becomes the most expensive alternative because of the need to build a transmission line from Swan Valley to Teton Substation in 2007.

Depending on the frequency, duration, and extent of blackout conditions in the area, the No Action Alternative could be the most costly in the long run.



Figure 2-3. Pine Creek Routing Options A, B, and C

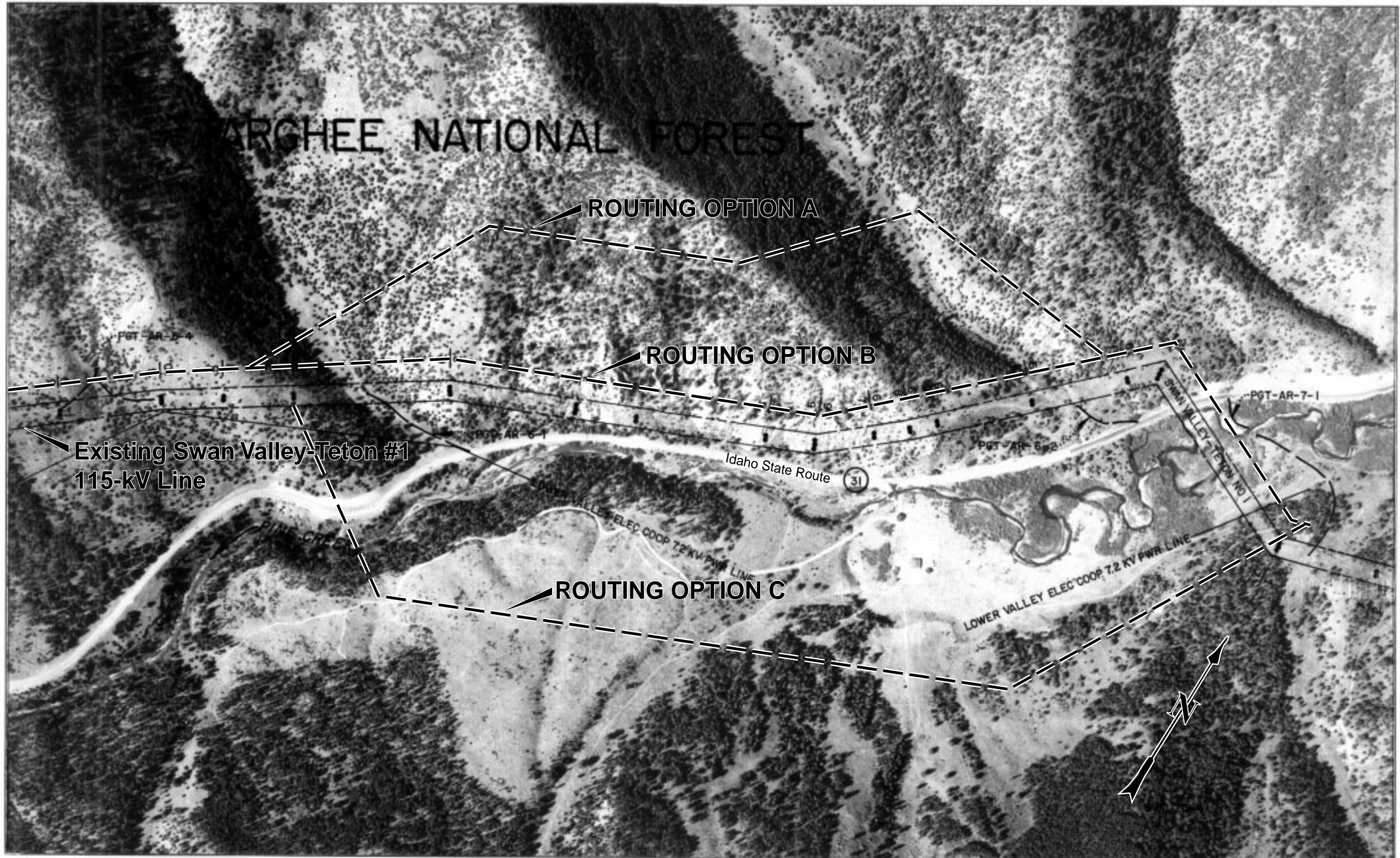




Figure 2-4. Pine Creek Routing Options D and E

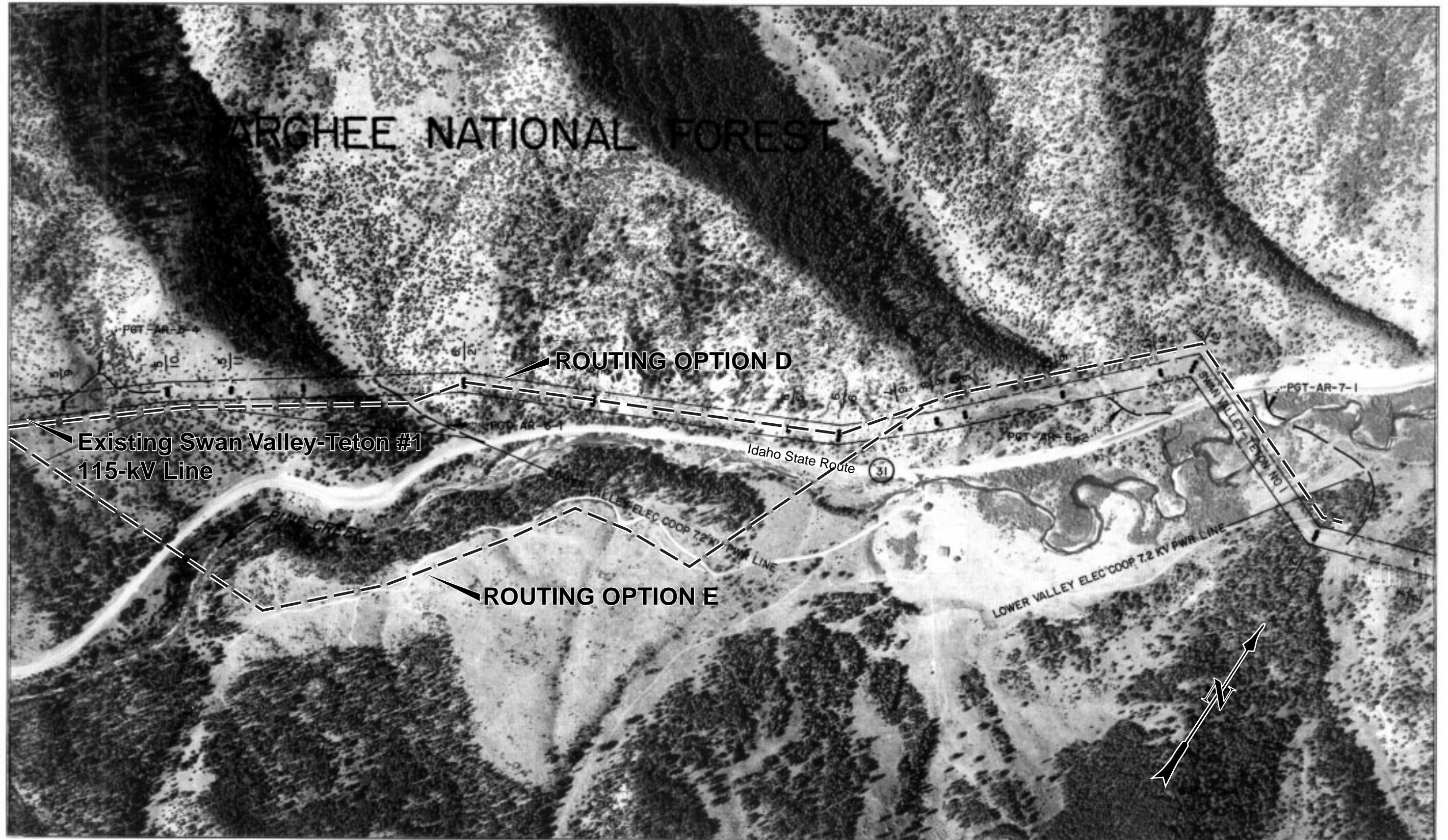




Figure 2-6. Teton Substation - New Line Termination Facilities

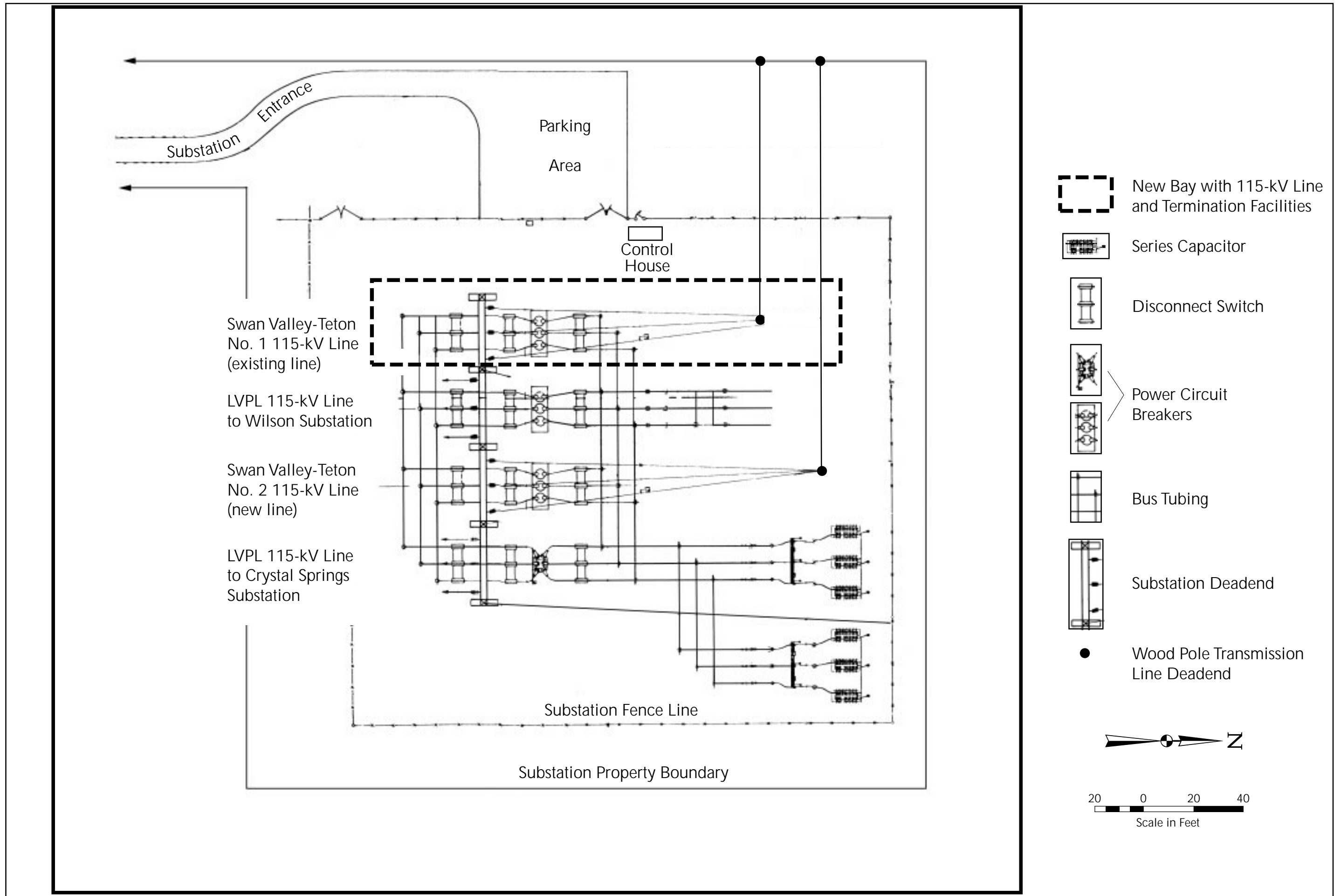
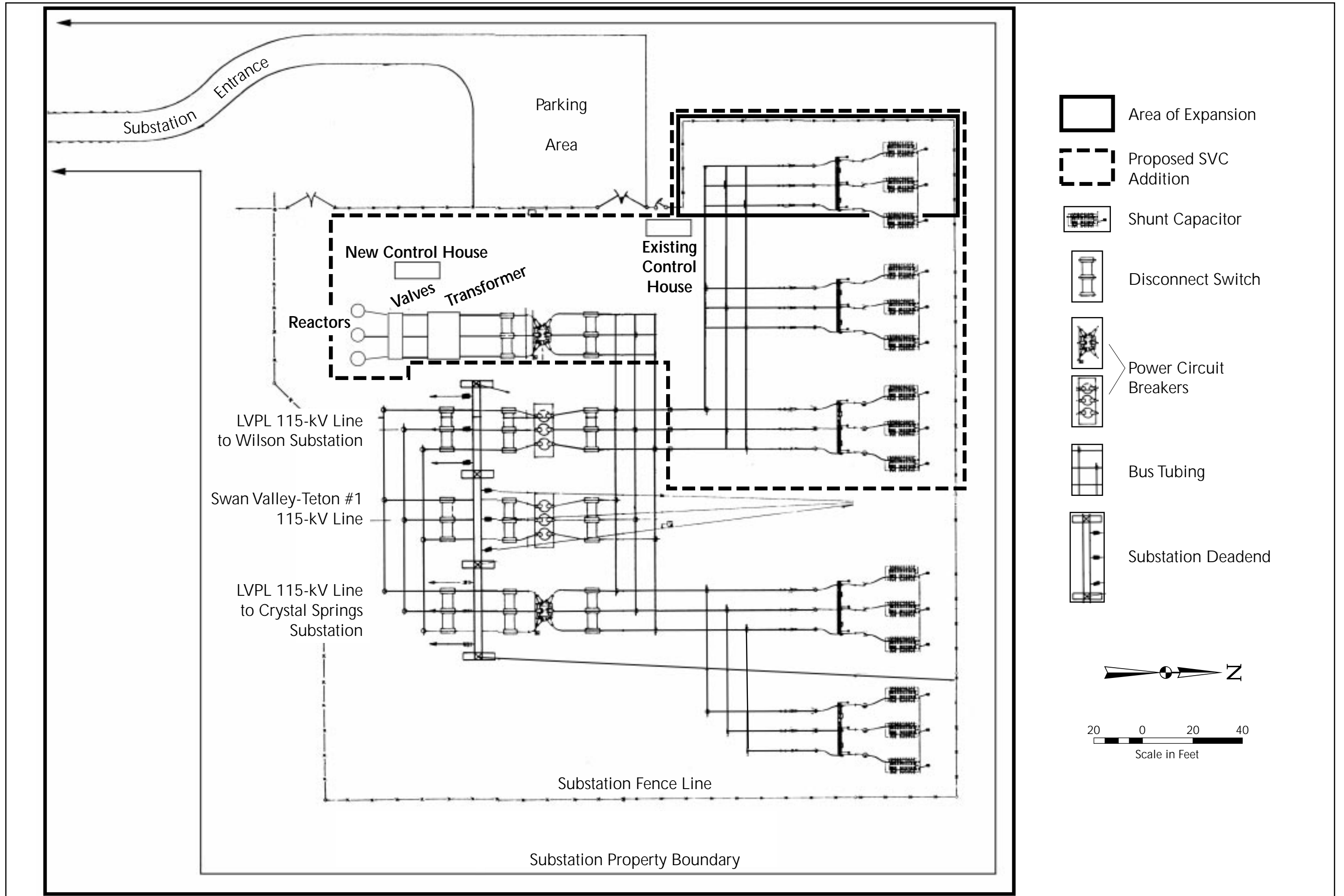




Figure 2-7. Teton Substation - New Facilities for the SVC







**Table 2-8. Environmental Impacts of Alternatives**

<b>Environmental Resource</b>	<b>Existing Conditions</b>	<b>Agency Proposed Action</b>	<b>Single-Circuit Line Alternative</b>	<b>Short Line Alternative</b>	<b>SVC Alternative</b>	<b>No Action Alternative</b>
<b>Land Use (See Sections 3.1 and 4.1)</b>	Mostly rangeland and timberland on Forest Service land. Private land includes agricultural land and residential/commercial land.	No to moderate impacts would occur on agricultural land depending on amount of land temporarily or permanently taken out of production. Timber and rangeland would experience a low impact because the Targhee Forest Plan limits the removal of this land for other purposes over the next decade. On the Bridger-Teton, the amount of timberland harvested is less than 1% of the available timber supply.	Similar to the Agency Proposed Action. Slightly more agricultural land would permanently be taken out of production because of the single-circuit structures used instead of double-circuit structures near Teton Substation. More timber would need to be cut because of the additional ROW needed.	Similar to the Single-Circuit Line Alternative east of Targhee Tap. Moderate impacts would occur at the switching station site because land could be permanently removed from agricultural production and grazing practices could be altered.	No impacts are expected. BPA would need to meet the City or County regulations for placing utilities in residential neighborhoods.	No impacts are expected.
<b>Visuals and Recreation (See Sections 3.2, 3.3, 4.2 and 4.3)</b>	The area's visual character and quality are recognized as an important resource at national, state, and local levels, and tourists from around the world come to see and enjoy nearby natural features. The ROW follows the general contours of the land with forested buffers and no long stretches along ridgetops. It also follows common routes for tourists and recreationists using the area.	Visual impacts would be low to high. High impacts would occur at Teton Pass and from Fish Creek Road to Teton Substation. Recreation impacts would be low to moderate because of interference with construction activities. Roads that had been open to the public in the past may be gated and closed in the future, limiting recreation access.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap. The new switching station could be located to minimize visual impacts if placed off the ROW in agricultural land. The on ROW site would be more difficult to blend into the hillside. No recreation impacts are expected from the new switching station.	Visual impacts would be high to most residents surrounding Teton Substation. Impacts would be low in the Jackson Substation area. No recreation impacts are expected.	No impacts are expected to visuals and recreation use.
<b>Wilderness, Wilderness Study Areas, Recommended Wilderness, and Roadless Areas (See Sections 3.4 and 4.4)</b>	The existing ROW and access roads cross the Palisades Roadless Area on the Targhee National Forest and the Palisades Wilderness Study Area on the Bridger-Teton National Forest. No wilderness or recommended wilderness areas are crossed by the existing ROW and access roads.	No impacts to designated wilderness and recommended wilderness will occur. The existing line and roads existed at the time of the Palisades WSA and the Palisades Roadless Area designation. Double-circuit structures would be used in the Palisades WSA eliminating the need for new ROW. Existing roads and new spur roads within the ROW would be used in the roadless area. These actions would not appreciably change the character of the existing ROW in these areas or the potential for future designation as wilderness.	More ROW clearing and use of the existing access roads would be required in the Palisades WSA. Expanding the ROW could compromise the character of the WSA and affect its future designation as wilderness. For the portions of line in the Palisades Roadless Area, more tree clearing would be required and slightly more area would be disturbed.	Similar to the Single-Circuit Line Alternative for the Palisades Wilderness Study Area.	No impacts would occur because Teton and Jackson substations are not in the vicinity of these resource areas.	No impacts are expected.
<b>Public Health and Safety (See Sections 3.5 and 4.5)</b>	Electric and magnetic fields are found around any electrical wiring, appliances and equipment. The existing line and substations do not create loud noise. Hazardous and toxic materials are found in substation equipment and are used during construction and maintenance activities. Mostly mature forests surround the existing line creating a larger fire hazard.	Transmission line magnetic field levels from Fish Creek Road to Teton Substation would result in lower field levels than the No Action Alternative. Substation magnetic field levels are not expected to increase. No new noise source is expected. Swan Valley and Teton Substation have oil spill containment plans. A Fire Plan would be completed before construction to assure that fire hazards are kept to a minimum.	Similar to the Agency Proposed Action for substation magnetic field levels, noise, oil spill and fire. Transmission magnetic field levels would decrease on the south side of the ROW near Teton Substation and increase on the north side relative to the No Action Alternative.	Similar to the Single-Circuit Line Alternative east of Targhee Tap for transmission and substation magnetic field levels, noise, oil spill and fire.	Noise would increase at Jackson or Teton Substation but stay within Town of Jackson and Teton County standards. Teton Substation has an oil spill containment plan. Jackson Substation has oil spill containment. Increases in magnetic field levels to nearby residences at Teton Substation are possible. The amount would depend on the design, location and operating modes of the SVC equipment.	Could lead to voltage collapse. Important services would be interrupted possibly causing lost revenues. Safety and security are compromised. There would be no change in magnetic field levels.
<b>Water Quality, Soils and Geology (See Sections 3.6, 3.7, and 4.6)</b>	A diversity of landforms exist in the project area including broad level slopes, ridges, canyons, and mountain ranges. Mass-wasting is one of the most active erosion processes. Water quality is good to excellent.	Impacts range from none to high depending on amount of erosion and mass movement prone areas, soil compaction, slopes, clearing requirements, and success of erosion control measures controlling increased sedimentation and turbidity in streams.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap. Either switching station location site may increase runoff because of its impervious surface. Erosion hazards are low.	There would be no to low impacts at Jackson or Teton Substation if erosion control measures are used.	No impacts are expected.
<b>Floodplains and Wetlands (See Sections 3.8 and 4.7)</b>	Wetlands can be found associated with the floodplain of low-gradient streams and along narrow riparian zones of steeper streams. Wet mountainside meadows can also be found in the project area.	Improving fords for maintenance and replacing and building bridges could impact floodplains and wetlands where abutments are placed. There would be no to high impacts to wetlands from construction but impacts could be minimized with prudent placement of erosion control measures. Maintenance activities such as improving access roads could impact wetlands.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap.	No impacts are expected.	No impacts are expected.



Table 2-8. continued

Environmental Resource	Existing Conditions	Agency Proposed Action	Single-Circuit Alternative	Short Line Alternative	SVC Alternative	No Action Alternative
<b>Vegetation (See Sections 3.9 and 4.8)</b>	Vegetation communities can be classified into four general categories: forest, shrublands, grass/forb, and agriculture.	Impacts would be low to high depending on cleared amounts, what function the vegetation serves, ability to revegetate, and types of maintenance activities. Disturbed areas typically become infested with non-native species.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap.	No to low impacts are expected if erosion control measures are used.	No impacts are expected.
<b>Wildlife (See Sections 3.10 and 4.9)</b>	The project area supports many birds including raptors, small mammals, and reptiles. This region is known for the variety and richness of North American large mammals.	Impacts vary from none to moderate. Construction noise can temporarily disturb most species. Bird collisions with transmission lines create a greater risk if mitigation measures are not used. Clearing can negatively affect some species associated with lodgepole pine and other forest species at the local level, while benefiting species that prefer open areas.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap.	No impacts are expected.	No impacts are expected.
<b>Fish (See Sections 3.11 and 4.10)</b>	Fine-spotted form of the Yellowstone cutthroat trout, rainbow, German brown, brook trout, mountain whitefish, redbreast shiners, longnose dace, Utah suckers, mottled and Paiute sculpin, and bluehead suckers are present in the project area.	Low to moderate impacts could occur to stream turbidity depending on how successful contractors are at locating and placing erosion control measures and culverts. Impacts from maintenance activities are expected to be low.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap.	No impacts are expected.	No impacts are expected.
<b>Cultural Resources (See Sections 3.12 and 4.11)</b>	A cultural resource survey was done in September 1997. Two historic sites that are eligible to the NRHP were found. No prehistoric sites were found. Tribes identified a concern that a new line would have a potential to affect traditional cultural property.	BPA has made a determination of no adverse affect as portions of the historic sites could be affected by construction but the effect would not be harmful. BPA will coordinate this determination with the SHPO's and the Council. Mitigation in the form of recordation is proposed. No traditional cultural property in or near the ROW have been identified by the Tribes.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative.	No sites or traditional uses were found nor are known to occur at Teton or Jackson substations.	No impacts are expected.
<b>Socioeconomics (See Sections 3.13 and 4.12)</b>	Population is largely rural and dependent to a large degree on tourism (services) and agriculture. Employment is in the services, manufacturing, and agriculture sectors. Idaho and Wyoming have sales, property, and use taxes. Idaho has an income tax.	Construction creates a positive impact on employment. Population could grow because of improved infrastructure. Temporary relocation of workers in the area would not affect housing. Tax revenues on goods, property, etc. would be minor. Property values are not expected to be adversely impacted over the long-term. Landowners would be compensated with the fair market value for any land rights needed for the project.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Line Alternative east of Targhee Tap.	Similar to the Agency Proposed Action.	Could lead to voltage collapse. Important services would be interrupted possibly causing lost revenues. Safety and security are8 compromised. Over the long term, businesses and residents could relocate because of a stable power supply elsewhere.
<b>Air Quality (See Sections 3.14 and 4.13)</b>	Swan Valley and Teton Valley have no significant air quality problems although Jackson's local air quality can be affected during the winter months. There are protected airsheds in the project area.	Impacts from vehicle emissions and construction dust are expected to be none or low. Moderate impacts could occur if all slash material from cleared trees is burned on the ROW. Burning this material is extremely unlikely.	Similar to the Agency Proposed Action.	Similar to the Single-Circuit Alternative east of Targhee Tap.	No impacts are expected.	No impacts are expected.



## Chapter 3 Affected Environment

In this Chapter:

- Existing natural environment
- Existing human environment
- Protected resources

This chapter describes the existing environment that may be affected by the alternatives. A brief regional description is given here to give the reader a better understanding of the information in this chapter.

The project area is in the uppermost reaches of the Columbia River Basin, within the Snake River watershed. It is part of the Greater Yellowstone Ecosystem, which is the largest remaining block of relatively undeveloped land in the contiguous United States. This ecosystem is centered around Yellowstone and Grand Teton National Parks and includes the national forests, wilderness areas, wildlife refuges, and other federal, state, tribal, and private lands that surround these parks.

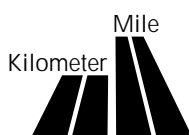
The landscape is scenic. Dominant features include mountain ranges over 3,660 m (12,000 feet) high, alpine valleys, rivers, broad flat plateaus, picturesque farmlands, and the special features of the national parks. The region is known for its variety of wildlife, unequalled elsewhere in the continental United States. Species present in large numbers include bighorn sheep, pronghorn antelope, moose, mule deer, elk, and black bear. Wolverines, grizzly bears, and reintroduced wolves are present as well.

This region attracts over 5 million tourists and recreationists per year (Wyoming Department of Commerce, 1995). Visitors and local residents enjoy sightseeing, hiking, backcountry skiing, snowmobiling, camping, backpacking, horseback riding, mountain biking, snowboarding, parasailing, hunting and fishing. Because of the concentration of highly visible wildlife species in the region, wildlife-related recreation is a key element of the region's economy and character.

### 3.1 Land Use

The existing ROW crosses both private agricultural land and public lands (timber and rangeland) in northeastern Idaho and western Wyoming. About 84 percent (52 km [30 miles]) of the ROW is on the Targhee and Bridger-Teton National Forests. Of that, about 80 percent is within the Targhee National Forest, and

#### ► Reminder



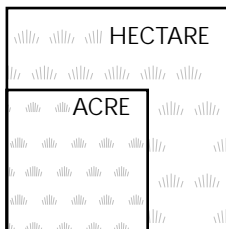
20 percent is within the Bridger-Teton National Forest (see Map 1). Three existing substations are in rural (timberland), residential and mixed use (residential and commercial) areas.

### 3.1.1 Timber and Rangelands

The existing ROW crosses timber and rangelands (see Map 3, **Land Use**). In the Targhee National Forest, about 188,185 hectares (465,000 acres) are available for timber harvest (U.S. Department of Agriculture, Forest Service, 1997). Of that amount, none in prescription 8.1 (in which the existing and proposed ROW are located) are suited for harvest. In the Bridger-Teton National Forest, about 113,000 hectares (279,000 acres) are suited for timber harvest (U.S. Department of Agriculture, Forest Service, November 1989a).

In rangeland on the Targhee National Forest, the existing ROW crosses the Dry Canyon-Pine Creek Cattle Allotment, the Burbank Sheep Allotment, the Spencer Sheep Allotment, and the Pine Creek Cattle Allotment. No grazing allotments are crossed on the Bridger-Teton National Forest.

#### ► Reminder



Hectare: about two and one-half acres

#### ► For Your Information

*Pine Creek Bench is a broad level slope extending up from the base of the Snake River Range near Swan Valley Substation.*

### 3.1.2 Agriculture

The area surrounding the existing ROW is semi-arid with cold, moist winters and hot, dry summers. The average annual precipitation on Pine Creek Bench is about 38 cm (15 inches) and the frost free period is about 70 days (U.S. Department of Agriculture, Soil Conservation Service, 1981). Average annual precipitation in Jackson, Wyoming is also about 38 cm (15 inches) but frost is possible almost any time of year. Crop yields are limited by the short growing season. In addition, although the distribution of precipitation throughout the year allows dryland farming, dry periods during the summer and fall can also adversely affect soil preparation and winter grain seeding.

The existing ROW crosses about 6.4 km (4 miles) of productive cropland on the west end of the ROW in Bonneville County, Idaho, and about 1.6 km (1 mile) of dryland and irrigated pasture at the east end of the ROW in Teton County, Wyoming (see Map 3). Near Targhee Tap the existing ROW, while on national forest land, is very close to agricultural land to the north. Bonneville County has 55,000 hectares (137,000 acres) of non-irrigated cropland (Jensen, September 9, 1996). Teton County has 7,300 hectares (18,000 acres) of pasture (Sutton, September 30, 1996).

Agriculture is confined to valley floors and adjacent benchlands. The main crops grown in the Swan Valley area are wheat, barley, potatoes and alfalfa. Bonneville County is one of

Idaho's leading malt barley producing areas. Soils on Pine Creek Bench are suited to spring barley and winter wheat, and are predominately dryland farmed using a cropping system that alternates a year of grain with a year of fallow. The area's livestock industry provides an outlet for feed hay and potato waste products. Beef cattle are the primary livestock, but dairy cattle and sheep are also raised (University of Idaho, 1993). In the Jackson area, irrigated land supports hay production and pasture for cattle.

### 3.1.3 Residential and Commercial

Teton Substation is located in unincorporated Teton County, Wyoming, near the Town of Jackson on land zoned "NC-SF" (Neighborhood Conservation-Single Family). The substation is surrounded on three sides by Lake Creek Subdivision, with rural farmland owned by the Snake River Association to the west.

Jackson Substation is located on land zoned "S-R" (Suburban Residential) in the Town of Jackson. Adjoining land uses include medium density residential and commercial businesses. These include multi-family dwellings (condominiums), an RV park, a commercial lodging facility, a major supermarket and a neighborhood gas station.

The area north of Jackson Substation where it could be expanded is zoned "A-C" (Auto Urban Commercial). This land has been cultivated recently.

## 3.2 Visual Resources

The area's visual character and quality are recognized as an important resource at national, state, and local levels, and tourists from around the world come to see nearby natural features.

This section provides detailed information on viewpoints and viewers of the existing ROW. Because the entire ROW is not visible from a single viewpoint, seven potential viewing areas called *Visual Assessment Areas* were identified. These areas are described in detail. Photographs of views from the five most sensitive areas are provided as representative of various views from areas surrounding the existing ROW. See Map 4, **Visual Assessment Areas and Viewpoint Locations**, for visual assessment areas and photographed locations.

In general, the existing ROW is well sited on the landscape about one-third of the way up forested slopes, with a buffer of vegetation between the ROW and roadways. The ROW follows the general contours of the land in most cases, instead of cutting a straight swath through rolling and mountainous terrain. No long stretches of line follow the top of a ridgeline where the line would be dominant.

### ► For Your Information

**Foreground** is within 0.4 to 0.8 km (0.25 to 0.5 mile) of the viewer; **middleground** is from the foreground to about 8 km (5 miles) of the viewer; and **background** is over 8 km (5 miles) from the viewer. Distance zones are based on Forest Service standards (US Department of Agriculture, Forest Service, 1974).

State Route 31 and part of State Route 33 are Idaho Scenic Byways. Twenty-eight miles of the existing ROW pass within sight of these highways. The existing line is visible from these roads in many locations, mostly in the middleground and background of most views, not as a dominant feature. Portions of the new ROW are expected to become somewhat more visible to tourists traveling through the area. However, the new line is not expected to become the dominant feature in the landscape, nor is it expected to change the perception of tourists that this is a highly scenic area.

### ► Reminder

Structure locations refer to BPA's designation of existing 115-kV transmission line structures. Structures are numbered, with the first number denoting the mile and the second number denoting the structure number (e.g., 3/7 is mile 3, structure 7).

## 3.2.1 Visual Assessment Area 1 - Swan Valley

The existing ROW begins at Swan Valley Substation and runs for about 6.4 km (4 miles) through rural, rolling open agricultural lands with scattered ranches. Typical views in this area generally are **foreground** views of farmland and crops, **middleground** views of rolling rural landscape, and **background** views of rolling hills and open sky. Viewers are residents of scattered farmhouses, and commuters, tourists, and residents using Idaho State Route 31.

The existing ROW is generally not dominant in the view. The ROW is in the background or is blocked from view by rolling terrain. Residential viewers are generally considered highly sensitive to changes in views. Commuters and local viewers along State Route 31 generally have low sensitivity to changes in view. Tourists are sensitive to views, but are not expected to be highly sensitive to views of the ROW as they pass through the area because transmission line structures are hidden or are in the background. Also, most tourists are en route to other scenic destinations and may be unlikely to perceive the structures in agricultural fields as inconsistent with the view.

## 3.2.2 Visual Assessment Area 2 - State Route 31, Targhee National Forest

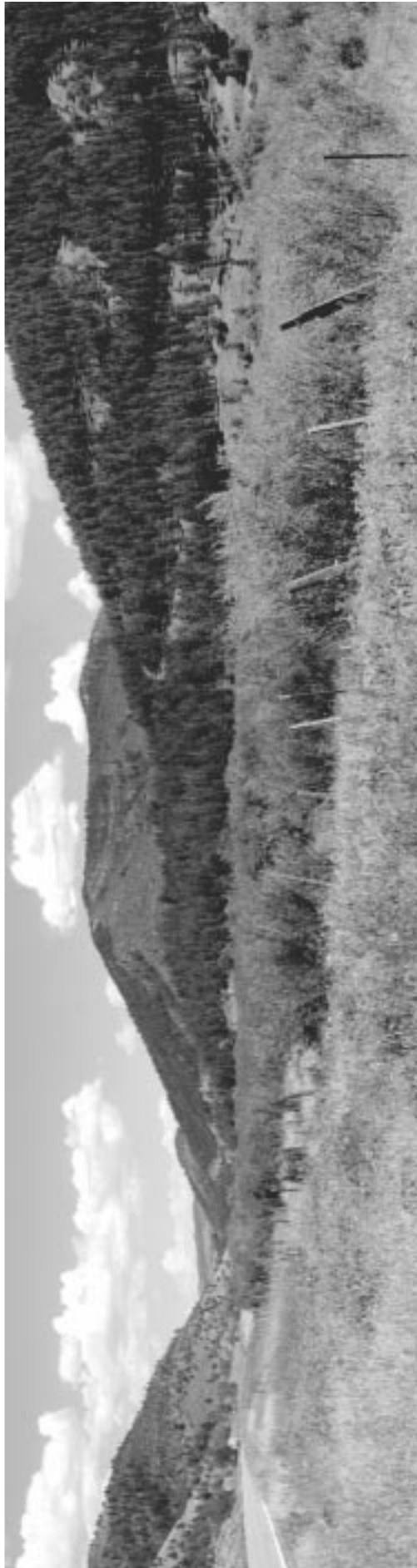
At about structure 5/2, the terrain becomes more hilly and forested as the existing ROW enters Targhee National Forest. From structure 5/2 to structure 15/1, the ROW runs through the national forest next to State Route 31. This terrain is rolling, has steep hills and lower mountains with predominantly coniferous forests. Pine Creek runs in a meadow-like valley south of State Route 31 and between the steep forested ridges where the transmission line passes. The views are generally very rugged, natural, and undeveloped. Typical views are foreground views of Pine Creek Valley nestled between steep, forested slopes that form the valley walls (see Figure 3-1). Willows and deciduous shrubs fill the valley floor, and there are occasional glimpses of Pine Creek.

With the exception of the State Route 31 roadbed, the foreground view is very natural. Middleground views are of steep forested slopes covered predominantly with evergreen trees. The existing ROW is in the middleground of the view, about one-third to one-half of the way up the forested slopes and is partially hidden from view by trees. In some places, the ROW can be clearly seen along the slope. The background view is sky or an occasional distant mountain silhouette.

Viewers are tourists traveling through the area to enjoy the state-designated scenic byway; recreationists (e.g., hunters, anglers, horseback riders, backcountry skiers, organized camp participants, hikers, and snowmobilers) using USFS roads, campgrounds, and



Figure 3-1. Viewpoint 1 - Existing View in Visual Assessment Area 2, State Route 31, Targhee National Forest



organized camps; and commuters to Victor and Driggs, Idaho. Tourists' sensitivity to views is considered high, but the sensitivity of commuters is low. Recreationists' sensitivity in general is considered high, although sensitivity would vary depending on each group's focus. See Section 3.3, **Recreation Resources**, for sensitivity levels of each recreational group. Also, many sensitive viewers pass through this area because of State Route 31's scenic byway designation.

### **3.2.3 Visual Assessment Area 3 - South of Victor and State Route 33**

From structure 15/1 to structure 19/6, the existing ROW descends into the hillsides that define the southern boundary of a vast flat plateau. Located in this open plateau and closest to the existing ROW is the small town of Victor. The views through this area are generally rural, with expansive views of flat, rural lands surrounded by rugged and rolling mountainous terrain.

The existing ROW is in the middleground and background of the view about one-third of the way up the mountains. Typical foreground views are of flat scenic farmland with scattered rural housing. Middleground views are of flat farmland and rolling, steep rugged mountains, and background views are of open sky and some distant mountain silhouettes. Figure 3-2 depicts a typical view of the existing ROW from south of Victor.

Viewers are residents of south Victor including ranchers and single-family home residents, and motorists traveling on side roads south of Victor. Residential viewers are concerned about potential impacts to views from south of Victor.

In the area south of Victor, some residents have views of Targhee Tap. In summer, deciduous and evergreen trees break this view. In winter, with snow and no leaves on the deciduous trees, Targhee Tap is more visible.

### **3.2.4 Visual Assessment Area 4 - Idaho State Route 33 and Wyoming State Route 22, Targhee National Forest**

At structure 19/6, the ROW continues east over a rise of foothills and crosses Idaho State Route 33 at structure 21/2. The ROW then follows State Route 33 and Wyoming State Route 22 in the rugged, forested Teton Mountains. The general character of this area is of rugged views of steep mountains along each side of the highway. Typical views in this area are foreground views of highway roadbed, middleground views of forested mountain slopes, and background views of sky. The existing ROW is generally sited about one-third to one-half of the way up the slope and is viewed through a buffer of evergreen trees, similar to the

Figure 3-2. Viewpoint 2 - Existing View in Visual Assessment Area 3, South of Victor and State Route 33



view in Figure 3-1 through the Pine Creek area. At the ascent to Teton Pass, the transmission line can be seen traversing the steep, rocky slopes just before crossing over Teton Pass summit. The conductors (transmission line wires) are very visible at this point because of the orange marker balls hanging on the conductors to alert pilots and birds. Views through this area are similar to those shown in Figure 3-3, but from lower elevations.

Viewers are tourists traveling through the area enjoying the scenery; recreationists (particularly campers using three formal USFS campgrounds along this stretch, hikers parking and entering the Jedediah Smith Wilderness Area on the north side of the highway, horseback riders, backcountry skiers, and snowboarders using bowls at Teton Pass, and hunters); and commuters generally traveling from the Victor and Driggs, Idaho, area to Jackson, Wyoming.

The sensitivity level of tourists to views is considered high, but the sensitivity of commuters is considered low. The sensitivity level of recreationists in general is considered high, although sensitivity depends on each group's focus. See Section 3.3, **Recreation Resources**, for sensitivity levels of each recreational group. Also, many sensitive viewers pass through this area because State Route 33 and Wyoming Route 22 are scenic.

### 3.2.5 Visual Assessment Area 5 - Summit of Teton Pass, Bridger-Teton National Forest

At structure 28/5, the line enters Bridger-Teton National Forest and the summit of highly scenic Teton Pass, a mixture of vast mountainous views and vistas of Jackson Valley. For about 0.8 km (0.5 mile), the transmission line is in the Palisades Wilderness Study Area. The ROW crosses Wyoming State Route 22 in Teton Pass at structure 30/5. Typical views in this area are vistas where the viewer is on high, steep slopes. Generally, this setting has little to no foreground view (see Figure 3-3). Middleground views are of extremely rugged forested mountain terrain. Background views are glimpses of the distant alpine valley floor, silhouettes of mountains, and vast sky views. Views are highly scenic. The ROW is clearly visible in the middleground and background.

Viewers are tourists who drive through the pass and stop at scenic overlooks; recreationists including hikers, horseback riders, backcountry skiers, snowboarders, wildlife and bird watchers, backpackers, and photographers/artists; and commuters generally traveling from Victor and Driggs into Jackson.

Tourists and recreationists are considered very sensitive to this view. Recreational viewers' level of sensitivity depends on the activity. Recreationists such as snowboarders and some backcountry skiers using the ROW as a downhill route would be somewhat less sensitive to the view of transmission line facilities,

**Figure 3-3. Viewpoint 3 - Existing View in Visual Assessment Area 5, Summit of Teton Pass, Bridger-Teton National Forest**



while hikers, backpackers, other backcountry skiers (touring in the area), and photographers/artists would be more sensitive to view changes since their recreational experience is not tied to the existence of the ROW.

### **3.2.6 Visual Assessment Area 6 - Ski Lake Trail, Phillips Ridge, Bridger-Teton National Forest**

From structure 30/5 to structure 35/1, the ROW passes through highly scenic mountainous backcountry. Typical views in the Ski Lake Trail area (structures 31/1 to 34/7) generally are foreground views of coniferous woods or alpine meadows (covered during some times of year with colorful wildflowers), middleground views of rugged mountain terrain including coniferous forest and alpine meadows, and background views of distant valley floors and mountain silhouettes. Views are highly scenic.

Viewers are a diverse group of recreationists, including backcountry skiers, hikers, backpackers, horseback riders, mountain bike riders, and photographers/artists. This trail system is heavily used by winter recreationists who do not depend on the ROW for their recreation experience. The entire Teton Pass area is popular in winter. For this reason, Figure 3-4 shows the winter setting. The existing ROW is visible in the middleground of the picture, which is typical of views where the transmission line is visible.

### **3.2.7 Visual Assessment Area 7 - Below Phillips Ridge to Teton Substation**

From structure 35/1 to Teton Substation, the ROW descends into the scenic Wilson Valley, an area of rural-residential and scattered, resort-like developments.

Typical views in the neighborhoods that surround Teton Substation vary, with foreground views depending on location, middleground views of the flat scenic Wilson Valley, and background views of rugged rolling mountains. Viewers are mostly residents.

Residents here are extremely sensitive to changes in the view. Other viewers include commuters, golfers, and resort guests.

Figure 3-5 is a typical view of the existing ROW from the Teton Substation area. This view is representative of most residential views. In the Teton Substation area, some residents have views of the existing substation. Summer views of the substation are broken up by existing deciduous trees that surround the substation, but there are clear views of substation structures, which are taller than the surrounding vegetation. Winter views are more predominant

Figure 3-4. Viewpoint 4 - Existing View in Visual Assessment Area 6, Ski Late Trail, Phillips Ridge, Bridger-Teton National Forest



**Figure 3-5. Viewpoint 5 - Existing View in Visual Assessment Area 7, Below Phillips Ridge to Teton Substation**





because of the loss of leaves from deciduous trees. This makes the substation clearly visible. However, in years of high snowfall, some resident views would be blocked by snow piles from the clearing of snow from streets.

### 3.3 Recreation Resources

This section describes motorized and nonmotorized recreation activities in the project area and each activity's relationship to the existing ROW. Table 3-1 lists recreation facilities inventoried within clear view of the existing ROW and Map 5, **Recreation Sites**, shows the location of these facilities.

**Table 3-1. Recreation Facilities in View of the ROW**

Site	Facilities
1. Pine Basin Lodge	lodge, trails, Pine Creek
2. Rigby - LDS Stake Girl Scout Camp and Trailhead	trailhead, Pine Creek
3. Pine Creek Ridge Trail and Piney Creek	trailhead, major turnout along highway
4. Pine Creek Campground	picnic tables, fire circles, outhouse
5. Teton Valley Campground	campsites, cabins, pool
6. RV Park	campsites, water/sewer/electric hookups
7. Trail Creek Pond Sportsman Access	pond, picnic tables, fire circles
8. Moose Creek Road and Trailhead for Scenic Crest Trail and Moose Meadows	trails, unimproved road
9. Mike Harris Campground and Trailhead	campsites, picnic tables, fire circles, drinking water
10. Trail Creek Campground	campsites, picnic tables, outhouses, fire circles
11. Unofficial campsite/Burbank Creek/Trailhead	informal fire pit, trailhead
12. Coal Creek Trailhead	parking, restroom, trailhead
13. Mail Cabin Canyon Road/Trailhead	trail
14. Teton Pass Wildlife Viewing Area	parking lot, trailhead
15. Phillips Canyon Trailhead	parking lot, trailhead

### 3.3.1 Motorized Recreation

In most cases the existing ROW follows roads that are a common route for tourists traveling through the region and visiting national parks and monuments.

Tourists and sightseers commonly travel along State Routes 31 and 33, portions of which are designated Idaho Scenic Byways. The existing transmission line is currently visible from these roads in many locations. The ROW is noticeable in the middleground and background of most views but is not at any time a dominant feature. Figure 3-1 shows a typical view through this section.

Sightseers travel to the top of Teton Pass and spend time at pullouts next to the road viewing vistas across the mountains and down into Jackson Valley. The existing ROW is noticeable in the middleground and background of the view but is not the dominant feature. See Figure 3-3 for a typical high-quality view enjoyed by sightseers in Teton Pass.

Motorists driving motorbikes and all-terrain vehicles (ATVs) are restricted to a limited number of USFS roads, identified in the Targhee Forest Travel Plan, that access or are within the existing ROW (structures 15/2 to 20/10 or Murphy Creek to the highway crossing of Idaho State Route 33). Off-roaders not using the ROW travel under the transmission line and are quickly out of view of the ROW.

Some hunters use ATVs in or near the existing ROW (only the areas mentioned above that are in the new Forest Travel Plan). Hunting from a vehicle is prohibited but hunters access hunting areas and carry game out using these vehicles. These recreationists' relationship to the ROW is the same as described above.

Fishing occurs in or near the existing ROW. In the Pine Creek area, anglers see the ROW on the mountain side along the south side of State Route 31 and at road crossings. Because anglers are focused on the water, sensitivity levels to the ROW are considered low.

Parasailing is very popular from the bluffs of Phillips Ridge. Parasailers access the ridges by driving on the existing ROW access road at Ski Lake and Phillips Pass Trails. Once they arrive at their desired launching areas, they spread out equipment on the ROW to prepare for takeoff from Phillips Ridge. They then move through a thin line of trees to launch from the ridge.

Snowmobile use is high throughout the Pine Creek Pass area, and follows Upper Creek Road to popular trailheads. Trails are not formally groomed by the USFS. Snowmobilers pass under the ROW and move away from the line. For this reason, snowmobilers' views of the ROW are brief.

Snowmobilers also use the ridges of the Pole Canyon area and south of Victor. Snowmobile use is somewhat lower through this area than in the Pine Creek area. Some snowmobiling occurs along the highway at State Routes 33 and 22. Snowmobiling is very popular north of State Route 22 on the Bridger-Teton National Forest and south of State Route 22 on the Targhee National Forest because of the high-country setting. Snowmobile use is prohibited on the south side of State Route 22 in Teton Pass on the Bridger-Teton National Forest from December 1 through April 30.

### 3.3.2 Nonmotorized Recreation

Nine trailheads are close to the existing ROW. In all areas except Teton Pass, hikers and backpackers cross under the existing line briefly as the trail leads away in a perpendicular direction from the line. The ROW is not a major element in the visual experience of these hikers because many of the trails quickly ascend over the hillside and proceed out of view. This is true for the Pine Creek Ridge Trail, Scenic Crest Trail, Moose Meadows Trail, Trail Creek, Burbank Creek, Mail Cabin Trail, and Coal Creek Meadows Trails. However, backcountry skiers and mountain bikers use the ROW proper between Mike Harris Campground and Pine Creek Pass.

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*See Map 5 for the location of some of these trailheads.*

In some cases hikers and backpackers use the existing ROW access roads for hiking. Because these recreationists are relying on the ROW for access, their sensitivity to views of the line is much lower than for those headed into backcountry areas.

Teton Pass is a high recreation use area. Hikers and backpackers have access to a number of backcountry trails. Ski Lake and Phillips Pass Trails, located on the north side of State Route 22 just before the summit of Teton Pass, lead into backcountry areas, along with Black Canyon Trail, which travels generally south and east from the wildlife viewing area at the summit of Teton Pass. The existing ROW is visible from these trails for about 4 to 5 km (2.5 to 3 miles). The ROW is noticeable in the middleground and background of the view but is not the dominant feature because mature trees break up the views. Hikers are the most sensitive to disruptions in the mostly pristine views from these trails.

Five developed campgrounds were inventoried within sight of the existing ROW. In most instances, campers either cross under the transmission line to access campgrounds or view the ROW through trees. In each of the four USFS campgrounds (Pine Creek Campground, Mike Harris Campground, Moose Creek Campground, and Trail Creek Campground), views are of the surrounding forest. There is not a major focus on the ROW, although the ROW is close to the camps. This is also the case with the one private campground. Campers use tents, pop-up trailers, and RVs at these campgrounds.

*Map 5 shows these campgrounds.*

One undeveloped campsite was inventoried. Campers cross under the transmission line briefly to access the campsite, but the ROW is not a dominant feature in the view from this camp.

Mountain bikers use many USFS roads and trails along the entire ROW. Mountain bikers rely on the ROW for recreation and would be less sensitive to viewing the ROW. Through the Pine Creek area, mountain bikers pass briefly under the line and follow USFS roads away from the ROW. These bikers' experience with the transmission line is brief.

Mountain bikers in the Teton Pass area view the ROW on Phillips Pass and Ski Lake Trails. Their sensitivity to views of the ROW is high when they are not cycling, but lower while riding because of the concentration required to negotiate the trails. Bikers using the abandoned State Route 22 roadbed in Teton Pass have some clear views of the ROW. One mountain-biking outfitter, Hobak Sports, is currently permitted by Bridger-Teton National Forest to use areas near the ROW on Phillips Ridge. Outfitters commonly ride the ROW access road in this area.

Horseback riders use the same facilities described for hikers and backpackers. Tie posts are provided at some of the trailheads. Moose Creek Ranch holds an outfitter permit for horseback rides in the Mike Harris area of the powerline. Sensitivity levels to the ROW are the same as for hikers using these facilities.

In general, backcountry skiers use the trails described before. The existing recreation experience for skiers is similar to that for hikers, except views and time of year differ. Figure 3-4 shows the view of the ROW from Ski Lake Trail in winter.

Two backcountry ski outfitters hold permits to use areas close to the existing ROW. Jackson Hole Ski Club skis under the transmission line along Phillips Ridge for training early in the season if snowfall in the valley is inadequate. Jackson Hole Mountain Guides operates a facility near Ski Lake during the winter (Langerman, 1996).

Backcountry skiers, and snowboarders also use natural bowls on both sides of Teton Pass. On the eastern side of the pass, skiers ski down the face of the mountain, under the transmission line, then follow the abandoned State Route 22 roadbed to the bottom of the hill. They park cars at the base of the abandoned highway bed at the bottom of the hill and either hitchhike or drive back up to the summit of Teton Pass (Marsh, 1996). These skiers are less sensitive to the view of the ROW because they rely on the cleared area to ski partway downhill.

### **3.4 Wilderness, Wilderness Study Areas, Recommended Wilderness, and Roadless Areas**

The Targhee and the Bridger-Teton National Forests contain areas with highly intact wild natural systems. These areas are valued for their recreation, education, scientific, conservation, historic and scenic uses. Many areas have been or are being considered for preservation as wilderness or roadless areas and are managed by the Forest Service to ensure that special characteristics are not lost or overused. Some special areas crossed by the existing transmission line and ROW, or close to the ROW are described in this section.

#### **3.4.1 Designated Wilderness**

Both designated wilderness areas on the Targhee National Forest are north of the existing ROW. Winegar Hole Wilderness is about 59 km (37 miles) north of the ROW. Jedediah Smith Wilderness is adjacent to the existing ROW in the Teton Pass area (see Map 6). The existing transmission line and access roads do not cross into the wilderness. The Jedediah Smith is intensively used in the summer for hiking, backpacking and horseback riding. It is a spectacular mountainous area on the west slope of the Teton Mountain Range.

Three designated wilderness areas on the Bridger-Teton National Forest are far from the existing transmission line. The Bridger Wilderness Area is about 68 km (42 miles) north of the ROW; the Teton Wilderness Area is about 39 km (24 miles) north of the ROW; and the Gros Ventre Wilderness Area is about 21 km (13 miles) east of the ROW.

#### **3.4.2 Designated Wilderness Study Area**

The Wyoming portion of the Palisades Roadless Area was designated by Congress as a Wilderness Study Area in 1984. The study area contains about 129,000 acres. About 80,000 acres are administered by the Bridger-Teton National Forest, and about 49,000 acres are administered by the Targhee National Forest.

BPA's existing transmission line was built before the passage of the Wyoming Wilderness Act of 1984. When the line was built, BPA and the Forest Service jointly decided on the existing route to meet long-range plans for forest and recreational development and aesthetics, and to avoid difficult terrain such as avalanche areas (Williams, August 30, 1966).

About 0.8 km (0.5 mile) of the line and ROW crosses into the Palisades WSA administered by the Bridger-Teton National Forest. (See Map 6). There are existing trunk and spur roads to access the structures (29/1 and 29/2) in this area, but these are temporary roads that have since revegetated. The Bridger-Teton National Forest manages the WSA to protect its long-term wilderness attributes. Existing uses, such as snowmobiling and mountain biking, are allowed, but activities that may jeopardize the eligibility of the WSA for future congressional designation as wilderness are not.

The existing transmission line and roads do not cross into the Palisades WSA administered by the Targhee National Forest.

### **3.4.3 Recommended Wilderness**

Some areas in the Targhee National Forest are recommended for wilderness, but have not been designated as wilderness by Congress. (See Map 6.) These areas will be managed by the Targhee National Forest to retain their wilderness character until Congress takes legislative action on the wilderness issue. The existing transmission line and roads do not cross any areas that the Targhee National Forest has recommended for wilderness.

### **3.4.4 Roadless Areas**

The existing transmission line is just south of the Garns Mountain Roadless Area and the West Slope Tetons Roadless Area of the Targhee National Forest. The existing line crosses the Palisades Roadless Area of the Targhee National Forest in the Pine Creek area (see Map 6). The short stretches of ROW (from structures 12/1-12/7 and from structures 13/5-15/2) where the existing line crosses the Targhee's Palisades Roadless Area have existing roads to structure sites. In other stretches (from structures 18/5-19/4 and from structures 21/5-22/1) the transmission line is just within the boundary of the Palisades Roadless Area. These areas are in **Management Prescription 8.1** (Concentrated Development Area) and have existing roads to structure sites.

The Phillips Ridge Roadless Area of the Bridger-Teton National Forest is bounded on the east by BPA's ROW. The existing transmission line and roads are adjacent to, but do not cross into the roadless area.

In January 1998, the Forest Service issued a Notice of Proposed Interim Rule to temporarily suspend road construction, including building temporary roads and road reconstruction. None of the alternatives propose any new construction in roadless areas on the Bridger-Teton National Forest, so the policy does not affect this project on the Bridger-Teton National Forest. In addition, National

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*A **management prescription** defines management practices selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.*

Forests that have a signed Record of Decision (ROD) revising their forest plans and have an administrative appeal process underway or completed are exempt from the rule. The Targhee National Forest Revised Forest Plan was appealed. Thus, the Targhee National Forest Travel Plan is also exempt since the ROD for the Revised Forest Plan was signed in 1997.

### 3.5 Public Health and Safety

Transmission facilities provide electricity for heating, lighting and other services essential for public health and safety. These same facilities can potentially harm humans. Contact with transmission lines can injure people and damage aircraft. This section describes public health and safety concerns, such as shocks and noise, related to transmission facilities.

#### 3.5.1 Electric and Magnetic Fields

Transmission lines, like all electrical devices and equipment, produce electric fields and magnetic fields (EMF). **Current**, movement of electrons in a wire, produces the magnetic field. Voltage, the force that drives the current, is the source of the electric field. The strength of magnetic fields depends on the design of the line and on distance from the line. Field strength decreases rapidly with distance.

Electric and magnetic fields are found around any electrical wiring, including household wiring and electrical appliances and equipment. Throughout a home, the electric field strength from wiring and appliances is typically less than 0.01 kilovolts per m (kV/m). However, fields of 0.1 kV/m and higher can be found very close to electrical appliances. Typical electric and magnetic field strengths for some common electrical appliances are given in Table 3-2.

Average magnetic field strength in most homes (away from electrical appliances and home wiring, etc.) is typically less than 2 **milligauss (mG)**. Very close to appliances carrying high current, fields of tens of hundreds of milligauss are present. Unlike electric fields, magnetic fields from outside power lines are not reduced in strength by trees and building material. So, transmission lines can be a major source of magnetic field exposure throughout a home located close to the line. Typical electric and magnetic field strengths for some BPA transmission lines are given in Table 3-3.

There are no national standards for electric or magnetic fields. Some states have established electric or magnetic field standards, but Idaho and Wyoming have not. BPA has an electric field standard of 9 kV/m maximum on the ROW and 5 kV/m at the edge of the ROW.

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A **milligauss** is one thousandth of a **gauss**. A **gauss** is a unit of magnetic induction.

Both electric and magnetic **alternating-current (a-c)** fields induce currents in conducting objects, including people and animals. These currents, even from the largest transmission lines, are too weak to be felt. However, some scientists believe that these currents might be potentially harmful and that long-term exposure should be minimized. Hundreds of studies on electric and magnetic fields have been conducted in the U.S. and other countries. Studies of laboratory animals generally show that these fields have no obvious harmful effects. However, a number of subtle effects of unknown biological significance have been reported in some laboratory studies (Frey, 1993).

Much attention has focused on several reports suggesting that workers in certain electrical occupations and people living close to power lines have an increased risk of leukemia and other cancers (Sagan, 1991; National Radiological Protection Board, 1992; Oak Ridge Associated Universities Panel, 1992; Stone, 1992). Most scientific reviews, however, find that the overall evidence is too weak to establish a cause-and-effect relationship between electric or magnetic fields and cancer. A review of some of the studies relating to EMF and possible biological and health effects are included in Appendix D, Transmission Line EMF.

### 3.5.2 Noise

#### ► For Your Information

*Corona is a discharge, often glowing, at the surface of a conductor or between two conductors of the same transmission line. A technical definition is in Chapter 9, Glossary and Acronyms.*

#### 3.5.2.1 Transmission Line Noise

Audible noise can be produced by transmission line **corona**. It is usually associated with higher voltages. (See 3.5.3, Radio and TV Interference.)

#### 3.5.2.2 Substation Noise

Teton Substation is surrounded by a residential neighborhood and pasture land. As a result, the site is relatively quiet. A single set of spot audible noise measurements was made at various locations around the substation perimeter fence on November 18, 1996 (see Appendix E, Noise Study). The measured noise levels ranged from 33 to 42 decibels (dBA). At the fenceline nearest the residences, the measured noise levels were in the mid-30s dBA. These are levels typical of a normally quiet office. Please note that these levels are associated with one-time spot measurements and reflect the noise only at the specific time of measurement. Noise levels can vary greatly as a result of weather conditions like wind, rain, etc., and other factors such as highway traffic, airplanes, construction activity, etc. Thus, depending on these conditions, the noise on any particular day or at any particular time could be higher or lower than the levels measured.



**Table 3-2. Typical Electric and Magnetic Field Strengths 30.5 cm (1 ft.) from Common Appliances**

	Electric Fields	Magnetic Field (1)
Appliance	(kV/m)	(mG)
Coffee maker	0.03	1-1.5
Electric Range	0.004	4-40
Hair dryer	0.04	0.1-70
Television	0.3	0.4-20
Vacuum cleaner	0.016	20-200
Electric blanket (2)	0.01-1.0	15-100

kV/m = kilovolt per meter; mG = milligauss  
 1. By 1 to 1.5 meters (3-5 ft.), the magnetic field from appliances is usually decreases to less than 1mG.  
 2. Values are for distances from a blanket in normal use, less than 30.5 cm (1 ft) away.  
 Source for appliance data: Miller 1974; Gauger 1985

**Table 3-3. Typical Electric and Magnetic Field Strengths from BPA Transmission Lines**

	Electric Fields	Magnetic Field	
115-kV Transmission Lines	(kV/m)	(mG)	
		Maximum (1)	Average (2)
Maximum on Right-of-way	1.00	62	30
Edge of Right-of-way	0.50	14.00	7.00
60 m (200 ft.) from center	0.01	1.00	0.50

kV/m = kilovolt per meter; mG = milligauss  
 1. Under annual peak load conditions (occurs less than 1 percent of the time)  
 2. Under annual average loading conditions  
 Note: Above information obtained from a BPA study to characterize nearly 400 transmission lines located in the Pacific Northwest. Based on 1995 data.

Jackson Substation is located on a busy road and surrounded by mixed use residential and commercial businesses. While no measurements were made at this particular site, it is likely that the urban, commercial setting of this substation results in higher noise levels than those at Teton Substation.

### ► For Your Information

*EMI (electromagnetic interference) is a high-frequency noise caused by corona that can cause radio and television interference.*

### 3.5.3 Radio and TV Interference

Corona may cause radio and television reception interference by generating a high-frequency noise called electromagnetic interference (**EMI**). EMI is the static sometimes heard over a car radio when driving beneath high-voltage lines. It is usually associated with higher voltage lines, that is, 345-kV and above.

### 3.5.4 Toxic and Hazardous Materials

Minimal amounts of hazardous waste result from routine maintenance procedures performed on substation equipment and transmission lines. Kinds and volumes of waste such as oily rags, minor leaks from vehicles, etc., depend on the maintenance procedure.

Swan Valley Substation has several transformers and power circuit breakers that contain oil. **Polychlorinated biphenyl (PCB)**-contaminated oil has been removed over time. There is no oil spill containment system, but BPA does have a Spill Prevention Control and Countermeasure Plan that puts in place protocols and procedures for response in case a spill occurs.

Teton Substation also has a transformer and power circuit breakers that contain oil. PCBs have been removed. BPA has a spill containment plan for this substation.

Jackson Substation has oil-filled circuit breakers and a transformer; none contain PCBs. An oil containment berm surrounds the entire substation.

*Succession is the progressive change in plant communities toward climax, or the final stage of succession.*

*Nonstocked category is a stand of trees or group of stands that have a stocking level below the minimum specified for meeting the prescribed management objectives.*

*Stocking is a measure of timber stand density as it relates to the optimum or desired density to achieve a given management objective.*

### 3.5.5 Fire

Wildfire plays a major role in forest **succession** throughout the western United States, including the forests in northeastern Idaho and western Wyoming. The Targhee National Forest has had significant timber harvest activities and both national forests have maintained aggressive wildfire suppression activities within non-wilderness lands. Only 4 percent of the forested stands in the Big Hole mountain area and 1 percent in the Teton Range are in the **nonstocked**, seedling or sapling age category (U.S. Department of Agriculture, Forest Service, January 1996a). Many of the shrublands are also in late age classes. This creates hazards for

large fires, disease problems, and insect infestations. In the project area, the most common cover type is lodgepole pine/ Douglas fir mixed with lodgepole pine converting to Douglas fir as succession proceeds. Aspen has declined with fire suppression, as conifers take over or give way to a shrub/grass plant community. Often forests that are mature or older have less diversity and productivity than plant communities that are undergoing succession. Of the conifers, mature Douglas fir is the most fire resistant because of the thick bark that develops with age. Engelmann spruce and subalpine fir have very low resistance, and lodgepole pine is moderately resistant to fire (Bradley, et al., 1992).

### 3.6 Water Quality

Most precipitation in the region falls as snow, with as little as 25 cm (10 inches) of precipitation per year at lower elevations, and as much as 114 cm (45 inches) per year at higher elevations. Precipitation is about 38 cm (15 inches) annually at Swan Valley and Jackson and increases with elevation. The amount of sediment in area streams varies with the season. Streams and rivers carry the most sediment as snow melts in May and June (U.S. Department of the Interior, U.S. Geological Survey, 1996). Occasional, intense summer rains also raise flows and the amount of sediment in rivers and streams.

Streams are part of the Upper Snake River drainage basin and ultimately flow into the Snake River. Pine and Trail creeks in Idaho, and Fish and Lake creeks in Wyoming are prominent streams crossed by the existing ROW (see Map 7, **Floodplains and Wetlands**). Many smaller *perennial* and *intermittent* drainages are also crossed. **Wetlands** crossed by the existing ROW are associated with riparian habitat. Surface water in the area is of sufficient quality to support a number of uses including fish and wildlife habitat, agriculture, and recreation. Tributaries to Pine and Trail creeks are steep, high energy streams capable of carrying significant amounts of sediment to Pine Creek during spring runoff. The Teton River headwaters, above the confluence of Trail Creek, are listed as “water quality limited” under Section 303(d) of the Federal Clean Water Act due to extensive habitat modification. Idaho water bodies listed as water quality limited are being assessed. A current listing does not mean such water bodies are not presently in compliance with state water quality standards. Regulations that better identify if water bodies meet water quality standards are being developed. Once approved, the list of water bodies that are water quality limited could be re-evaluated.

#### ► For Your Information

*Waters affected by point and/or non-point source pollution and not currently in compliance with or expected to satisfy applicable water quality standards are listed with EPA as “water quality limited.”*

Pine Creek and its perennial tributaries from 91 m (100 yards) downstream of the existing ROW crossing near Pine Basin Lodge to the confluence with the South Fork Snake River are designated “natural” rivers (Idaho Water Resource Board, 1996). Pine Creek

from the headwaters to 91 m (100 yards) downstream of the existing ROW crossing near Pine Basin Lodge and some of its perennial tributaries (Tie Canyon, Poison Creek, West Pine Creek and Mike Spencer Canyon) are also designated “recreational” rivers (Idaho Water Resource Board, 1996). A recreational or natural river is defined as a “waterway which possesses outstanding fish and wildlife, recreation, geologic or aesthetic values” (Idaho Code 42-1731[7] and [9]). These designations do not restrict or interfere with expansion or maintenance of existing uses including activities necessary to maintain and improve existing utilities and roadways (Idaho Water Resource Board, 1996.) Federal agencies are encouraged to manage lands to compliment these designations.

Principal groundwater *aquifers* include *alluvial* and glacial deposits within valley floors and sedimentary rocks of pre-Tertiary age (Columbia-North Pacific Basins Commission, 1970). Groundwater quality is generally good to excellent throughout the area. Groundwater is a source for irrigation water in the region.

### 3.7 Soils and Geology

Diverse landforms and geologic features exist within the project area, which is in the Middle Rocky Mountain physiographic *province*. From Swan Valley Substation, at an elevation of 1700 m (5600 feet), the existing ROW crosses a broad level slope extending from the base of the Snake River Range (see Map 8, **Soil Limitations**). Known as the Pine Creek Bench, the deep *loess* soils are used extensively for dryland farming.

The Snake River Range is characterized by long parallel ridges trending to the southeast that are cut or separated by valleys and canyons. These mountains are made of folded sedimentary rock that has been pushed eastward upon low angle fault planes. Erosion has worn away the less resistant rock layers, leaving the harder rocks standing as ridges. Soils have formed in materials derived from these sedimentary rocks, including limestone, dolomite, sandstone and shale.

The Tetons, one of the youngest ranges in the Rocky Mountains, abuts the Snake River Range near Teton Pass. The Tetons are made up of mostly darker metamorphic *gneiss* and lighter-colored granite. Sedimentary rocks are exposed on the western slopes, forming cliffs of stratified rocks. Teton Pass, at an elevation of 2620 m (8600 feet), is the highest elevation along the existing ROW. The Teton fault, which can generate a magnitude 7.5 earthquake, is crossed by the existing line. The fault parallels the eastern front of the Teton Range and is an integral part of the Intermountain Seismic Belt. Recent investigations indicate that the

#### ► For Your Information

*Loess* is a windblown deposit of fine-grained *silt* or clay.

*Gneiss* is a banded or foliated metamorphic rock, usually of similar composition as granite.

### ► For Your Information

The **piedmont** is the area of land at the foot of a mountain or mountain range.

**Mass movement** is the dislodgment and downhill transport of soil and rock materials under the direct influence of gravity. Includes movements such as creep, debris torrents, rock slides, and avalanches.

fault is overdue for a moderate-to-large earthquake (Glass, 1996). The Teton Range is the product of uplift along this fault that began about 9 million years ago.

Much of the landscape in the Jackson Hole area reflects the impact of past glaciation. Several cycles of climatic cooling followed by warming during the past 2 million years caused the advance and retreat of both alpine and **piedmont** glaciers. Teton Substation, at 1890 m (6200 feet), is on soils derived from **glacial outwash** and re-sorted by present day streams. **Soils at** Jackson Substation formed in alluvial deposits along Flat Creek.

Geologic hazards include **landslides**, avalanches, **seismic** risk, steep slopes and erosion (see Map 8). **Mass movement** is one of the most active erosion processes in this area due to the high relief, steep slopes, deformed weak bedrock, high water-holding capacities of soils, frequent seismic disturbances, and slope undercutting by streams (U.S. Department of Agriculture, Soil Conservation Service, July 11, 1985). Unstable slopes on both sides of Teton Pass have shown signs of recent movement.

## 3.8 Floodplains and Wetlands

The Federal Emergency Management Agency (**FEMA**) identifies areas that have a 1 percent chance of being flooded in a given year as **100-year floodplains**. The existing ROW crosses areas that have been identified as 100-year floodplains on Flood Insurance Rate Maps (**FIRM**) (see Map 7). The 100-year floodplains crossed by the existing ROW and/or existing access roads are:

- Pine Creek: T2N, R43E, Sec. 14; T2N, R44E, Sec. 6; T3N, R44E, Sec. 31; T3N, R44E, Sec. 29; T3N, R44E, Sec. 28
- Trail Creek, Idaho: T3N, R46E, Sec. 30
- Fish Creek: T41N, R117W, Sec. 2
- Lake Creek: T41N, R117W, Sec. 2.

Teton Substation is located between Fish Creek and the Snake River in an area FEMA designated as Zone X. Zone X areas are defined as areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from a 100-year flood (FEMA, 1989).

Within the mountainous regions of the project area, wetlands can be found associated with the floodplain of **low-gradient** streams and along narrow riparian zones of steeper streams. Two major drainages support riparian wetlands: Pine Creek, which drains into the Snake River; and Trail Creek, which drains into the Teton River. These wetlands are characterized by *Salix* (willow)

**Low-gradient** means with gentle slopes.

species and have an understory dominated by sedges and grasses. Wet mountainside meadows characterized by *Carex* (sedge) species are also found in the project area.

### ► For Your Information

**Emergent** plants have their bases submerged in water.

**Aspect** is the degree of exposure to the sun.

**Habitat type** is defined as lands capable of producing similar plant communities at **climax**. **Climax** is the end point in plant succession when the community will perpetuate itself if the current environmental conditions prevail.

A **forb** is any herbaceous plant that is not a grass or not grasslike.

An **outcrop** is an exposure of bedrock through the overlying cover of soil.

Wetlands are also found associated with Fish Creek and Lake Creek by Teton Substation. A high groundwater table, and surface and irrigation runoff, support **emergent** vegetation types such as grasses, rushes and sedges.

## 3.9 Vegetation

The vegetation in the region is a diverse mix because of differences in topography, climate, **aspect**, and soils. Most of the existing ROW is on mountainous terrain with steep slopes. Disturbances such as fire, disease, grazing, and clearing (for roads, timber harvest, campgrounds, etc.), as well as avalanches and landslides, have also helped determine vegetation cover types.

Since the vegetation in the existing ROW will always be manipulated for safety and reliability of the line, this discussion concentrates on cover type. Cover type describes the vegetation that currently exists in the project area. Cover type differs from **habitat type** in that habitat type indicates what would exist on a site if **climax** vegetation is allowed to develop. Because of disturbances, such as fire, logging, grazing, human disturbances and insect and disease outbreaks, not all of the land currently supports climax vegetation.

Most of the vegetation communities can be classified into four general categories: forest, shrublands, grass/**forb** communities and agriculture. Dominant vegetation communities are shown on Map 9, **Vegetation**. Other smaller plant communities and features can also be found interspersed within the larger categories, such as wetlands, riparian areas, rock **outcrops** and disturbed areas. Disturbed areas are prone to invasive species such as knapweed and thistle, and include roads, the existing ROW, and recreational areas such as campgrounds or hiking/biking trails.

### 3.9.1 Forested

Mixed coniferous forests cover a great portion of the project area. Mixed conifer cover types are dominated by Douglas fir and lodgepole pine, with Engelmann spruce, subalpine fir, and whitebark pine mixed in at upper elevations. Cottonwoods and aspens are the most common deciduous species. Cottonwoods are commonly found along riparian areas. Open canopy forests of mixed conifers and quaking aspens are often found on south facing slopes. Dry, open areas with juniper, mountain mahogany, and rock outcrops are also prevalent on the western portion of the project area.

Forested areas have an understory that consists of various shrubs and forbs, depending on environmental conditions such as moisture, light, slope and aspect. Common shrubs are snowberry, Rocky Mountain maple, serviceberry, mountain ash, and blue huckleberry. Prevalent forbs found in forested areas are violets, strawberry, lupine, paintbrush and arnica. Pinegrass is often associated with these species.

### ► For Your Information

*Jurisdictional wetlands are inundated or saturated by water often enough to support vegetation adapted for saturated soil.*

### 3.9.2 Shrubland

Shrubland includes both upland and riparian scrub/shrub cover types. Most of the riparian scrub-shrub sites could be classified as jurisdictional wetlands and are dominated by willows, with occasional spiraea, red-osier dogwood and mountain alder.

Upland shrublands are dominated by several species. In drier areas, especially on south-facing slopes, a shrub-steppe community includes mountain mahogany, big sagebrush, rabbitbrush, bitterbrush, and juniper. Because shrubs are low-growing species, they often dominate the ROW along with various grasses and forbs. Some of these species include hawthorn, chokeberry, serviceberry, and snowberry.

### 3.9.3 Grasses/Forbs

Plant communities dominated by herbaceous species occur in both wetland and upland habitats. Various upland herbaceous plant communities can be encountered along the ROW. Communities of grasses, forbs, and short shrubs make up much of the existing ROW because of maintenance practices to keep the ROW free of trees and tall shrubs. Weed species and non-native grasses and forbs tend to occur in disturbed habitats such as farmed areas, pasture lands, along roads, and at the base of transmission structures. Smooth brome, a non-native grass species, is found throughout the project area, often dominating large areas. Other grasses found include needle-and-thread grass, giant wild rye, Idaho fescue and cheatgrass. Pinegrass and wheatgrass are also found in the ROW, and as an understory species to Douglas fir and subalpine fir off the ROW. Various native forb species occur along the existing ROW such as lupine, Indian paintbrush, arrowleaf balsamroot, heartleaf arnica, mule's-ears, triteleia and sticky purple geranium.

Emergent wetlands are often associated with small creeks and dominated by various sedge and rush species. Moisture-loving grasses and forb species such as tall mannagrass, cow parsnip, bog-candle, and bluebells are also commonly found in these habitats.

At high elevations, a forb-dominated community known as the “tall forb community” can be found. This community is located on the east side of Teton Pass at about 2590 m (8,500 ft) and supports forbs growing up to five feet high. Some of the more common forbs are nodding helianthella, giant hyssop, western coneflower, cinquefoil, and Jacob’s ladder.

Open slopes, rocky outcrops and ridges of high elevations support a low-growing forb and grass community. This plant community is adapted to harsh conditions and short summers and includes forbs such as yarrow, northern goldenrod, and showy fleabane.

### **3.9.4 Agriculture**

The first 6.4 km (4 miles) of the existing ROW from Swan Valley Substation and the last 1.6 km (1 mile) to Teton Substation have been affected by agricultural and ranching practices or human development. Except for narrow riparian areas, most of the native vegetation inside the ROW in agricultural areas has been moderately to severely disturbed. Around Swan Valley Substation, cultivated fields support wheat and barley; by Teton Substation fields are in pasture.

### **3.9.5 Special Status Plants**

#### **► For Your Information**

*“Sensitive” is used here as a general term to describe a plant that holds special status.*

#### **3.9.5.1 Threatened and Endangered and other “Sensitive” Species**

This section describes federal and state special status plants that may occur in the project area. More detail is provided in Appendix F, **Swan Valley - Teton Line Right-of-Way Threatened, Endangered and Sensitive Plant Species Survey and Noxious Weed Survey**.

The U.S. Fish and Wildlife Service (USFWS) identified Ute Ladies'-tresses (*Spiranthes diluvialis*) (a **threatened** plant species) as potentially occurring in the project area in their letter responding to a request for a species list (USFWS, 1998).

A list of additional special status or sensitive plants that could potentially occur within the geographic area of the project was developed from the following lists:

- US Forest Service, Intermountain Region Sensitive Plants;
- Idaho State Plant Species of Special Concern; and
- Wyoming State Plant Species of Special Concern.



The final list was narrowed down to those species likely to occur within the range of elevations, geographic areas and habitats present within the proposed project area. These species were then surveyed for occurrence within the proposed project area and existing ROW during the summer of 1997.

The survey documented the presence of four sensitive species within the Wyoming portion of the survey area:

- Payson's bladderpod (*Lesquerella paysonii*):
- Scouler hawkweed (*Hieracium scouleri*)
- Columbia brome (*Bromus vulgaris*)
- Western twayblade (*Listera caurina*)

For a complete discussion of the plant survey and methodology see Appendix F.

### **3.9.5.2 Noxious Weeds**

A preconstruction noxious weed inventory was conducted during the summer of 1997 to document existing noxious weed infestations. The inventory provides baseline data to establish the need for and/or to develop a noxious weed control plan.

The noxious weed survey was a targeted species survey in which the noxious weed species that were surveyed were determined prior to the survey. An initial list was compiled of weed species that could potentially occur within the project area from the following lists:

- Idaho Regional designated noxious weeds;
- Wyoming Regional designated noxious weeds;
- Wyoming State designated noxious weeds; and
- Idaho State designated noxious weeds.

The list was narrowed down to those species likely to occur within the proposed project area. (See Appendix F for target weed species list.) The survey documented the presence of 13 noxious weed species within the project area. The size and distribution of the populations of each of these species differs.

The most common species found in the project area were Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*) and hound's tongue (*Cynoglossum officinale*).

Other less common species were spotted knapweed (*Centaurea maculosa*), bull thistle (*Cirsium vulgare*), erect cinquefoil (*Potentilla recta*), ox-eye daisy (*Chrysanthemum leucanthemum*) and leafy spurge (*Euphorbia esula*).

Other species observed at only one location include quack grass (*Agropyron repens*), yellow toadflax (*Linaria vulgaris*), and common burdock (*Arctium minus*). Only one individual of tansy ragwort (*Tanacetum vulgare*) and St. John's-wort (*Hypericum perforatum*) were found.

### **3.10 Wildlife**

This section provides information about wildlife that use the existing ROW. See Map 2, for general structure locations. More detail about wildlife is provided in Appendix G, **Wildlife Report**.

#### **3.10.1 The Pine Creek Bench Area of Swan Valley, Idaho**

The existing ROW crosses about 6.4 km (4 miles) of open cropland at Swan Valley Substation (from structure 1/1 to structure 3/7). Open cropland supports many birds, most notably a number of hawks (Northern harriers and red-tails) and owls.

Between structures 3/7 and 4/7, the line crosses Pine Creek. This area could be used by nesting raptors and other wildlife associated with riparian zones such as breeding songbirds, amphibians, and reptiles. The lower Pine Creek basin is used as transitory range for deer and elk during spring and fall, when they are moving between summer and winter ranges (U.S. Department of Agriculture, Forest Service, 1996a). The Pine Creek benches of Swan Valley and the Rainey Creek feeding ground are wintering areas for deer and elk.

#### **3.10.2 First Pine Creek Crossing to Second Pine Creek Crossing and Crossing of State Route 31**

From where it crosses Pine Creek, the ROW enters the steep, forested terrain that continues to gain elevation for about 40 km (25 miles) to Teton Pass, generally following State Route 31 in the Pine Creek Valley. Occasional rock outcrops in this area could contain habitat for hawks and other birds to nest and perch, roosting habitat for bats, and habitat for other birds, mammals, and reptiles.

Pine Creek meanders in a relatively flat, riparian zone about 250 m (820 feet) wide. This riparian area is a known transitional range (between winter and summer ranges) for deer and elk; it is also good habitat for nesting songbirds and other wildlife associated with riparian areas. Sandhill cranes may travel into this area during mid-to-late summer with their young. Both bald eagles and peregrine falcons occasionally use Pine Creek drainage (see Section 3.10.6, Threatened and Endangered Species). Pine Creek

drainage could be used as a flyway by trumpeter swans and other waterfowl between Swan Valley and the Teton Basin. There are no trumpeter swan nests near the existing ROW.

### **3.10.3 Second Pine Creek Crossing to State Route 33 Crossing, Including Targhee Tap**

This forested section is typical of much of the habitat next to the existing ROW. Fire suppression has created a large proportion of dense stands of mature lodgepole pine and Douglas fir. This habitat is used by many species including cavity-nesting birds, such as woodpeckers and nuthatches. Northern goshawk, a USFS sensitive species, could forage and nest in these surrounding forests (see Section 3.10.8, **U.S. Forest Service Sensitive Species**). In addition, habitat is suitable for great grey owl (Oechsner, 1997).

The ROW crosses northwest to southeast-oriented ridges and hilltops with open juniper and aspen shrubland on their southwest slopes and along ridgetops. These open areas provide good deer and elk summer habitat, and habitat for birds favoring open habitats, including ravens, great horned owls, and red-tailed hawks.

Just east of Coalmine Creek (at structure 14/3), the habitat grades into dense forest of mostly lodgepole pine, Douglas fir, and subalpine fir intermixed with patches of aspen. This habitat is likely used by songbirds.

Teton Basin is important waterfowl habitat, including wintering habitat for trumpeter swans and breeding and migratory habitat for sandhill cranes. The habitat near the ROW is at a transition point between forest and agricultural habitat types and may be used by many species. For example, red-tailed or Swainson's hawks, which occur in agricultural areas, may nest in the forested slopes next to cropland.

Other birds may also take advantage of the transitional area, including black-billed magpie, common raven, American robin, northern flicker, pine siskin, and American goldfinch. Mammals, including deer, raccoon, coyote, and bats may rest and den in the woods while foraging in and around the basin's cropland.

### **3.10.4 State Route 33 Crossing to Teton Pass Area**

This area is shrubby, similar to habitat within the ROW, and likely supports different birds and small mammals than the forest previously described.

### **3.10.5 Teton Pass Area to the Jackson area**

Near Teton Pass, narrow avalanche chutes containing very shrubby thickets and occasional patches of *talus* and other open rock habitats cross the forest. These chutes provide a varied habitat used by songbirds and small mammals and, because of the high elevation, may be used by migratory songbirds during spring and fall migration. These more alpine habitats are also the known habitat for boreal owl, pika, and wolverine (a rare species reported at Teton Pass). The eastern portion of the pass is a USFS-designated wildlife viewing area.

Going east from Teton Pass, the ROW follows a steep slope to a relatively flat alpine basin of mature subalpine fir and Douglas fir (ranging to 90 cm [35 inches] in diameter and over 30 m [100 feet] high) interspersed with open meadows. This habitat is potentially suitable for boreal and great gray owls, and other mountain birds, including Clark's nutcracker, rosy finch, white-crowned sparrow, and broad-winged hummingbird. Great-horned owls may be present in this area because the open meadow is typical foraging habitat and the adjacent mature forest is typical nesting habitat.

The north side of Phillips Ridge is densely forested with a mix of small lodgepole pine (averaging 4 to 15 cm [1.5 to 6 inches] in diameter and 2 to 6 m [7 to 20 feet] high) and spruce, Douglas fir, and subalpine fir. The five percent that are dead are good habitat for woodpeckers and many other insect-eating birds such as nuthatches and chickadees.

From Phillips Ridge the ROW drops down steeply to cross the relatively flat open sageflats, ranches, hayfields, and riparian habitat of the Jackson area to the Teton Substation. The area includes Fish Creek and associated tributaries called the spring creeks. Typical species include willow flycatchers, sparrows, and several species of warblers. American white pelican, Barrow's and common goldeneye, common merganser, and bufflehead also use the creeks (Raynes and Wile, 1994). Waterfowl including Canada goose, trumpeter swan, green-winged teal, and American widgeon (Raynes, 1995) and bald eagle and osprey use the agricultural fields and the associated wetlands and riparian habitats. These riparian areas are also critical habitat for wintering moose (Bohne, 1996). Collisions with overhead wires and fences are a source of trumpeter swan mortality in the Jackson Hole area (Bohne, 1986). Many of the collisions occur in late fall and winter when dense fog reduces visibility.

Forested groves next to Teton Substation are habitat for many birds and mammals. Swainson's and red-tailed hawks nest in this habitat in the valley.

Forested portions of this section of the ROW are suitable for northern goshawks (Oechsner, 1997).

**► For Your Information**

*Idaho has its own list of threatened and endangered species; Wyoming uses the federal list as their state list.*

**3.10.6 Threatened and Endangered Species**

This section describes federal and state threatened and **endangered** species that may occur in the project area. More detail is provided in Appendix G, **Wildlife Report**, and Appendix H, **Biological Assessment**.

**3.10.6.1 Bald Eagle**

Bald eagles are federally-listed as threatened in Idaho and Wyoming and state-listed as endangered in Idaho. Bald eagles are more likely to occur in the vicinity of the existing ROW during October through March because resident breeding pairs are more likely to wander during winter, and migrating or wintering eagles move into the Swan Valley area. The eagles are mostly found along the Snake River, and occasionally venture into its tributaries, including Pine and Rainey creeks.

Nesting and wintering bald eagles are also present in the Jackson area. The closest nest site is about 2 km (1.2 miles) south of the Teton Substation (Bohne, 1996). Another nest is near the southern edge of Grand Teton National Park, and a third is near Wilson. The existing ROW is relatively far from these nests but within the potential foraging range of all three. Nesting eagles are mostly likely to concentrate their foraging efforts along the Snake River, but may also forage within creeks near Teton and Jackson substations. The location of wintering bald eagles depends on the availability of food and changes daily.

Bald eagles do not regularly occur in the central portion of the project area, but individual bald eagles could travel through this area.

**3.10.6.2 Peregrine Falcon**

Peregrine falcons are listed as endangered in Idaho and Wyoming on federal and state lists. No peregrine falcon nests occur within or next to the existing ROW. The closest peregrine nest site is in Swan Valley, Idaho, on the south side of the Snake River, about 3 km (2 miles) south of the Swan Valley Substation. Other reported nests are near Heise, Idaho; several kilometers south of the Teton Substation; and in the Sheep Creek drainage near Palisades Dam, Idaho (U.S. Department of Agriculture, Forest Service, 1996b). Peregrine falcons hunt in the Teton Basin and nest in Teton Canyon, 21 (km) (13 miles) north of the existing ROW, and potential nesting habitat is present in other canyon drainages in the Basin (Oechsner, 1997).

Peregrine falcons are wide ranging (Ratcliffe, 1993; Call, 1978), with breeding ranges extending up to 16 km (10 miles) from nest sites. The first 18 km (11 miles) of the ROW is within the foraging range of the Swan Valley pair. This includes most of the Pine Creek drainage, which contains potential habitat. The ROW is outside of the typical maximum foraging range for the other nest sites, but these birds and their offspring could occasionally occur in the project area during particularly long flights.

The most likely places for peregrine falcons to occur are in the Swan Valley and Jackson areas especially near the Snake River, where waterfowl and other potential prey are concentrated. The densely forested portion of the central project area is not typical foraging habitat, but peregrines could forage within or travel through this area during nonbreeding seasons.

#### **3.10.6.3 Whooping Crane**

Whooping cranes are listed as endangered on federal and state lists. The U.S. Fish and Wildlife Service attempted to start an experimental population in the Rocky Mountain region, but was unsuccessful. Potentially, up to three individuals remain in the Teton Basin area (Fisher, 1996), but this species is no longer considered viable in the area, and has been removed from the Targhee National Forest's endangered species list it maintains through consultation with the USFWS (Oechsner, 1997). Therefore, this species is not considered an element of the affected environment for this project.

#### **3.10.6.4 Grizzly Bear**

The project area is within the historical range of the grizzly bear but outside the Yellowstone Grizzly Bear Ecosystem, an area for which the USFWS has identified management goals to bring population numbers up enough to de-list grizzly bears from the threatened list (U.S. Department of Agriculture, Forest Service, January 1996a). The USFS does not manage habitat within the project area for grizzlies because grizzlies use the area infrequently. Grizzly bears could occasionally travel across or near the project area. Grizzlies have been reported in the general vicinity and sighted within the project area. None of these sightings has been verified.

#### **3.10.6.5 Gray Wolf**

The project area is within historical wolf habitat and the Yellowstone Nonessential Experimental Area (U.S. Department of the Interior, Fish and Wildlife Service, 1994b). Land managers may temporarily restrict land use near active den sites.

### ► For Your Information

*The USFWS has reintroduced the gray wolf, an endangered species, into Yellowstone National Park. These wolves are classified as nonessential experimental wolves according to the Endangered Species Act. Under the Act, a listed species reintroduced outside of its current range, but within its historic range, may be designated "experimental." The Act requires animals used to form an experimental population be separated geographically from nonexperimental populations of the same species.*

*Nonessential animals located outside of national wildlife refuges and national parks (e.g., on USFS land) are treated as if they were only proposed for listing. The intent of nonessential populations is to give the USFWS and other federal agencies additional management flexibility to protect species from becoming extinct.*

Wolves have been sighted near the project area, but no den sites are known in the area. One male who recently lost its mate has been traveling widely, including within and near the project area (Alford, 1996).

#### **3.10.7 Category 1 Candidates**

Category 1 candidate species are species the USFWS tracks that have the potential to be listed as threatened or endangered in the future. Mountain plovers were identified as potentially occurring in the project area but no nests have been reported in the area. Potential habitat is present in the Swan Valley and Jackson areas. However, because these areas are in relatively intensive agricultural use and because the species has not been reported in the area, few breeding pairs are likely to be present.

Western boreal toads may occur in the project area because their habitat is present. They use wetlands and streams during the breeding season.

Canada Lynx may occur in the project area. They could use the existing ROW as a foraging area because the open habitat (including young lodgepole pine saplings) supports the species' primary prey, the snowshoe hare.

#### **3.10.8 U.S. Forest Service Sensitive Species**

Table 3-4 lists U.S. Forest Service Sensitive Species, presence of their habitat, and if they are known to be in the project area. Appendix G includes a detailed description of these species and their habitats.

#### **3.10.9 Winter Range for Deer, Moose, and Elk**

Winter range for deer and elk begins at the Swan Valley Substation and continues to the Poison Creek area in the Pine Creek drainage (about structure 9/4). The quality of this winter range changes with location, and is described below.

From the Swan Valley substation to structure 3/7, much of the winter range has been converted to agriculture lands (farm land and pasture land), which greatly reduces the value of this area for wintering deer and elk. Because of the lack of forage and cover, deer and elk usually do not remain in this area during most of the winter period.

From structure 3/7 to the Targhee National Forest boundary (about structure 5/1), there is a combination of both agriculture land and natural range and forest lands; natural range and forest lands provide forage and cover that is higher quality habitat for wintering animals.

**Table 3-4. U.S. Forest Service Sensitive Species**

Species	Habitat Present	Known in Area
Spotted Bat	Yes	No
Townsend Big-eared Bat	Yes	No
Canada Lynx	Yes	Unknown, probably
Wolverine	Yes	Yes
Boreal Owl	Yes	Yes
Flammulated Owl	Yes	Yes
Common Loon	No	No
Harlequin Duck	Yes	Probably
Three-toed Woodpeckers and Other Cavity-nesting Species	Yes	Yes
Great Gray Owl	Yes	Likely
Northern Goshawk	Yes	Likely
Spotted Frog	Yes	No
Trumpeter Swan	Yes	Yes
Fine-spotted Cutthroat Trout	Yes	Yes
Fisher	Yes	Probably

Natural range and forest lands occur from structures 5/1 to 9/4, providing the highest quality winter habitat for deer and elk.

Four small areas of deer and elk winter range occur on south facing slopes from structures 15/2 to 18/6. These four small areas are natural range and forest lands.

Elk also winter from the Idaho/Wyoming state line east to about Mail Cabin Creek (from structure 22/8 to about 27/2). Wintering elk use this area usually during early December, but winter use may be longer depending on winter weather conditions.

Moose are more widely dispersed during the winter period, and evidence of wintering moose is found along most of the existing ROW, except for the highest elevations over Teton Pass. An area of noted moose winter range occurs in a section about 100 m (328 ft.) long where the new line would cross Fish Creek near Teton Substation (structures 35/5 to 35/6). As with deer and elk, agriculture lands have lower value as moose winter range, and natural range and forest lands have the highest value. In many



places along the existing ROW, tree clearing has increased desirable forage (willow, maple, serviceberry, young aspen) for wintering deer, elk, and moose.

Winter range provides protection and food for these animals and is critical for their survival over winter. It is much more limited than summer range and its availability may be the single most important factor in determining population levels in the area. Human development along river bottoms and valleys has greatly reduced available winter range and has increased the value and importance of remaining winter range on federal lands.

### 3.11 Fisheries

The only indigenous trout in the streams and rivers of the project area is the fine-spotted form of the Yellowstone cutthroat trout, which is a USFS sensitive species. Other trout, including rainbow, German brown, and brook trout, have been introduced to many of the drainages in the region. Other fish species in the region include mountain whitefish, bluehead suckers, Utah sucker, redbreast shiners, longnose dace, and mottled and Paiute sculpin.

The existing ROW can be divided into several distinct drainages identified by structure numbers (see Map 2 for general structure locations). In steeper terrain, streams are generally confined within steep-sided valleys or canyons. The streams are capable of moving large amounts of sediment after natural disturbances such as high-intensity summer rains and fire. Human disturbances include diversions, livestock grazing, road construction, timber harvest, and recreation.

Because of the rugged topography, the existing line spans valleys, and is usually well above creeks. Roads typically cross the upper reaches of drainages. Drainage crossings are normally made over culverts or existing bridges. BPA has used **fords** on Pine Creek, Little Pine Creek, and Murphy Creek to access the existing line.

#### ► For Your Information

*A **ford** is a travelway across a stream where water depth does not prevent vehicle movement. Ford construction can include grading and stabilizing stream banks at the approaches and adding coarse fill material within the channel to stabilize the roadbed.*

#### 3.11.1 Pine Creek Bench, Idaho

The existing ROW from structures 1/1 to 5/1 primarily crosses agricultural lands. The ROW crosses several small intermittent streams (tributaries to Holland and Pine creeks) that have limited fish habitat.

The transmission line spans Pine Creek (a perennial stream) between structures 3/7 and 4/1, which has a narrow riparian buffer of Douglas fir and aspen. Some trees have been removed to protect the conductors from damage. Cutthroat trout are present in this section of the creek, which probably provides some rearing habitat. Adult cutthroat trout migrate through this reach to spawning areas higher in the drainage.

**► For Your Information**

*The Targhee National Forest 1997 Revised Forest Plan has expected values for specific native fish habitat features. The expected values are intended to guide management of native cutthroat trout habitat.*

*The Wyoming Department of Game and Fish (WDGF) has classified streams based on an appraisal of the existing trout fisheries. Classification provides the basis for planning, management practices and assessing impacts of proposed projects.*

*Trail Creek east of structure 22/7 is in Wyoming. This reach of the stream has been classified as a Class 3 stream, that is, it has important trout waters and fisheries of regional importance.*

### **3.11.2 Pine Creek Drainage, Idaho**

The existing ROW parallels Pine Creek from the mouth of the valley to Pine Creek Pass, up to structure 6/12 (near Pine Creek Ranch), where it spans Pine Creek and continues up the valley south of the creek. Although rated as having poor-to-fair fisheries habitat (USFS, 1996), Pine Creek provides a significant portion of spawning habitat for Snake River populations of Yellowstone cutthroat trout. Most spawning occurs between West Pine Creek and Tie Canyon (Dean, 1996). Tie Canyon, and North Pine and West Pine Creeks are the only tributary streams to Pine Creek that provide significant cutthroat trout spawning and rearing habitat (USFS, 1996). Grazing, roads, and recreation have contributed to sedimentation and poor bank stability in Pine Creek (USFS, 1996).

### **3.11.3 Little Pine Creek Drainage, Idaho**

The existing ROW from structure 14/2 to structure 15/1 parallels Little Pine Creek, spanning several small, intermittent tributaries. Little Pine Creek flows into the Teton River. Little Pine Creek, Coalmine Fork, Wood Canyon, and Murphy Creek likely provide spawning and rearing habitat for cutthroat trout (Dean, 1996).

### **3.11.4 Teton River Drainage, Idaho**

From structure 15/2, the existing line turns due east and spans several small, intermittent headwater tributaries to the Teton River. Pole Creek has cutthroat trout rearing and spawning habitat.

### **3.11.5 Trail Creek Drainage, Idaho and Wyoming**

At structure 21/2, the existing line spans Trail Creek (a tributary to the Teton River) and State Route 31. The ROW parallels Trail Creek up to structure 28/1, near the top of Teton Pass. The lower reaches of Trail Creek provide cutthroat trout spawning and rearing habitat. However, fish habitat is likely limited in the upper reaches due to steeper gradients. Brook trout also may be present in Trail Creek.

Coal Creek runs between the highway and the ROW between structures 26/8 and 27/6. Coal Creek crosses the highway through a culvert which likely prevents fish passage due to its grade.

### ► For Your Information

*This section of Trail Creek has been classified as a Class 4 stream, that is, it has low production trout waters, and the fisheries are of local importance.*

*Fish Creek has been classified as a Class 3 stream, that is, it has important trout waters and fisheries of regional importance.*

*Lake Creek is a Class 4 stream managed under a wild management concept by WDFG.*

*A traditional cultural property is defined generally as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs (e.g., traditions, beliefs, practices, lifeways, arts, crafts, and social institutions) of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community.*

#### 3.11.6 Trail Creek Drainage, Wyoming

From structure 28/5 the ROW drops down into a valley containing another stream called Trail Creek. At structure 30/3, the transmission line spans this other Trail Creek, leaving the valley and rising onto Phillips Ridge. This second Trail Creek provides some habitat for cutthroat trout.

#### 3.11.7 Phillips Ridge, Wyoming

The existing ROW at structure 30/5 is near the top of Phillips Ridge. Drainage from the alignment is toward North Fork Trail Creek and Phillips Canyon. However, the ROW does not cross any streams with a defined bed and bank.

#### 3.11.8 Fish Creek Drainage, Wyoming

From structure 35/1, the transmission line drops down into the Jackson area, spanning Fish Creek and two small tributary streams. The line spans Fish Creek between structures 35/5 and 35/6. Fish Creek provides habitat for Yellowstone cutthroat trout (fine-spotted form), brook trout, mountain whitefish, Bonneville red-sides, speckled dace, Utah suckers, and mottled sculpin (Novak, 1996). Bluehead suckers also are present.

The transmission line spans Lake Creek (a tributary to Fish Creek) between structures 35/7 and 35/8. Lake Creek provides habitat for cutthroat and brook trout, whitefish, and suckers.

A tributary to Lake Creek is in a drainage ditch that flows around the northwest corner of Teton Substation. The tributary flows somewhat parallel to the ROW until reaching its confluence with Lake Creek. This tributary has suitable rearing habitat for trout.

### 3.12 Cultural Resources

There has been prehistoric and historic activity in the project area. However, only a small amount of land in and near the project area within Idaho and Wyoming has been inventoried and, likely, only a small fraction of the existing prehistoric and historic sites have been recorded. Existing cultural resources sites and projects described in the literature within one mile of the existing ROW are described in Appendix I, **Cultural Resources Report**. A cultural survey of the existing and proposed ROW and access road system was completed during 1997 to determine if any cultural resources, including **traditional cultural property**, are present and would be impacted. A detailed description is provided in Appendix I. A survey of the potential staging areas was completed in 1998.

### **3.12.1 Prehistory and Traditional Cultural Property**

The project area is situated in the heart of aboriginal territories of several Native American tribes including the Wind River (Eastern) Shoshone, the Northern Shoshone-Bannock, and the Sheepeaters (Kroeber, 1937; Shimkin, 1947; Walker, 1980). Other groups such as the Western Shoshone, Crow, Nez Perce, Atsina, Flathead, Blackfoot, Arapaho, Cheyenne, Gros Ventre, and Comanche also used the area.

Stone gathering for tools and implements was an important activity and occurred at local obsidian sources particularly near Teton Pass. The region was also seasonally used for hunting and plant gathering. Native American use of the area, particularly by the Wind River Shoshone and the Shoshone Bannock Tribe, is indicated by the sites described in the literature, in other ways identified by informants, and confirmed by tribal members from the Wind River (Eastern) Shoshone and the Shoshone Bannock Tribe.

No prehistoric sites were found during the survey in 1997 or 1998.

### **3.12.2 History**

The Wyoming and Idaho border area near the Teton Mountain Range traces its historic beginnings to the fur trapping era, which lasted from 1808 through 1840. Following the Lewis and Clark Expedition of 1804 to 1806, American fur trappers began arriving in search of new trapping territory. The British, through the Hudson's Bay Company and the North West Company, also sent trappers into the region. The conflict between the two nations over the Oregon Territory and beaver pelts fueled an era of exploration and trapping competition that lasted for nearly two decades.

American government explorers and surveyors entered the area, but it was settlers emigrating along the Oregon Trail during this period that would have the greater impact on the region. Between 1845 and 1865, hundreds of thousands of emigrants passed through the area bound for Oregon and California.

The designation of the nation's (and the world's) first national park, Yellowstone National Park (1872), of the nation's first forest reserve, Yellowstone Park Timberland Reserve (1891), and other national forests, had a profound effect on the recreation and tourism industry of the area.

Two historic sites were found during the survey in 1997 (see Appendix I). One site is an historic wagon road that also served as a stock trail between Jackson Hole, Wyoming and Teton Basin, Idaho. There is a visible section on the east side of Teton Pass. This site is eligible for the NRHP.

The second historic site is a ditch just south of Pine Creek, northeast of the Pine Creek Bench in Swan Valley. The ditch was used to carry water to Pine Creek Bench. It has not been used since the early 1920s. The ditch is preserved in some places, but may have been destroyed in others. This site is eligible for the NRHP.

### **3.13 Socioeconomics**

The socioeconomics of the project area are influenced heavily by its geography and geology, particularly the spectacular beauty of the world renowned public lands, and the industries that exist because of it. Agriculture, mining, ranching, lumber and wood products, recreation, and tourism all are important industries in the region that result from the physical characteristics of eastern Bonneville County, Idaho and western Teton County, Wyoming.

#### **3.13.1 Population**

The population within the project area is sparsely located and is characterized as being largely rural, due to the lack of large population centers in the area, with the exception of the Town of Jackson. The population centers that do exist include Swan Valley, Victor and Driggs, Idaho, and Wilson and Jackson, Wyoming. Caucasians are the majority population group in the area, with minorities comprising less than 5 percent of the population. Minorities consist of mostly Native Americans and people of Hispanic origin (University of Idaho/Bonneville County Cooperative Extension System, 1993; and Wyoming Department of Administration and Information, Division of Economic Analysis, 1995).

Wyoming's population expanded by 40 percent during the 1970s primarily because of the energy boom that occurred in the country. During this 10-year period, Teton County, Wyoming's population almost doubled. The county's high growth rate continued in the 1980s, although at a slower rate, and the state estimates that the county's population will expand to 14,000 by the end of the millennium (U. S. Department of Commerce, Bureau of the Census, 1993, and the Wyoming Department of Administration and Information, Division of Economic Analysis, 1995).

Bonneville County's population is also expanding; however, the growth rate has been slower than that experienced by Teton County, Wyoming. In 1990-95, Bonneville County's population has grown by 2 percent per year, while Teton County, Wyoming's growth rate has expanded by 2.5 percent per year (Wyoming Department of Administration and Information, Division of Economic Analysis, 1995; and Idaho Department of Employment, Research and Analysis Bureau, February 1996).

### **3.13.2 Economy**

The economy of northeastern Idaho, of which Bonneville County is a part, is driven by agribusiness, nuclear and high-tech research, manufacturing, recreation and tourism. Agribusiness includes farming and ranching, food processing, and the manufacture of farm machinery. Of the nine counties of northeastern Idaho, Bonneville County, along with Madison County provided over 75 percent of the service sector jobs in the last 5 years, with most located in Bonneville County. Primary service sector employment in the area is found in the following employment categories: miscellaneous services, retail trade, wholesale trade and government (Idaho Employment, Idaho Department of Labor, Research and Analysis Bureau, August 1996).

The economy of Teton County, Wyoming is heavily dependent on tourism. As a result the principal employment sectors are miscellaneous services (including the hospitality industry), and retail trade. Construction services is also a major sector in the local economy (U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Analysis Division, 1994).

### **3.13.3 Employment and Income**

A good share of Teton County's employment, relative to the state as a whole, is in the services sector; manufacturing employment is only half what it is statewide (U.S. Department of Commerce, Bureau of the Census, 1993). High employment in the services sector, and low employment in the manufacturing sector is indicative of a county with relatively low average annual wages. The average annual wages for Teton County for 1994, the most recent information available, was 10 percent below the state average (\$19,960 vs. \$22,070) (Wyoming Department of Employment, Research and Planning Section, 1996). Though wages are relatively low in Teton County, per capita incomes are the highest of any county in the state. Teton County's per capita income for this same year was \$37,430. This disparity between low average annual wages and high per capita incomes results from the Jackson area being a relatively affluent retirement community.

Though the services sector is the largest non-farm employment sector in northeastern Idaho, the goods producing industries, including manufacturing, mining, and construction are major contributors to the local economy. Average annual wages in Bonneville County in 1995, were \$23,575, compared to \$22,840 for the state as a whole (Idaho Department of Labor, Research and Analysis Bureau, August 1996). Both the county's and the state's per capita income were below the county's average annual wage for this year (Idaho Department of Employment, March 1997).

### **3.13.4 Taxes**

A variety of taxes is collected by state agencies to fund state and local government programs and services. These taxes include those that would be assessed on major capital improvements, including construction: sales and use taxes; property taxes; and income taxes assessed on construction labor. Additional taxes could also be affected, although to a lesser degree, and are not covered here. These taxes would include such taxes as locally assessed "room taxes" on commercial lodging facilities, fuel taxes, cigarette taxes, and other taxes.

#### **3.13.4.1 Sales Tax**

Both Idaho and Wyoming assess a tax on goods and services sold within these states, commonly known as a sales tax. The two states also assess a tax on goods and services purchased elsewhere that would be consumed or used within their borders, commonly referred to as a use tax. Federal agencies are exempt from paying both the sales and use tax in Idaho, except when government contractors would be employed on a project (Garret, 1996). According to Sales Tax Rule 12(10) *Materials Provided by Project Owner*,

If material needed for a contract is purchased or supplied by an owner who is exempt from sales and use taxes, then the use by the contractor is subject to use tax. This is true even if the property is owned by an exempt entity such as the federal government, or a state government agency. For example, if a contractor has a public works contract to build a structure using materials owned and supplied by the government, whether federal, state or local, he/she is the consumer of the materials and is subject to a use tax on their value.

In Wyoming, federal agencies are exempt from paying sales and use taxes regardless of who constructs a project. Materials, such as supplies, equipment and other incidental purchases bought directly by a contractor for a federal project, however, would not be exempt (Bright, 1996).

#### **3.13.4.2 Property Tax**

BPA acquires land rights (easements) from private property owners for the purpose of building, operating and maintaining transmission facilities. Such rights are for a specific purpose, and the underlying property owner retains ownership of the property. Because the landowner retains ownership, the landowner continues to pay property tax on the entire parcel, including that within any BPA easement. Because BPA is a federal agency, and exempt from paying local property taxes, improvements owned by BPA, such as transmission facilities, would not be taxed.

BPA acquires land grants instead of easements from federal agency land managers such as the USFS. Because the USFS, as a federal agency, is also exempt from paying local property taxes, no property taxes are paid on land managed by the USFS, including that within a ROW granted to BPA for constructing transmission facilities.

#### **3.13.4.3 Income Tax**

Idaho assesses a state income tax, however, Wyoming does not. The taxes are assessed based on where individuals work, rather than where they reside. Idaho's tax is capped at 8.2 percent for those with taxable incomes over \$20,000 filing individually, or \$40,000 for those filing a joint return.

### **3.14 Air Quality**

#### **3.14.1 Swan Valley and Teton Valley Airsheds**

The Swan Valley *airshed* has no significant air quality problems. The Teton Valley airshed has little trouble with air pollution problems because frequent southwest airflow prevents pollution buildup.



### ► For Your Information

*Particulate matter is airborne particles including dust, smoke, fumes, mist, spray, and aerosols.*

*Microns per liter or  $\mu\text{g}/\text{m}^3$  is a common measure of pollutants in air.*

*Section 160 of the Clean Air Act requires the protection, preservation or enhancement of air quality in national parks, wilderness areas and monuments. The 1977 Clean Air Act amendments called for a list of existing areas to be protected under section 160. These are called Class I areas (40 CFR 81 Subpart D).*

### 3.14.2 Jackson Airshed

During January through April, the Jackson airshed can become inverted and suspended **particulate matter** can negatively affect local air quality. In 1986, the Wyoming Department of Environmental Quality placed a particulate monitor in downtown Jackson to observe this problem. So far the National Ambient Air Quality Standard for particulate matter at this monitoring station has not been exceeded. The highest 24-hour ambient particulate matter concentration at this station was  $120 \mu\text{g}/\text{m}^3$  ( $150 \mu\text{g}/\text{m}^3$  is the 24-hour particulate matter National Ambient Air Quality Standard); the highest reported annual average was  $30 \mu\text{g}/\text{m}^3$  ( $50 \mu\text{g}/\text{m}^3$  is the National Ambient Air Quality Standard). The Department of Environmental Quality has concluded that the particulate matter problem in downtown Jackson is primarily due to road dust.

### 3.14.3 Protected Airsheds

There are several protected airsheds in the vicinity of the project area. Air quality, visibility and plant and animal vigor in these protected airsheds should not be compromised. These airsheds include national parks and wilderness areas, some of which have been listed as Class I (one) areas under the Federal Clean Air Act. (See Section 5.15, **Emission Permits under the Clean Air Act** for a legal discussion of Class I areas.)

The following are protected airsheds in or near the project:

- Grand Teton National Park (a Class I area), about 10 km (6 miles) north of the existing ROW at Teton Pass;
- Palisades Wilderness Study Area in the Bridger-Teton National Forest, surrounds the existing ROW (protected, but not listed under the Clean Air Act);
- Jedediah Smith Wilderness Area in the Targhee National Forest (protected, but not listed under the Clean Air Act), about 150 m (492 feet) north of the ROW at its closest point;
- Yellowstone National Park, (a Class I area), about 121 km (75 miles) north of the project;
- the **Wild and Scenic** Snake River (protected but not listed under the Clean Air Act), about 8 km (5 miles) from the ROW;
- Winegar Hole Wilderness Area, about 59 km (37 miles) north of the ROW (protected but not listed under the Clean Air Act);
- Bridger Wilderness Area, about 68 km (42 miles) north of the ROW (a Class I Area);

- Teton Wilderness Area, about 39 km (24 miles) north of the ROW (a Class I Area); and
- the Gros Ventre Wilderness Area, about 21 km (13 miles) east of the ROW (protected but not listed under the Clean Air Act).

► **For Your Information**

*Sulfur and nitrogen oxides mix with water drops (snow, rain, and fog) in the atmosphere and make sulfuric and nitric acid. These acids fall to the earth as **acid rain** or snow. The presence of these compounds in the air can cause respiratory problems and affect visibility.*

Some of the wilderness areas do not hold the Class I designation because they were (or will be) designated as Wilderness Area(s) after the 1977 revisions to the Federal Clean Air Act created Class I Areas. Nonetheless, these wilderness areas are treated as Class I Areas by local branches of the U.S. Department of Agriculture and Interior. For example, the Driggs Ranger District (on Targhee National Forest) will be monitoring visibility on the summit of the Grand Targhee Ski area, beginning in summer 1997. Monitoring will help the Forest and Park Services protect visibility around Grand Teton National Park. The USFS is also considering launching a lichen study in the park to monitor the impacts of **acid rain**.

## Chapter 4 Environmental Consequences

In this Chapter:

- **Specific impacts from alternatives**
- **Mitigation**
- **Cumulative impacts**

### ► For Your Information

*Review Chapter 2 for a full description of the alternatives.*

*Impacts from the Single-Circuit Line Alternative would be the same as the Agency Proposed Action with some exceptions.*

*Impacts from the Short Line Alternative would be the same as the Single-Circuit Line Alternative from Targhee Tap to Teton Substation.*

*See Map 1 to review locations.*

***Cumulative impacts** are created by the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions.*

### ► Reminder

*Mitigation lessens the impacts predicted for each resource. Mitigation may include reducing or minimizing the impact, avoiding it completely, or rectifying or compensating for the impact.*

This chapter discusses the potential environmental impacts of the Agency Proposed Action, the Single-Circuit Line Alternative, the Short Line Alternative, the SVC Alternative, and the No Action Alternative.

To analyze potential impacts from construction, operation and maintenance activities, resource specialists analyzed actions using a scale with four impact levels: high, moderate, low and no impacts. Definitions of the impact levels vary with each resource and are given in the first part of each resource discussion.

Specialists considered direct, and indirect impacts in the short and long term. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The impact discussion lists mitigation that could reduce impacts and **cumulative impacts** of the alternatives.

The level of detail in the impact discussion for each affected resource depends on the character of that resource, and the significance of the issue. Additional detail for some resources can be found in appendices.

Construction of the Agency Proposed Action, Single-Circuit Line Alternative and the Short Line Alternative would be typical of other BPA transmission line projects (see Appendix J, **Construction Actions** for detail). Construction steps are in the box below.

#### Construction Steps

Typical transmission line construction steps include:

- improve or construct access roads,
- clear ROW,
- prepare structure sites,
- excavate and install structure footings or steel poles,
- deliver structures to the sites (steel, insulators, conductors, and other miscellaneous equipment),
- assemble and erect structures,
- string and tension conductor (wire) and ground wire,
- install counterpoise (grounding wire), and
- restore and clean up sites.

## 4.1 Land Use

### ► For Your Information

*Construction, operation and maintenance of transmission line and substation facilities can create temporary and permanent impacts on land use. Land uses within rights-of-way are limited to uses that do not interfere with the safe operation and maintenance of a transmission line. For instance, no buildings or other structures may be built on the ROW, and no flammable materials may be stored there.*

*In addition, BPA discourages new uses of its rights-of-way that may increase public exposure to electric and magnetic fields, such as parks and parking lots. Future development of lands next to rights-of-way could also be affected by actual or perceived effects of a transmission line (see Section 4.12, **Socioeconomics**).*

### 4.1.1 Impact Levels

Impacts would be considered **high** where transmission facilities would:

- preclude the primary existing or planned use of the land, and the area affected is greater than 5 percent of the available land designated for that use county-wide.
- create large areas of nonfarmable farmland (as defined in the Farmland Protection Policy Act (**FPPA**)(7 U.S.C. 4201 *et seq.*) by interference with land patterns and/or prevent or restrict existing farmland operations such as irrigation.

Impacts would be considered **moderate** where transmission facilities would:

- preclude the primary or planned use of the land, and the area affected is between 2-5 percent of the available land designated for that use county-wide.
- adversely affect existing farm operations and/or farmlands as defined in FPPA by construction such that previously unaffected productive land is lost around structures, and/or farm operations are affected by additional inconvenience to operations.

Impacts would be considered **low** where transmission facilities would:

- preclude the primary existing or planned land use of the land, and the area affected is less than 2 percent of the available land designated for that use county-wide, or where the transmission line would pose very minor or temporary impacts.
- create short-term disturbances such as minor crop damage during construction or restrict impacts to previously affected areas (e.g., existing structure locations).

**No impact** would occur to farmlands if no farmland as defined in the FPPA exists or no agricultural operations would be affected.

## 4.1.2 Agency Proposed Action

### ► Reminder

*Map 2 shows structure numbers and locations.  
Map 3 shows land use.*

### 4.1.2.1 Impacts

**Agriculture** — From Swan Valley Substation to structure 4/5 at the base of the Big Hole Mountains, the line crosses Pine Creek Bench, an area of dryland farms that produce primarily wheat and barley. Impacts would be localized. About 0.04-0.12 hectares (0.1-0.3 acre) of wheat and barley would be removed from production for the life of the line from permanent placement of structures. Heavy machinery would damage crops and compact soils, causing a temporary loss of soil productivity. Impacts would be low to moderate.

From structures 4/7 through 5/2 the existing line crosses land used for hay production and pasture. Permanently placing three or four structures would cause the permanent loss of 60-80 m<sup>2</sup> (700-900 ft<sup>2</sup>) of productive farmland. Impacts would be low to moderate and long term, with some short-term impacts from construction-related damage to soils and crops.

West of Teton Substation, the proposed transmission line crosses about 1.6 km (1 mile) of land used for pasture. West of Fish Creek, between structures 35/2 to 35/5, horses and cattle graze in a grass and sagebrush pasture. Between Fish Creek and Teton Substation (structures 35/7 to 36/4) the proposed line would cross flood-irrigated pasture. Impacts would be low and short term and include grazing interruptions and soil compaction. There would be no long-term impacts since the new double-circuit structures would occupy about the same amount of land as the existing wood pole structures.

**Timber and Range** — Clearing for the new line and access roads would remove about 31 hectares (77 acres) of timberlands. On the Targhee National Forest, removal of this amount would cause a low impact because though these lands are not part of the amount available for harvest, removal for other purposes is limited in the next decade according to the Revised Forest Plan (U.S. Department of Agriculture, Forest Service, 1997). On the Bridger-Teton National Forest, the amount harvested would be less than 1 percent of the available supply of timber, causing impacts to be low.

Rangelands used for cattle and sheep grazing are scattered throughout the existing ROW. Conflicts between livestock and construction equipment are not expected to occur on the ROW or at staging areas because equipment would be operated at slow speeds and cattle would likely move to more quiet areas, away from construction activities. With mitigation listed in Section 4.1.2.2, no adverse impacts to grazing are expected from adding new ROW or from staging areas.

**► Reminder**

*Figures 2-3 and 2-4 show locations of Options A-E.*

Pine Creek Routing Options A-C and E — Impacts for these options are included in the timber and range discussion above.

Pine Creek Routing Option D (preferred) — Combining the new and existing line on two to four double-circuit structures on the north side of State Route 31 would reduce the amount of ROW that would be needed over constructing the new line on new ROW; this would be a beneficial effect.

**Residential and Commercial** — Teton Substation and adjacent lands to the north, east and south are zoned “NC-SF” (Neighborhood Conservation-Single Family). Since all new line termination equipment would be placed within the existing property boundary at Teton Substation, no zoning changes would occur. Section 2390 of the Teton County Development Regulations requires that all utilities be located and designed to minimize negative impacts on natural, scenic, agricultural and residential objectives. A landscaping plan is required to screen the utility, except for utility lines, from roads and houses. Utility buildings that house utility equipment should be designed with as low a profile as possible and the building style should be compatible with the surrounding land uses, if the surrounding land uses are residential. BPA would strive to meet development regulations by developing and implementing a landscaping plan around Teton Substation and using double-circuit structures from below Phillips Ridge to Teton Substation. Appendix K, **Local Plan Consistency**, discusses Teton County Development Regulations in more detail.

#### 4.1.2.2 Mitigation

- BPA would compensate landowners for any farmland removed from production. Compensation would be offered for the fair market value of the land rights acquired.
- The USFS would be compensated for the marketable timber (see Appendix L, **Property Impacts**).
- Work closely with the USFS, other land managers, and landowners to minimize conflicts and inconvenience from construction and maintenance activities.
- Locate structures outside of agricultural fields where possible or next to existing structures and schedule activities to avoid crop damage.
- Compensate farmers for crop damage, help them control weeds, and restore compacted soils.
- Keep gates and fences closed and in good repair to contain livestock.

- BPA would notify the Palisades and Teton Basin ranger districts of the construction schedule and when staging areas will be in use. This information would be passed on to the grazing permit holders.
- The construction contractor would exercise caution on Highway 31 and 33, access roads to and on the ROW, and USFS Road #253 (at Pine Creek Pass) for the presence of cattle and sheep.
- USFS Road #253 (at Pine Creek Pass) would be kept open for passage. No materials or equipment would block the road at any time.
- Develop and implement a landscaping plan around Teton Substation.
- Use double-circuit structures from below Phillips Ridge to Teton Substation and work with landowners next to the existing ROW from Fish Creek Road to Teton Substation on the color and placement of these new structures.
- Continue to work with landowners adjacent to Teton Substation on placement of new transmission structures and equipment at Teton Substation and on timing and other logistical requirements of construction.

#### **4.1.2.3 Cumulative Impacts**

Removal of agricultural land, rangelands, and timberlands from production would be an incremental increase in lands lost to previous development and to future development that were not necessarily intended to be used for utilities.

There would be cumulative impacts to property owners from Fish Creek Road to Teton Substation from adding a transmission line and additional equipment in the substation. The substation was built in 1968. BPA chose that site because no residential neighborhoods existed in the vicinity. Since 1968, property owners have chosen to build homes along the ROW and next to the substation. Residences now exist on the south side of the ROW and surround the substation on three sides. As a result, expanding utilities in neighborhoods can cause conflict in land uses. As utility infrastructure continues to be needed, this conflict can continue.

### 4.1.3 Single-Circuit Line Alternative

#### 4.1.3.1 Impacts

Impacts would be the same as the Agency Proposed Action except for the following: an additional single-circuit line crossing the last 1.6 km (1 mile) of pasture land to Teton Substation would create low to moderate long-term impacts because a small amount of land occupied by the legs of the new transmission structures could no longer be used for grazing.

#### 4.1.3.2 Mitigation

- Mitigation would be the same as the Agency Proposed Action, Section 4.1.2.2.

#### 4.1.3.3 Cumulative Impacts

Impacts would be the same as in Section 4.1.2.3.

### 4.1.4 Short Line Alternative

#### 4.1.4.1 Impacts

Impacts would be the same as the Single-Circuit Line Alternative from Targhee Tap to Teton Substation.

Additional impacts could occur from construction of the switching station near Targhee Tap.

**Preferred Site on the ROW** - Siting the switching station within the Targhee National Forest would change approximately 0.4 hectare (1 acre) of timberland from multiple use such as recreation/wildlife habitat to a developed industrial use. Since the proposed use would be located within and on either side of the existing transmission line right-of-way (between structures 18/3 and 18/4), this impact would be considered low.

**Site off the ROW** - The switching station may be placed in a pasture north of structures 18/3 and 18/4 and Targhee Tap. The potential long-term impacts would be moderate and could include the permanent removal of 1-2 hectares (3-5 acres) from production and altered grazing practices. Short-term impacts would include soil compaction around the area surrounding the switching station construction site and a subsequent decrease in soil productivity.



#### 4.1.4.2 Mitigation

- Mitigation would be the same as the Single-Circuit Line Alternative.
- Locate structures and the switching station to minimize interference with nearby agricultural activities where possible.

#### 4.1.4.3 Cumulative Impacts

Impacts would be the same as in Section 4.1.2.3. In addition, livestock displacement from the permanent loss of pasture from switching station construction could cause nearby lands to be converted to pasture.

#### 4.1.5 SVC Alternative

##### 4.1.5.1 Impacts

Because the SVC would be placed within property boundaries at Teton Substation, no changes in land use would be required. BPA would strive to meet Teton County regulations (see Appendix K, **Local Plan Consistency**) so there would be no to low impacts to land use.

The addition of an SVC at LVPL's Jackson Substation would require expanding the existing substation by about 2000 m<sup>2</sup> (0.5 acre) to the north. Since the substation already exists within a residential/commercial area, the expansion would cause no to low impacts to land use.

##### 4.1.5.2 Mitigation

- Develop and implement a landscaping plan around Teton Substation.
- Continue to work with landowners next to Teton Substation on design and placement of new equipment at Teton Substation.

##### 4.1.5.3 Cumulative Impacts

Impacts would be the same as in Section 4.1.2.3.

#### 4.1.6 No Action Alternative

No impacts to land use are expected.

**► For Your Information**

*Construction, operation and maintenance of transmission line and substation facilities can have short and long-term effects on visual resources. Structures, conductors, insulators, spacers, aeronautical safety markings, ROW clearing, access roads, clearing for structures, and pulling sites for the conductor can create an impact. Distance from sensitive viewpoints decreases visibility. Different landforms and vegetation influence visual impact; some are more able to screen transmission line features.*

*Facilities can be seen from potential viewpoints such as private residences, highways, and commercial areas. Locating facilities in areas where soils are highly erodible or have poor potential for revegetation can also create impacts. A transmission line's visual presence would last from construction through the life of the line.*

## 4.2 Visual Resources

### 4.2.1 Impact Levels

Because most of the existing ROW is on USFS land, impact definitions correspond to USFS guidelines for visual resource management (US Department of Agriculture, Forest Service, 1974).

Impacts would be considered **high** where:

- the transmission line ROW would become the dominant feature or focal point of the view,
- a large number of highly sensitive viewers view the ROW in predominantly the foreground and middleground of the view.

Impacts would be considered **moderate** where:

- the ROW would be clearly visible in the view but not the dominant feature of the view,
- a large number of sensitive viewers view the ROW mostly in the middleground of the view.

Impacts would be considered **low** where:

- the ROW is somewhat visible but not evident in the view,
- few sensitive viewers would see the ROW because it is screened, or predominantly viewed in the middleground and background of the view.

**No impacts** would occur where:

- the ROW is isolated, screened, not noticed in the view, or is seen at great distance,
- views would be of short duration,
- no visually sensitive resources would be affected.

### 4.2.2 Agency Proposed Action

#### 4.2.2.1 Impacts

Visual impacts during construction would include:

- views of construction equipment in the ROW;
- views of fresh road cuts in some areas prior to restoration;

### ► Reminder

See Map 4 for a review of visual assessment areas.

*Foreground is within 0.4 to 0.8 km (0.25 to 0.5 mile) of the viewer; middleground is from the foreground to about 8 km (5 miles) of the viewer; and background is over 8 km (5 miles) from the viewer.*

*These distance zones are defined in the USFS guidelines for visual resource management (US Department of Agriculture, Forest Service, 1974).*

- construction staging areas along Idaho State Routes 31 and 33 and Wyoming State Route 22; and
- views of cranes over tree tops during structure assembly.
- views of helicopters during structure assembly and conductor stringing operations.

These impacts would be temporary and occur along the ROW during construction but would be most apparent in Visual Assessment Areas 2-7.

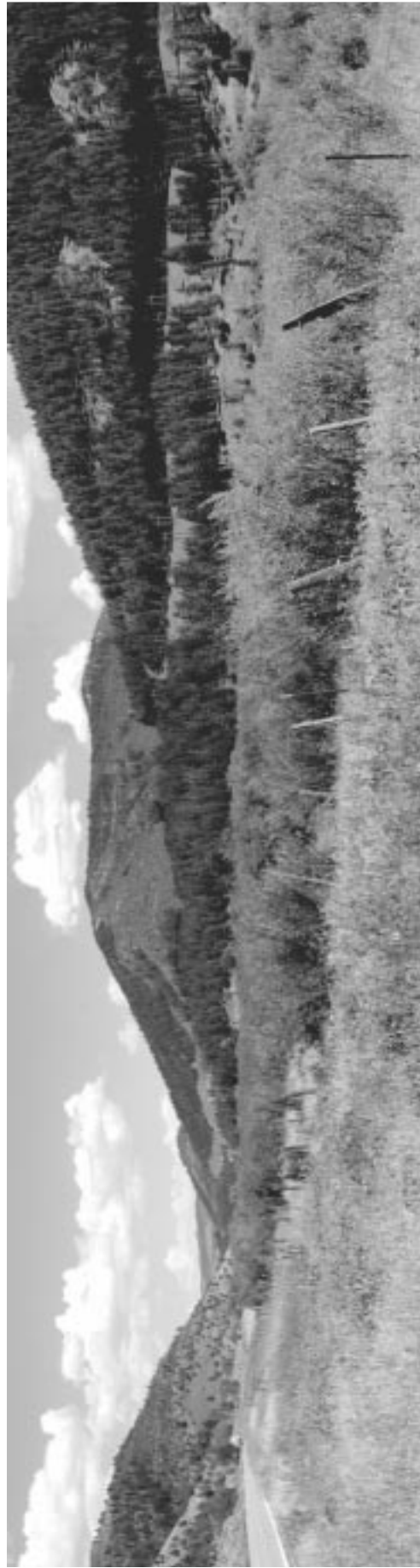
After the line is built, operation and maintenance of the ROW would create low to high impacts depending on the viewpoint and viewer sensitivity.

**Visual Assessment Area 1, Swan Valley** — The ROW would be somewhat more visible in the background in the Swan Valley area with the added structures and conductors. ROW widening would be disguised in the foreground since farmers would continue to grow crops under the transmission lines. Temporary access roads for construction would be plowed under with the next season's crops and would not be visible.

Tourists are not expected to notice the transmission line more than during construction. Residential viewers may notice the additional structures and conductors immediately following construction, particularly if they view the ROW in the middle of the view. However, the transmission line would not be the dominant feature in any residential view. Visual impacts would be low.

**Visual Assessment Area 2, State Route 31, Targhee National Forest** — Tourists and recreationists traveling through this area and using the Targhee National Forest would see more predominant views of the ROW. Figure 4-1 simulates changes to this area. Foreground views would remain the same. The ROW would be more clearly visible in the middleground because coniferous vegetation would be cleared and transmission line structures and conductors would be added. Transmission line road crossings would become more dominant because of the addition of conductors and, in the Pine Creek area, possible marker balls to alert pilots and birds to the lines. Small spur roads, located within the newly cleared ROW between structures 5/2 and 5/6, would not be visible from State Route 31 due to elevation changes. For visual impacts resulting from new access roads between structures 5/10 and 6/5, refer to the option descriptions that follow. Between structures 7/2 and 8/1, a series of nine, short new access spurs off the existing road would be somewhat visible. The road scars, located within the newly cleared ROW, would not be highly visible from State Route 31 since trees would partially obscure views. A new road segment between structures 8/5 and 8/6 would be somewhat visible from State Route 31 but would be partially

Figure 4-1. Viewpoint 1 - Simulated View in Visual Assessment Area 2, State Route 31, Targhee National Forest



**Note:** Since the release of the Draft EIS and after review of the comments received on the Draft EIS, BPA has improved the proposed design so that the clearing required would be 1/3-1/2 less than originally predicted. The clearing in this simulation assumes the original clearing estimated and has not been updated. The simulation does not truly reflect the proposed clearing, but is included to give readers an idea of the visual impacts. Actual clearing would be less than pictured.

**► Reminder**

*Figures 2-3 and 2-4 show locations of Options A-E.*

obscured by trees. All new roads from structure 8/9 to the end of Visual Assessment Area 2 would not be visible from key viewing locations. Impacts would be moderate.

Pine Creek Routing Option A — This option would cause slightly greater impacts to visual resources than locating the line right next to the existing line (Option B) or double-circuiting the line (Option D). This is due to increased visibility of the line for a short distance along State Route 31 as it comes down the forested west facing slope to meet the existing ROW, and then crosses the highway. It is also due to the addition of another corridor clearing uphill of the existing corridor, and the impacts to views of the ridgeline from Pine Basin Lodge on the south side of the highway.

Pine Creek Routing Option B — This option would cause lower impacts than Options A, C, and E because fewer mature trees would be lost to clearing, no separate corridors would be added to the viewshed, and the line would be less visible from State Route 31, except where it crosses the highway. However, construction scars on the landscape of the rugged rocky cliffs would be slow to revegetate and would require a longer period of time to be screened by vegetation.

Pine Creek Routing Option C — This option would cause somewhat greater impacts to visual resources than Options A, B and D and would be similar to Option E. It would be more visible from State Route 31, particularly westbound, and would add an additional highway crossing. It would also encircle Pine Basin Lodge with transmission lines although they would not be very close.

Pine Creek Routing Option D (preferred) — Option D would cause the lowest impact to visual resources. Fewer mature trees would be cleared and the line would be less visible from State Route 31 due to the sharp rise in elevation between the road and the structure sites. Four new road segments would be required for Option D. The first two, between structures 5/10 and 6/1, and between 6/1 and 6/2, would not be visible from the sensitive viewing locations of State Route 31 or the lodge due to topography changes. The third and fourth roads would be located to access structures 6/4 and 6/5. These access roads are short spurs extending from State Route 31 diagonally up the steep cliff to each of the structure sites. These roads would be visible for a very short moment from State Route 31 as cars passed immediately by. They would not be highly visible from the lodge since vegetation would mostly obscure views.

Pine Creek Routing Option E — Similar to Option C, this option would cause a greater impact to visual resources than Options A, B, and D. This is caused by the addition of two more highway crossings by the new line, increased visibility of the line for about 1.6 km (1 mile) along State Route 31, and increased visibility of the new line from the lodge. The lodge would have clear views of the line to the north, east, and west.

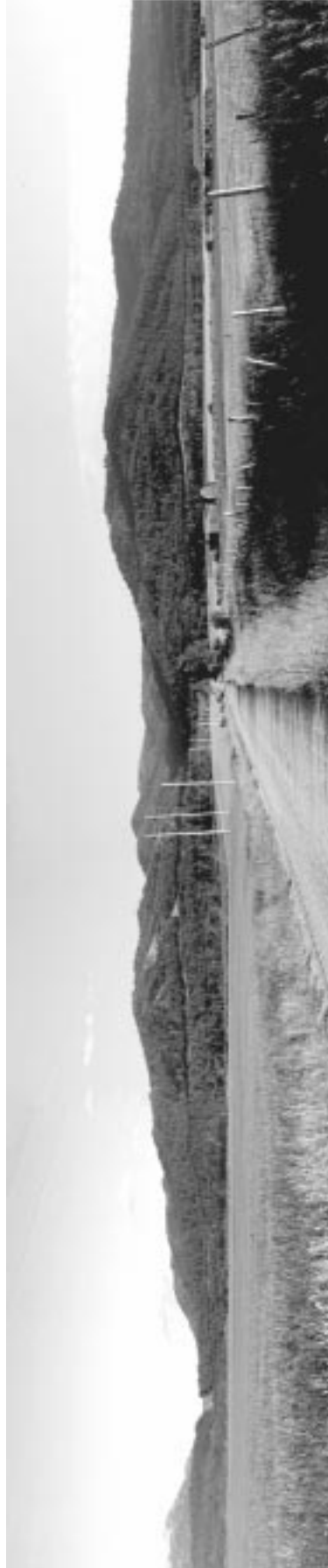
Scars from a new access road from structure 5/8 to the highway would also be somewhat visible from State Route 31.

**Visual Assessment Area 3, South of Victor and State Route 33** — Residential viewers would see more predominant views of the ROW and Targhee Tap. The ROW would be more clearly visible in the middleground and background because coniferous vegetation would be cleared and transmission line structures and conductors would be added. (See Figure 4-2.) Up to 30 short scars from spur roads leading to new structures would be somewhat visible in the new ROW between structures 16/1 and 20/7.

**Visual Assessment Area 4, Idaho State Route 33 and Wyoming State Route 22, Targhee National Forest** — Tourists and recreationists would see more predominant views of the ROW. Changes in the view would be similar to those shown in Figure 4-2. Foreground views would remain the same. The ROW would be more clearly visible in the middleground because coniferous vegetation would be cleared and transmission line structures and conductors would be added. Transmission line road crossings approaching the summit of Teton Pass would become more dominant because double-circuit structures are taller than existing structures, conductors would be added, and marker balls may be added. Just before the summit of Teton Pass the transmission lines may be viewed in the foreground. However, the lines would not be the dominant feature. About 30 very short spur roads leading from the existing ROW to the new structure sites between structures 21/4 and 24/4 would not be visible from State Route 22 due to steep topography. Impacts would be moderate.

**Visual Assessment Area 5, Summit of Teton Pass, Bridger-Teton National Forest** — Tourists and recreationists would see more predominant views of the ROW. (See Figure 4-3.) Foreground views would remain the same. The ROW would be more clearly visible in the middleground because coniferous vegetation would be cleared and transmission line structures and conductors would be added. Double-circuit structures would be used from 26/2 to 29/3 and would require some additional clearing where the new line crosses the highway between structures 28/1 and 28/2. This clearing together with the added conductors and the potential to add more marker balls would make this highway crossing approaching the summit of Teton Pass more dominant. Portions of a new access road between structures 27/7 and 28/1 on the west side of Teton Pass may be visible from State Route 22 and backcountry ski areas. The steep terrain and the roads proposed position high on the slope may hide it from some viewing areas. A new section of access road proposed to access structure 28/2 back on line from structure 28/5 would be visible from the highway on the west side of the summit. For a short section of ROW at Teton Pass summit, impacts would be high because the transmission line may be viewed in the foreground. The line would be within the boundary of the Palisades Wilderness Study Area on the Bridger-

Figure 4-2. Viewpoint 2 - Simulated View in Visual Assessment Area 3, South of Victor and State Route 33



**Note:** Since the release of the Draft EIS and after review of the comments received on the Draft EIS, BPA has improved the proposed design so that the clearing required would be 1/3-1/2 less than originally predicted. The clearing in this simulation assumes the original clearing estimated and has not been updated. The simulation does not truly reflect the proposed clearing, but is included to give readers an idea of the visual impacts. Actual clearing would be less than pictured.

**Figure 4-3. Viewpoint 3 - Simulated View in Visual Assessment Area 5, Summit of Teton Pass, Bridger-Teton National Forest**



**Note:** *Since the release of the Draft EIS and after review of the comments received on the Draft EIS, BPA has improved the proposed design so that the clearing required would be 1/3-1/2 less than originally predicted. The clearing in this simulation assumes the original clearing estimated and has not been updated. The simulation does not truly reflect the proposed clearing, but is included to give readers an idea of the visual impacts. Actual clearing would be less than pictured.*



Teton National Forest, where no modification to visual resources is the preferred visual resource management approach for the USFS. However, because the transmission line runs next to State Route 22, double-circuit structures would be used, and no new roads are proposed, the project should not affect the roadless characteristic of the area.

A new short road would be built from State Route 22 to access structure 30/4, but it cannot be viewed from the highway.

**Visual Assessment Area 6, Ski Lake Trail, Phillips Ridge, Bridger-Teton National Forest** — Recreationists would see more predominant views of the ROW. (See Figure 4-4.) Foreground views would remain the same. The ROW would be more clearly visible in the middleground because an additional 12 m (40 feet) of coniferous vegetation (although mostly within the existing backline), would be cleared and transmission line structures and conductors would be added. (See Figure 2-5.) Impacts would be moderate.

**Visual Assessment Area 7, Below Phillips Ridge to Teton Substation** — The ROW would be more evident in the view from the residential neighborhood next to Teton Substation. (See Figure 4-5.) In most locations, the ROW is in the middleground except for a row of condominiums and homes directly south of the ROW from Fish Creek to Teton Substation, from which the transmission lines would be in the foreground. Impacts would be high.

The new line would require new equipment at Teton Substation. These additions (equipment as high as 16.5 m (54 feet) would make it more visible to residents, causing a moderate impact except for about four residences, where impacts would be high.

Temporary access roads across the open areas under the new line (from Fish Creek Road to Teton Substation) would be restored to pasture and would not be noticeable in the view following construction.

#### 4.2.2.2 Mitigation

The following mitigation measures would reduce impacts in all Visual Assessment Areas. Additional mitigation specific to a particular Visual Assessment Area is also included.

- Structures and above ground improvements would use native materials where feasible.
- Where the use of native materials is not possible, treat structures and related hardware to reduce reflectivity and obtain the darkest finish possible.

#### ► For Your Information

*BPA can treat steel used for structures with an acid wash during manufacturing that darkens the steel and makes it less reflective.*

Figure 4-4. Viewpoint 4 - Simulated View in Visual Assessment Area 6, Ski Lake Trail, Phillips Ridge/Bridger Teton National Forest



**Note:** Since the release of the Draft EIS and after review of the comments received on the Draft EIS, BPA has improved the proposed design so that the clearing required would be 1/3-1/2 less than originally predicted. The clearing in this simulation assumes the original clearing estimated and has not been updated. The simulation does not truly reflect the proposed clearing, but is included to give readers an idea of the visual impacts. Actual clearing would be less than pictured.

Figure 4-5. Viewpoint 5 - Simulated View in Visual Assessment Area 7, Below Phillips Ridge to Teton Substation



**Note:** Visibility of conductors varies under changing lighting and cloud cover conditions. This simulation depicts conductors as they would appear under “worst-case” lighting and cloud cover conditions.

**► For Your Information**

*Preserving the existing topsoil involves stripping the top 15-30.5 cm (6-12 inches) of topsoil, stockpiling it, protecting the stockpile, recontouring the site, and spreading the stockpiled soil.*

- Use non-reflective conductors.
- Use non-luminous insulators (i.e., non-ceramic insulators [a polymer] or porcelain that match existing lines).
- Coordinate with the Forest Service on the use of stains or paints on structures on lands managed by the Forest Service.
- Minimize ground disturbing activities.
- Preserve the existing topsoil near disturbed structure sites by stockpiling it during construction and spreading it after construction so native plant communities would regenerate and blend exactly with the surroundings. Hand rake into disturbed areas from adjacent undisturbed areas to ensure a feathered ground edge and maximum use of adjacent seed sources. Phase and integrate these activities with the project construction schedule to ensure the quickest rehabilitation of sites.
- When clearing forested ROW areas, take additional trees in random locations beyond the additional ROW to create a jagged (scalloped or feathered), more natural edge to the clearing. This would blend the ROW into the surrounding vegetation rather than forming a clear straight line across the mountains. Coordinate and mark specific tree removal with the Forest Service.
- Where technically feasible and cost effective, use double-circuit single pole structures instead of double-circuit lattice steel structures.
- Site new structures next to or very near existing structures and use the same structure type. This would lessen visual clutter that can result when different types of structures are visible in a vast open landscape.
- Site new structures where feasible to minimize visual impacts by taking advantage of existing screening offered by topography and/or vegetation.
- Install new conductor at about the same height as existing conductor to lessen visual clutter.
- Use techniques as needed to revegetate cut and fill slopes on access roads and near structure locations.
- Minimize, where possible, access road placement in highly sensitive areas.

### ► For Your Information

*Double-circuit structures can create fewer impacts to visual resources because they require a narrower total ROW width than two single-circuit structures. Steel double-circuit structures can have longer spans between structures as compared to wood structures, which reduces the total number of structures. Double-circuit structures are usually taller than single-circuit structures.*

**Preservation** is defined as an area where the natural landscape should be unaltered by forest management activities; only ecological changes occur.

#### Visual Assessment Area 2, State Route 31, Targhee National Forest

- Construct Option D (across from Pine Basin Lodge), which uses double-circuit structures across from Pine Basin Lodge.

#### Visual Assessment Area 4, Idaho State Route 33 and Wyoming State Route 22, Targhee National Forest

- Use double-circuit structures from structures 26/2 to 28/5.

#### Visual Assessment Area 5, Summit of Teton Pass, Bridger-Teton National Forest

- BPA and LVPL will work with the USFS to meet the requirements of the Palisades Wilderness Study Area designated **Preservation**. Use double-circuit structures from 28/5 to 29/3 to eliminate the need to clear a wider easement.
- Do not build new access roads in the WSA.

#### Visual Assessment Area 7, Below Phillips Ridge to Teton Substation

BPA studied many alternatives to help mitigate visual impacts to landowners adjacent to Teton Substation and the existing ROW from Fish Creek Road to Teton Substation. Preferred mitigation and other mitigation considered are described below.

##### Preferred Mitigation —

- Continue to work with landowners next to Teton Substation on placement of new transmission structures and equipment at Teton Substation and on timing and other logistical requirements of construction.
- Work with landowners next to the existing ROW from Fish Creek Road to Teton Substation on placement of new structures.
- Use double-circuit single steel pole structures to reduce visual impacts to landowners adjacent to the existing ROW from Fish Creek Road to Teton Substation. Locate new structures in the same place as old structures to keep the lowest conductor at the same height above ground.
- Develop and implement a landscaping plan around Teton Substation.

##### Other Mitigation Considered —

- Re-route the new line north from Fish Creek Road one mile, east across the flat pastureland, then south one mile to Teton Substation. This option would cost about \$1,000,000/mile and could create visual problems for Lake

Creek II Homeowners as the line runs south into Teton Substation. Land costs in this area are high, and other residents would be impacted visually from the presence of a new transmission line.

- Underground the last mile of new line from a point near Fish Creek Road to Teton Substation. This option would cost about \$1,300,000 - \$2,900,000. Undergrounding both the existing line and the new line would cost about \$2,600,000 - \$5,300,000. Building the new line overhead and parallel to the existing line would cost about \$185,000. Double-circuiting the new and existing line would cost about \$415,000.
- Relocate Teton Substation. Depending on where Teton Substation was relocated, a new location could create similar impacts to a new set of homeowners or homeowners who choose to buy property next to the substation in the future. This option would cost about \$3,300,000 plus the cost to re-route the existing lines into the new substation. Depending on how far the new location would be from the existing location, the added cost of the re-routed lines could be relatively high.
- Underground the last 122 m (400 feet) of the new line into Teton Substation. The last double-circuit steel pole structure would branch into two steel pole structures, and then two wood pole structures. These wood poles would be about 6 m (20 feet) higher than the last existing wood pole H-frame structure (17 m [57 feet] high) located on the west property line. Electrical equipment would be placed below one of the new wood pole structures to allow the new line to transition from overhead to underground. From that point, the line would stay underground about 122 m (400 feet) and surface in the new bay, west of the existing bays. No new substation and transmission line dead-end structures would be needed and the tallest piece of equipment in the new bay would be under 6.7 m (22 feet). A simulation of what this might look like is in Appendix M, **Visual Simulations of Teton Substation**. This option could cost about \$250,000 depending on final design specifications and cost of cable, hardware and labor.
- Underground the last 122 m (400 feet) of the new line and three existing lines into Teton Substation. This option would cost about \$1,650,000. Underground entrance for the three existing lines would cost about \$1,400,000.
- Remove the peaks of the existing steel lattice transmission deadend structures at Teton Substation. This option would reduce the height to about 13 m (43 feet). Structures would also be painted. Since the overhead ground wire would be

removed because of the height reduction, more electrical equipment called surge arrestors would be added at each line terminal to protect equipment from lightning strikes. This would cost about \$80,000.

- Replace all existing lattice steel transmission deadend structures with square tubes. The height of these structures would be reduced to about 11 m (36 feet). Structures would also be painted. Surge arrestors would be added at each line terminal to protect equipment from lightning strikes. Costs would be about \$180,000.
- Completely rework the existing substation yard to a low profile substation. The electrical configuration of the substation yard would need to be changed causing an expansion of the yard about 6 m (20 feet) to the south. All steel lattice transmission deadends would be replaced with square tubes. This would reduce the height of the structures to about 11 m (36 feet). The structures would also be painted. Surge arrestors would be added to each line to protect equipment from lightning strikes. The profile of the station would not exceed about 11 m (36 feet). Cost would be about \$820,000.

#### 4.2.2.3 Cumulative Impacts

Impacts are caused by the addition of the new ROW, transmission line, and substation equipment. Addition of any new development along the ROW in the national forests and on private land can further reduce the visual quality of the area. Individuals driving for pleasure may notice the ROW more because of the new structures.

There would be cumulative impacts to property owners from Fish Creek Road to Teton Substation from adding a transmission line and additional equipment in the substation. The substation was built in 1968. BPA chose that site because no residential neighborhoods existed in the vicinity. Since 1968, property owners have chosen to build homes along the ROW and next to the substation. Residences now exist on the south side of the ROW and surround the substation on three sides. As a result, expanding utilities in neighborhoods can cause additional visual impacts if landowners consider the existing facilities to be impacting their views. As utility infrastructure continues to be needed, this conflict can continue. For those residents who consider the existing facilities to be impacting their views, new transmission facilities may cause an incremental decrease in the visual quality around their homes.

### 4.2.3 Single-Circuit Line Alternative

#### 4.2.3.1 Impacts

Impacts would be the same as the Agency Proposed Action in Visual Assessment Areas 1-7.

#### 4.2.3.2 Mitigation

- Refer to measures under Agency Proposed Action, Section 4.2.2.2.
- In Visual Assessment Area 7, site new structures very near existing structures, use the same structure type, and sag the conductor the same as existing conductors to lower visual clutter along the ROW.

#### 4.2.3.3 Cumulative Impacts

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.2.2.3).

### 4.2.4 Short Line Alternative

#### 4.2.4.1 Impacts

Impacts would be the same as those described for the Agency Proposed Action in Visual Assessment Areas 4, 5, 6, and 7.

At Visual Assessment Area 3, impacts would be the same as described under the Agency Proposed Action, except there would be no impacts west of Targhee Tap.

There would be increased construction impacts in the area south of Victor because a switching station would be built near Targhee Tap.

**Preferred Site on the ROW** - If the switching station is built on the ROW, terracing of the site would make it more visible in the view. Landscape plantings around the site would lessen views of the facilities but the impacts would be considered moderate.

**Site off the ROW** - If the new site is built below Targhee Tap in agricultural land, placing it behind surrounding trees would minimize the visual impacts of the new station to residents of Victor.



#### 4.2.4.2 Mitigation

- Mitigation would be the same as described for Visual Assessment Areas 3-7 of the Single-Circuit Line Alternative (see Section 4.2.3.2).
- If possible, site new facilities required around Targhee Tap to use existing natural vegetative screening.
- Additional landscaping around the sites may be needed to screen the facilities from nearby landowners.

#### 4.2.4.3 Cumulative Impacts

Impacts are caused by the addition of the new ROW, transmission line and switching station. New development would reduce the visual quality of the area. (See also Section 4.2.2.3.)

#### 4.2.5 SVC Alternative

##### 4.2.5.1 Impacts

At Visual Assessment Area 7, residential areas surrounding Teton Substation would experience visual impacts. Construction activities would create temporary but visible impacts for residents.

Adding new equipment at Teton Substation in the foreground and middleground would make it the dominant feature in the view for nine single-family homes and one condominium building with about eight units. This would be a high impact.

Adding new equipment at Jackson Substation would impact this mixed use area of RV parks, motels and other commercial businesses, but the expansion of the substation yard would create low overall impacts. Construction activities would create temporary but visible impacts because tourists and other seasonal viewers could see the activities.

##### 4.2.5.2 Mitigation

- Develop and implement a landscaping plan around Teton Substation.
- Continue to work with landowners next to Teton Substation on placement of new transmission structures and equipment at Teton Substation and on timing and other logistical requirements of construction.

#### 4.2.5.3 Cumulative Impacts

Cumulative impacts would occur from adding more electrical equipment to Teton Substation, which is surrounded by a residential neighborhood where residents are sensitive to surrounding views, or at Jackson Substation in a mixed commercial-residential area. This development would reduce the visual quality of the area.

#### 4.2.6 No Action Alternative

This alternative has no impacts beyond those that may be occurring to landowners, motorists, and recreationists viewing the existing transmission facilities.

### 4.3 Recreation Resources

#### 4.3.1 Impact Definitions

Because most of the proposed ROW would be on land managed by the USFS, impact definitions were developed by the recreation specialist but correspond to USFS Recreation Opportunity Spectrum (**ROS**) guidelines for recreation resource management. ROS categories are described in the box on the following page.

Impacts would be **high** where:

- An action causes a change in the ROS designation for an area.
- Motorized access/use would be terminated in motorized areas, or excess nonmotorized use would be encouraged in nonmotorized areas.

Impacts would be **moderate** where:

- An action may cause a site-specific alternation in a management area but an overall ROS change would not occur.
- Some motorized access would be terminated or some excess nonmotorized access/use would be encouraged.

Impacts would be **low** or **no impact** would occur where:

- No ROS change would occur.
- No motorized or nonmotorized access or use levels would change.

#### ► For Your Information

*Map 10 displays ROS designations in the project vicinity for Targhee and Bridger-Teton National Forests.*

### Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum was developed by the USFS to provide direction for land management and recreation planning within national forests. ROS classes are used to identify current recreation uses and to help specify the type and management of activities planned for the future. Categories are defined in terms of a combination of setting, experience, and activities. The following are in the project area:

- **Semi-Primitive Nonmotorized (ROS II):** Predominantly natural environment or natural-appearing environment of moderate to large size. Interactions between users is low, but there is often evidence of other users. There are minimum on-site controls, or restrictions may be present but are subtle. Motorized use is not permitted.
- **Semi-Primitive Motorized (ROS III):** Predominantly natural environment or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. There are minimum on-site controls, or restrictions may be present but are subtle.
- **Roaded Natural Appearing (ROS IV):** Predominantly natural-appearing environments with moderate evidences of the sights and sounds of humans. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.
- **Rural (ROS V):** Substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are often provided for special activities. Moderate densities are accommodated away from developed sites. Facilities for intensified motorized use and parking are available.

#### 4.3.2 Agency Proposed Action

##### 4.3.2.1 Impacts

Construction would create temporary recreation impacts because of clearing, road construction, equipment and material stockpiled at staging areas, structure installation, and conductor stringing and tensioning.

A portion of the new ROW along State Route 33 and State Route 22 would become somewhat more visible to tourists traveling through the area. However, the line is not expected to become the dominant feature in the landscape, nor is it expected to change the perception of tourists that this is a highly scenic area.

**Motorized Recreation** — Those access roads that are open to motorized recreation (about 9.6 km [6 miles]) on the Targhee National Forest) would be closed one at a time to accommodate grading equipment and construction access. Motorcycles and ATVs would be restricted during construction on the few access roads in the Targhee National Forest that allow their use (only roads between structures 15/2 and 20/10 or Murphy Creek to the highway crossing of Idaho State Route 33). Although a staging area is proposed at Mike Harris Campground, equipment and materials should not block access roads. Use of Phillips Ridge on the Bridger-Teton National Forest for parasailing would be restricted during construction. Impacts would be moderate, but temporary.

Once the line is built, impacts to motorized recreation would be low to moderate. No changes to ROS designations would be required. At the USFS request, BPA will gate access roads. Locked gates on access roads could limit opportunities for vehicle camping. A locked gate (only during spring when the road is wet) on the access road to Phillips Ridge would limit parasailing and snowmobiling only during this time because it would be very difficult to transport equipment to the ridge.

**Nonmotorized Recreation** — Temporary impacts on nonmotorized recreation during construction are expected to be in the form of inconvenience mostly limited to summer recreationists using the area for hiking, camping, mountain biking, horseback riding, and hunting/fishing. Recreationists would have to share access roads with construction equipment. They would view construction activities including machinery motion, cranes, and fresh roadcuts. Construction activity is expected to stop in high-use winter recreation areas and so there would be no impacts to “yo-yo” skiing/snowboarding.

Impacts to nonmotorized recreation would be low to moderate because no changes to ROS designations would be required along the proposed ROW. In addition, gating access roads is not expected to impact nonmotorized recreation because most users simply walk around or scale gates easily. Since gates would prevent motorized travel, there could be fewer conflicts between motorized and nonmotorized users. Where motorized and nonmotorized use is allowed together, some conflicts between users would continue to occur.

Nonmotorized recreationists would experience some changes in visual quality; see Section 4.2, **Visual Resources**.

#### ► For Your Information

Yo-yo skiing is shuttle skiing at Teton Pass. Skiers leave one car in Wilson at the bottom of the Pass and drive another car to the top of the Pass. After skiing down the hill, they use the second car to drive back up to the top of the Pass.

### ► Reminder

*Figures 2-3 and 2-4 show locations of Options A-E.*

Pine Creek Routing Option A — Locating the line farther up the hill could create an additional access point for hikers and hunters on foot for a short distance along the corridor. Impacts would not change from those mentioned above.

Pine Creek Routing Options B and D (preferred) — Impacts would not change from those mentioned above.

Pine Creek Routing Options C and E — These options could create an additional hiking route around the south and north sides of the Pine Basin Lodge and could provide additional hiking access to Pine Creek at the new highway crossing. Impacts would not change from those mentioned above.

#### 4.3.2.2 Mitigation

- Use mitigation in Section 4.2, **Visual Resources** to reduce impacts to the visual experience of recreationists and sightseers.
- Continue to coordinate with each Ranger District on the Targhee and Bridger-Teton National Forests to develop gating plans that would promote the types and levels of use desired at each access road.

#### 4.3.2.3 Cumulative Impacts

If some roads are gated, and motorized and non-motorized recreation is restricted, some recreationists would be displaced from areas now being used. This could cause recreationists to use other existing developed areas more, which could create a need for new open areas at some other location. Displacement and crowding in other areas could have a negative effect on recreation experiences. Crowding in small areas could cause impacts to soils, vegetation, wildlife and water resources.

### 4.3.3 Single-Circuit Line Alternative

#### 4.3.3.1 Impacts

Impacts would be the same as the Agency Proposed Action.

#### 4.3.3.2 Mitigation

- Refer to measures listed under the Agency Proposed Action, Section 4.3.2.2.

#### **4.3.3.3 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action.

#### **4.3.4 Short Line Alternative**

##### **4.3.4.1 Impacts**

For both motorized and nonmotorized recreation, impacts would be the same as those listed for the Single-Circuit Line Alternative east of Targhee Tap.

Neither site considered for the switching station is in a high-use recreation area so there would be no impact at these sites.

##### **4.3.4.2 Mitigation**

Mitigation would be the same as the Single-Circuit Line Alternative.

- A new switching station near Targhee Tap would be sited to take advantage of natural vegetative screening if possible.

##### **4.3.4.3 Cumulative Impacts**

Cumulative impacts would be the same as the Single-Circuit Line Alternative.

#### **4.3.5 SVC Alternative**

##### **4.3.5.1 Impacts**

Construction, operation and maintenance activities would cause no impacts to recreation because Teton Substation is not in the vicinity or within clear view of any recreation areas. No mitigation would be required and there would be no cumulative impacts.

Jackson Substation is near a ski area, but it is in an area of mixed commercial and residential use. No impacts to recreation are expected. No mitigation would be required and there would be no cumulative impacts.

#### **4.3.6 No Action Alternative**

There would be no direct impacts to recreation from the No Action Alternative, and no mitigation would be required.

### **4.4 Wilderness, Wilderness Study Areas, Recommended Wilderness, and Roadless Areas**

#### **4.4.1 Impact Definitions**

Areas designated or recommended as wilderness, wilderness study areas, and roadless areas are characterized by unique attributes valued by society such as the opportunity for solitude, and the opportunity to experience lands primarily affected by the forces of nature, not humans. These lands are managed so that these attributes will remain for the long term. The discussion of potential impacts to these areas rests solely on whether an action would change or alter these characteristics.

#### **4.4.2 Agency Proposed Action**

##### **4.4.2.1 Impacts**

**Designated Wilderness** — The Agency Proposed Action will not impact any designated wilderness. No actions would occur within the wilderness.

**Recommended Wilderness** — The Agency Proposed Action will not impact any recommended wilderness. No actions would occur within recommended wilderness.

**Designated Wilderness Study Area** — Activities in WSAs must not, by regulation, degrade the wilderness character of the study area. In this case, however, the transmission line existed at the time of designation.

Structures 29/1 and 29/2 are in the portion of the Palisades WSA managed by the Bridger-Teton National Forest. BPA proposes to use the footings of the existing steel structures and replace the tops of the structures with taller double-circuit structures. This can be done with helicopter construction and no new roads will be needed. The new structures would be about 6-9 m (20-30 feet) taller than the existing structures. There would also be three additional conductors on each structure. Very little if any clearing would be required with the new structures. A rebuild of the

existing line to double circuit on the existing ROW would be no more obtrusive on wilderness characteristics than the existing line, and would thus not impair its wilderness character and potential for inclusion in the National Wilderness Preservation System. The Agency Proposed Action would not appreciably change the character of the existing corridor or the potential for future designation of the area as wilderness.

**Roadless Areas** — The new line and ROW would not enter the Garns Mountain Roadless Area, the West Slope Tetons Roadless Area, or the Phillips Ridge Roadless Area; they would not be impacted. Where the proposed line crosses the Palisades Roadless Area (structures 12/1-12/7, 13/5-15/2, 18/5-19/4, and 21/5-22/1), BPA would use existing and new spur roads and some timber would be harvested. However, impacts from these activities would be low. BPA would not impact the character of the roadless area because this utility corridor and its associated access roads had already lost all wilderness character. The existing transmission line created isolated tracts on the highway side of the ROW that contain fewer than 5,000 acres, and one of the criteria for designating a roadless area is that the area be 5,000 acres or larger. BPA would not affect the future designation of the roadless area as wilderness.

#### **4.4.2.2 Mitigation**

- Use the mitigation in Section 4.2, Visual Resources, to reduce impacts to the experience of recreationalists.
- Continue to coordinate with each Ranger District on the Targhee and Bridger-Teton National Forests to minimize impacts to the WSA and the Palisades Roadless Area.

#### **4.4.2.3 Cumulative Impacts**

Gates would be locked on the north side of Highway 22 in the vicinity of the Jedediah Smith Wilderness and the existing wilderness character would not be affected. The addition of gates would improve the ability to manage public motorized access on these access roads compared to the No Action Alternative. The Winegar Hole Wilderness, Bridger Wilderness Area, Teton Wilderness Area and the Gros Ventre Wilderness Area would not be affected in any way.

The Agency Proposed Action would not change the characteristics of these areas and would not create cumulative impacts. It is possible that any wilderness designation would exclude the existing line by express exemption or adjustment of the boundaries of the Palisades WSA.



### **4.4.3 Single-Circuit Line Alternative**

#### **4.4.3.1 Impacts**

More ROW clearing would be required for this alternative in the WSA than for the Agency Proposed Action because a new single-circuit line would be built next to the existing line. The new line would require 23 m (75 feet) of additional ROW. Roads would be required to build these structures. Expanding the ROW could compromise the character of the WSA and affect its future designation as wilderness. In addition, in the portions of the line that cross the Palisades Roadless Area, this alternative would use H-frame structures instead of steel poles. More tree clearing would be required for these structures and slightly more area would be disturbed.

#### **4.4.3.2 Mitigation**

- Continue to coordinate with each Ranger District on the Targhee and Bridger-Teton National Forests to minimize impacts to the WSA and Palisades Roadless Area.

#### **4.4.3.3 Cumulative Impacts**

Expanding the transmission line ROW could change the character of the WSA. This could change the potential for the WSA to be designated as wilderness.

### **4.4.4 Short Line Alternative**

#### **4.4.4.1 Impacts**

Impacts would be the same for the WSA as for the Single-Circuit Line Alternative. Expanding the ROW could compromise the character of the WSA and affect its future designation as wilderness.

#### **4.4.4.2 Mitigation**

- Continue to coordinate with each Ranger District on the Targhee and Bridger-Teton National Forests to minimize impacts to the WSA.

#### **4.4.4.3 Cumulative Impacts**

The new ROW could change the character of the WSA. This could change the potential for the WSA to be designated as wilderness.

#### **4.4.5 SVC Alternative**

This alternative would cause no impacts to these resource areas because Teton and Jackson substations are not in the vicinity of these areas. No mitigation would be required and there would be no cumulative impacts.

#### **4.4.6 No Action Alternative**

There would be no direct impacts to these areas from the No Action Alternative. No mitigation would be required and there would be no cumulative impacts.

### **► For Your Information**

*The Public Health and Safety Section gathers different potential causes of impacts of concern to the public in one section. Impact levels are not defined for this section because specific measurements and/or research about impacts is inconclusive.*

## **4.5 Public Health and Safety**

### **4.5.1 Safety Precautions**

Power lines, like electrical wiring, can cause serious electric shocks if certain precautions are not taken. These precautions include building the lines to minimize shock hazard. All BPA lines are designed and constructed in accordance with the National Electrical Safety Code (**NESC**). NESC specifies the minimum allowable distances between the lines and the ground or other objects. These requirements basically determine the edge of the right-of-way and the height of the line, that is, the closest point that houses, other buildings, and vehicles are allowed to the line.

People must also take certain precautions when working or playing near power lines. It is extremely important that a person not bring anything, such as a TV antenna or irrigation pipe, too close to the lines. BPA provides a free booklet that describes safety precautions for people who live or work near transmission lines (*Living and Working Safely Around High Voltage Power Lines*).

## 4.5.2 Electric and Magnetic Fields

Because the state of scientific evidence relating to EMF has not yet established a cause-and-effect relationship between electric or magnetic fields and adverse health effects, BPA is unable to predict specific health risks, or specific potential level of disease, related to exposure to EMF.

### 4.5.2.1 Transmission Line EMF

BPA has conducted **exposure assessments** of magnetic fields from transmission lines. Exposure assessments are estimates of the field levels to which people are potentially exposed.

A magnetic field exposure assessment is done by first identifying the areas along the ROW where homes and businesses exist nearby. For these areas, engineers estimate what future magnetic field levels would be without the new project. This analysis serves as a baseline measurement. Engineers then estimate the possible change in field levels assuming the proposed project is in place. An increase in public exposure is defined as a situation where field levels with the new project would increase and buildings exist nearby. These field levels are only indicators of how the proposed project may affect the magnetic field environment. They are not measures of risk or impact on health.

The most heavily populated area along the existing ROW is the 1.6 km (1 mile) stretch just west of Teton Substation. Homes and condominiums are located near the ROW. Calculations were done to compare magnetic fields along the ROW for the five proposed alternatives (No Action, SVC, Short Line and Single-Circuit Line Alternatives, and Agency Proposed Action). A graph of this comparison is in Appendix D, **Transmission Line EMF**.

#### ► For Your Information

*Double-circuit designs, such as those proposed in the Agency Proposed Action, provide a unique opportunity to reduce or minimize magnetic fields through “field cancellation” techniques. If the electrical phase conductors on the transmission lines are properly and exactly arranged, the magnetic fields produced by the individual conductors tend to partially cancel each other. The resulting magnetic field levels then decrease more quickly with distance compared to other double-circuit phasing arrangements or single-circuit lines. These cancellation techniques would be used on the double-circuit portions of the Agency Proposed Action.*

The calculations show that the Agency Proposed Action (double-circuit structures are proposed for this area) results in lower field levels than the No Action Alternative on both sides of the ROW.

Both the Single-Circuit Line and Short Line Alternative (structures would look the same as what is there now) would result in somewhat lower field levels on the south side of the ROW compared to the No Action Alternative. Since the new line would be located north of the existing line, field levels would be higher than the No Action Alternative on the north side of the ROW.

Since no new transmission line is included in the SVC Alternative, no change to the magnetic field level is expected when compared to the No Action Alternative.

#### **4.5.2.2 Substation EMF**

None of the transmission line alternatives are expected to increase the magnetic field environment at the residences near Teton Substation. This is because any new equipment additions (which would be similar to existing equipment within the substation) would be located at the far side of the substation away from residences. Since magnetic fields decrease rapidly with distance, contributions to residences from these new sources would be substantially less than the contributions from the existing transmission line and substation equipment, which are much closer to residences.

If the SVC Alternative is selected, the specialized SVC equipment would result in an additional, and somewhat unique, magnetic field source within Teton or Jackson substations. While BPA has no specific magnetic field information available related to the 115-kV SVC equipment proposed for this project, BPA's experience with 500-kV SVC equipment suggests the fields could be a much larger contributor to the magnetic field environment within the substation fence than the standard equipment for the transmission line alternatives or existing facilities. Increases to nearby residences are therefore possible, and the amount of any potential increase at either site would depend on the design, location and operating modes of the SVC equipment. Like the transmission line alternatives, the SVC is proposed to be located on the far side of the substation away from residences (see Figure 2-7.)

#### **4.5.3 Noise**

Idaho and Wyoming have no state noise regulations. However, Teton County, Wyoming and the Town of Jackson have regulations limiting noise in certain zoning districts to 55 dBa at the property boundary line. The Federal Noise Control Act of 1972 (42 U.S.C. 4903) requires that federal entities, such as BPA, comply with state and local requirements regarding noise.

##### **4.5.3.1 Construction Noise**

Noise impacts would result from construction activities. Construction noise would be short term, would occur mostly during the summer, and would typically occur for only a few days at any one location such as near a residence.

#### 4.5.3.2 Transmission Line Noise

Audible noise can be produced by transmission line corona for lines of 345-kV and above. Since the Agency Proposed Action, Single-Circuit Line Alternative, and the Short Line Alternative are less than 345-kV, there would be no increase in the ambient audible noise level along the route and into the substation.

#### 4.5.3.3 Substation Noise

None of the transmission line alternatives would result in noise increases at the substation sites. This is because the additional substation equipment required for these alternatives would be similar to equipment already in use.

If the SVC alternative is selected, the specialized SVC equipment would result in an additional noise source within Teton or Jackson substations. While BPA has no specific noise information available related to the 115-kV SVC equipment proposed for this project, BPA's experience with 500-kV SVC equipment suggests the noise would likely be noticeable to nearby residences in the form of a low frequency hum. The amount of noise increase would depend on background levels and operating modes of the SVC equipment. Noise generated from the new equipment at either site would be the same. The SVC would be designed so that the maximum noise level would be at 55 dBA at the property line of either substation to meet Teton County and Town of Jackson standards.

#### 4.5.4 Radio and TV Interference

Federal Communications Commission (**FCC**) regulations require that incidental radiation devices (such as transmission lines) be operated so that radio and televisions reception would not be seriously degraded or repeatedly interrupted. Further, FCC regulations require that the operators of these devices mitigate such interference.

#### ► Reminder

*EMI (electromagnetic interference) is a high-frequency noise caused by corona that can cause radio and television interference.*

BPA policy is to comply with FCC requirements. While none of the proposed alternatives are expected to increase electromagnetic interference (**EMI**) above existing levels, each complaint about EMI would be investigated. If the Agency Proposed Action, the Single-Circuit Line Alternative or the Short Line Alternative is implemented and found to be the source of radio or television interference in areas with reasonably good reception, measures would be taken to restore the reception to a quality as good or better than before the interference.

Overall, BPA receives very few radio interference (**RI**) or television interference (**TVI**) complaints. BPA strives to correct all complaints and most are satisfactorily corrected. As a result of these factors RI/TVI impacts would be minimal.

#### **4.5.5 Toxic and Hazardous Materials**

Several common construction materials (e.g., concrete, paint, and wood preservatives) and petroleum products (e.g., fuels, lubricants, and hydraulic fluids) would be used during construction. BPA and LVPL would follow strict procedures for disposal of these or any hazardous materials. No impacts would occur.

Some of the new line termination equipment required for the Agency Proposed Action, Single-Circuit Line Alternative or Short Line Alternative would contain oil. The transformer used for the SVC Alternative would also contain oil. The spill containment system at Jackson Substation would most likely be extended to include the expansion for the SVC. At Teton Substation, a spill plan is in place and outlines response activities in case of a spill. BPA would also consider installing oil spill containment around the transformer.

#### **4.5.6 Fire**

Construction of the new transmission line would take place during spring, summer and fall. The construction season would be short, with most activities occurring during summer when the weather is hot and dry. The potential for a large fire is high because of the mostly mature trees that surround the existing ROW, but it increases even more with the increased use of vehicles, chainsaws and other motorized equipment. The addition of construction workers in the area also elevates the potential for fire.

#### **► For Your Information**

*The **Project Plan** is permanent documentation of agreements made between the BPA and the USFS). The Plan identifies methods for improving or creating roads, clearing trees and other vegetation, erosion control, fire control, hazardous material requirements, protection of special resources, and mitigation.*

BPA, in concert with the USFS, would prepare a **Project Plan** that includes a Fire Plan to ensure that fire hazards are kept low. The Fire Plan would address the needs and requirements of the USFS and BPA.

BPA maintains a safe clearance between the tops of trees and power lines to prevent fires and other hazards. Electricity can arc from the conductor to a treetop. Generally, trees are not allowed to grow over 6 m (20 feet) high on the ROW. Trees that need to be cleared from the ROW, and any trees that could fall into the line (danger trees) would be marked and removed.

Operating transmission lines that use wood pole structures have the potential to initiate fires in the poles under certain atmospheric conditions. Where metal on a structure touches wood, heat can build up and wind can cause the wood to ignite. BPA prevents fires in wood pole structures by electrically connecting together the metal parts in the structure. When the parts are electrically connected, heat is dissipated and does not pose the same fire risk. This method has been successfully used by BPA for more than 30 years.

#### 4.5.7 No Action Alternative

The No Action Alternative could lead to voltage collapse if a critical line is lost on the system. Collapse of the system could continue over a long period (a week or more) if outages occur in winter when deep snows make access to the existing transmission system difficult.

When electricity is lost, lighting for safe locomotion and security is lost. Residential consumers lose heat. Traffic signals fail. Mechanical drives stop, causing impacts as elevators, food preparation machines, and appliances for cleaning, hygiene, and grooming are unavailable to residential customers. Sewage transportation and treatment can be disrupted.

Electricity for cooking and refrigeration is lost. Electricity loss also affects alarm systems, communication systems, cash registers, and equipment for fire and police departments.

The No Action Alternative has negative public health and safety impacts.

## 4.6 Water Quality, Soils and Geology

### 4.6.1 Impact Levels

A **high** impact would occur where:

- A water body that supports sensitive fish, waterfowl, and animal habitat, and/or human uses such as drinking water would be extensively altered so as to affect its uses or integrity.
- The possibility of oil spills from substation equipment reaching groundwater is high, such as in shallow ground-water areas, highly **permeable** soils, and no secondary spill containment or protective measures are used.

#### ► For Your Information

*Impacts to water, soils, and geology are interrelated and have been combined.*

*Impacts are based on a site's susceptibility to long-term degradation. Erosion and mass movement prone areas, soils susceptible to compaction, steep slopes, and extensive access road and clearing requirements increase an area's vulnerability. Disturbance of the surface and subsurface and removing vegetation increase the risk of soil erosion and mass movement, and may change soil productivity. Impacts may be great in areas sensitive to rill and gully erosion, and land movement. Runoff could increase sedimentation and water turbidity. Road improvements and vehicular traffic at stream crossings could increase stream turbidity and alter stream channels.*

*Nutrients leached from disturbed agricultural soils or transported on soil particles could stimulate undesirable aquatic vegetation growth. Clearing streamside vegetation increases a stream's exposure to sunlight, possibly raising water temperature.*

*For related water quality effects, see separate discussions under Sections 4.7 **Floodplains and Wetlands**, 4.9 **Wildlife**, and 4.10 **Fisheries**.*

- Water quality degrades below state or USFS standards and site conditions are so unfavorable that major reclamation, special designs or special maintenance practices are required.
- Road or facility construction and/or clearing are required on sites prone to mass movement or with a very high susceptibility to erosion.
- Soil properties or site features are so unfavorable or difficult that standard mitigation measures, including revegetation, would be ineffective.
- Long-term impacts associated with accelerated erosion, sedimentation, or disruption of unstable slopes would occur.

A **moderate** impact would occur if:

- Water quality degrades below state or USFS standards, but it can be partially mitigated. Site conditions require special planning and design.
- Construction and clearing take place near a water body on erodible soils with moderate revegetation potential.
- Where new roads would be constructed across a stream or where existing stream crossings are inadequate and would require rebuilding.
- Impacts continue to occur until disturbed areas are reclaimed and sediment is no longer transported to surface waters.
- Soil properties and site features are such that mitigation measures would be effective in controlling erosion and sedimentation within acceptable levels.
- Impacts would be primarily short term with a significant increase in present erosion rates for a few years following soil disturbance until erosion and drainage controls become effective.
- There is little possibility of oils or other pollutants affecting groundwater, because groundwater level is deep, soils are relatively non-porous, and facilities have some minor spill protective measures.

A **low** impact would occur if:

- Impacts to water quality could be easily mitigated to state or USFS standards with common mitigation measures.
- Structures or access roads near water bodies are in stable soils on gentle terrain, with little or no clearing.



- Structures are away from waters' banks and little or no sediments reach the water.
- There is little or no possibility of oil or other pollutants affecting groundwater; groundwater is deep, soils are relatively non-porous, and facilities have good oil spill containment protective measures.
- Where there would be no construction or major reconstruction of roads.
- Road and facility construction and clearing would be required on soils with a low to moderate erosion hazard and the potential for successful mitigation is good using standard erosion and runoff control practices.
- Erosion and sedimentation levels would be held near present levels during and following construction.

**No** impact would occur where water quality and soils would remain unchanged.

#### **4.6.2 Agency Proposed Action**

##### **4.6.2.1 Impacts**

Direct impacts would be caused by access road construction and improvements, maintenance activities, ROW clearing, and site preparation for structures and other facilities. These activities would disturb the soil surface; increase erosion, runoff and sedimentation in nearby water courses; and impair soil productivity and remove land from production. Until final designs are completed, the amount of soil exposed by project construction can only be estimated. About 4.5 km (2.8 miles) of new trunk roads off the ROW and about 2.7 km (1.7 miles) of new trunk roads on the ROW would be required. About 7.2 km (4.5 miles) of new spur roads would also be required. Most of this new access is in steep terrain, which because of road cut and fill slope requirements, increases the area of earth materials exposed. New access road and structure construction would temporarily expose an estimated 13-18 hectares (32-40 acres) of earth materials. Following construction, implementation of optimum erosion controls and revegetation of disturbed sites (cut and fill slopes and structure sites) would reduce the amount of exposed earth materials by about 60-70 percent. Impacts would be greatest in local sensitive areas susceptible to **rill** and gully erosion, and areas of unstable soil or rock. Short-term impacts during and following construction would be most intense. Intensity of long-term impacts would be directly proportional to the success of revegetation, and erosion and runoff control efforts. With

#### **▶ Reminder**

A **rill** is a channel made by a small stream.

See Map 8 for soil limitations.

**Table 4-1. Impacts to Water and Soil Resources**

Area	Actions	Impacts to Soil	Impacts to Water Resources
Pine Creek Bench, structures 1/1-5/1	No permanent access. Structures in grain fields	low, direct, short-term; erosion; soil compaction; increased runoff, loss of productive soils around structures	low
structures 5/1-6/1	structure and road improvements	low	short-term low; possible sedimentation in intermittent drainage
structures 6/2-6/9	new access roads; blasting	moderate; talus destabilized; rockfall hazard; increased runoff; erosion and loss of productive soils	low; possible sedimentation in intermittent drainages
structures 6/12-7/1	Access adjacent to wetland	low if existing road used	low if road run-off is controlled to prevent sediment from entering wetland
structures 8/2	modify or replace bridge; disturb streambank and channel	moderate; erosion	moderate; short-term increased stream turbidity and sedimentation
structures 7/4-7/8	clearing and structure construction	low to moderate; erosion	short-term low to moderate; increases in sedimentation and stream turbidity; peak streamflows increased
structures 8/3-8/10	new access road construction; ripping or blasting bedrock; clearing	moderate; erosion, sedimentation, and loss of productive soils	short-term, moderate; sediment in streams
structures 9/1-9/4	ford to be used for maintenance only	low; erosion	low; short-term stream turbidity
structure 9/4	new access road construction; clearing	moderate; increased runoff, sedimentation, and loss of soils from production	low
structures 10/3-11/6	new bridge or culvert, road construction, clearing	moderate; erosion, rutting	short-term moderate; increased stream turbidity, sediment into Tie Creek.
structures 12/1-12/6	structure construction	low; erosion	short-term; moderate sedimentation

Table 4-1. continued

Area	Actions	Impacts to Soil	Impacts to Water Resources
structures 12/1-14/2	ROW clearing; upgrading access, construction	erosion; sediment; low-moderate	low-moderate sedimentation
Coalmine Fork crossing	upgrade crossing (if needed)	erosion	short-term low to moderate; increased stream turbidity
structures 14/6-15/4	clearing; install bridge at Little Pine Creek; install culverts in Murphy Creek	erosion	short-term; increased stream turbidity; sedimentation
structures 15/5-21/2	clearing;	low to moderate; erosion	short-term; low to moderate; sedimentation; increased turbidity
structures 21/3-23/4	clearing; access road upgrades	erosion	
structures 23/4-24/3	structure and road construction; clearing	short-term, moderate; increase runoff, erosion; soils out of production	short-term moderate; sedimentation, increased runoff
structures 24/4-24/5	construction and maintenance	erosion	short-term low; increased sediment in Hungry Creek
structures 24/6-26/7	construction clearing	localized erosion	short-term moderate, sedimentation and increased runoff
structures 26/8-28/1	road construction and upgrades, clearing and line construction	low to moderate erosion, destabilize slopes	short-term, low to moderate; sedimentation; degraded water quality
structures 28/2-28/4	road and structure construction	erosion; low-moderate; soils out of production	low; localized increase in run-off and sediment transport
structures 29/3-34/7	clearing, structure construction; road improvements	erosion	short-term low; sedimentation
structure 35/1 to Teton Substation	construction of temporary bridge or culvert in Lake Creek and Phillips Canyon Creek	soil compaction; lower soil productivity; erosion	low to moderate; short-term sedimentation in Lake and Phillips Canyon Creeks from bridge or culvert construction
Teton Substation	construction	low	low; sedimentation in unnamed creek
Switching Station near Targhee Tap	construction, operation, maintenance	increased runoff, erosion	low; decreased infiltration; increased runoff

**► Reminder**

*Best management practices are a practice or combination of practices that are the most effective and practical means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.*

*Map 2 shows structure numbers and locations. Map 7 shows township, section and range.*

implementation of BMP's, sedimentation could be reduced to acceptable levels that would not cause degradation of water quality below Idaho and Wyoming or federal national forest standards. Impacts to water and soils are summarized in Table 4-1; more detailed descriptions of impacts are described below.

**Pine Creek Bench, Idaho** — From the Swan Valley Substation to the mouth of Pine Creek Canyon (structure 5/1) the transmission line would traverse the nearly level Pine Creek Bench. The loess soils have a moderate erosion hazard if disturbed, except on the steep side slopes of drainages dissecting the Bench, where the erosion hazard is very high (U.S. Department of Agriculture, Soil Conservation Service, July 1981). The project crosses a steep-sided intermittent tributary to Rainey Creek between Swan Valley Substation and structure 1/1 and then parallels the drainage to structure 1/3. No permanent access would be constructed through or parallel to the drainage.

Impacts would be direct, low and short term, resulting in temporary local increases in erosion during and for a short period following construction. Heavy equipment traffic during construction and maintenance could compact soils causing a reduction in productivity.

Between structures 3/7 and 4/1 (T2N, R43E, Sec. 14) the proposed line crosses Pine Creek, a perennial tributary to the Snake River. New structures would be built within cultivated dryland grain fields. Surface disturbance within the canyon and surrounding agricultural fields would be minimal. Impacts would be low and mostly short-term. Disturbed areas would be replanted in the next crop season. Heavy equipment traffic could compact soils and reduce productivity in areas used for temporary access. Subsoiling and subsequent tillage operations would restore productivity to present levels within a few years. Only selected trees that could interfere with transmission line construction or operation would be cut on the steep upper slopes of the drainage. Felled trees would be left on the ground and no riparian vegetation would be impacted. No permanent roads would be constructed and temporary access to the structure sites would be through the existing agricultural fields.

**► For Your Information**

*This is an area where the USFS and BPA are discussing ways to construct a line without building roads and without blasting rock. As a result BPA and the USFS have proposed five options for routing the line through Pine Creek.*

**Pine Creek Drainage, Idaho** — Between structures 5/2 and 11/3 the project would mostly parallel Pine Creek.

Between structures 5/7 and 5/8, at the lower end of Pine Creek Canyon, the line crosses an intermittent tributary to Pine Creek. An existing access road within 30 m (100 feet) of this tributary may need improvement. Impacts from access road improvement and structure construction would be low. Impacts would be primarily short term with soil disturbance possibly contributing to

► **Reminder**

*Figures 2-3 and 2-4 show locations of Options A-E.*

sedimentation within the drainage. Impacts would be greater if storm events occur during construction or before disturbed areas are stabilized.

Pine Creek Routing Option A — This option would avoid the barrier posed by the limestone cliffs and would reduce the risk of destabilizing talus slopes close to State Route 31. This option requires construction of access roads to new structure sites outside the existing ROW between structures 6/1 and 7/1. Slopes are steep, in excess of 50 percent, and access road construction would disturb about 1.5-2.8 hectares (4-7 acres) of earth along an estimated 2500 m (8200 feet) of new access road. Clearing would remove about 5.3 hectares (13 acres) of forest. Roots and topsoil would not be removed. Impacts would be low and include increased erosion levels and runoff. The exact amount of disturbance depends on final transmission line and access road design and location. Revegetation of disturbed areas is impaired by rocky, droughty shallow soils. Impacts would be moderate to high and would include increased runoff, erosion, and sediment transported from disturbed sites. Impacts would be the greatest during and immediately following construction, but would decrease in intensity when disturbed areas are revegetated and stabilized. Long-term impacts, which would continue after site restoration, include an increase in runoff and erosion rates relative to present rates.

Pine Creek Routing Option B — From structures 6/2 to 6/9 (T2N, R44E, Sec. 6) the line crosses slopes greater than 55 percent. Limestone rock outcrops, talus, and shallow soils are prominent. No suitable access exists and new access, possibly including full-bench cut roads and end-hauling of excavated material, would be needed. Construction may require blasting. Talus slopes could be destabilized and increase the hazard of rockfall. The rocky, droughty shallow soils have a moderate erosion potential and a fair to poor revegetation potential. Clearing would remove about 3.2 hectares (7 acres) of vegetation. Construction would cause direct impacts including an increase in runoff and erosion and possible destabilizing of slopes. Impacts to soils would range from moderate to high depending on final design and location and the success of mitigation measures. Impacts would be reduced if access roads are not constructed and materials are delivered by helicopter or winched to structure sites. Impacts would be most intense during and shortly after construction, diminishing when erosion controls take effect. However, no prominent drainages are crossed and State Route 31 is located between Pine Creek and the proposed location, thus reducing the sedimentation risk to Pine Creek. Impacts to water quality would be moderate.

The ROW crosses Pine Creek between structures 6/12 and 7/1. To eliminate impacts at this creek crossing, BPA would exchange existing access for use of a concrete bridge located about 540 m (1800 feet) downstream from the ford currently used. This would

eliminate any disturbance caused by possible reconstruction and use of the existing ford for construction and maintenance. The existing access road does not infringe on a wetland next to Pine Creek. Soil stabilization and runoff and sediment controls would be used to minimize the amount of sediment entering the wetland.

Pine Creek Routing Option C — This option would be located on a bench south of Pine Creek with slopes averaging about 15 percent. Impacts would be primarily due to access road and transmission line construction. Roads would be developed both on and off the ROW for this option, and existing roads would be used where practical. Access road construction would disturb about 1 hectare (2-3 acres) of soil. Clearing would remove about 3.2 hectares (8 acres) of Douglas fir and aspen open canopy forest. Impacts would be moderate and include increased erosion levels and runoff. The alternative crosses Flume Canyon Creek, an intermittent tributary to Pine Creek. Depending on the structure and access road location, sediment could enter this waterway during storm events. Due to decreased slopes, the absence of terrain barriers (i.e., rock outcrops, shallow soils, and talus-covered slopes), and good to fair revegetation potential, the impacts would be diminished relative to the other alternatives. After construction, impacts would lessen as site restoration and revegetation measures take effect.

Pine Creek Routing Option D (preferred) — From structures 6/1 to 6/9 (T2N, R44E, Sec. 6) the line crosses slopes greater than 55 percent. Limestone rock outcrops, talus, and shallow soils are prominent. No suitable access currently exists. Two to four double-circuit structures would replace up to seven existing structures from 6/2 through 6/8. About 485 m (1600 ft) of new access road would be constructed to reach the new structure at 6/2. New access to the other two double-circuit structures would be provided by two short 75 m (250 ft) spur roads from State Route 31. The rocky, droughty shallow soils have a moderate erosion potential and a fair to poor revegetation potential. No ROW clearing would be required for this option but about 0.6 hectares (1.6 acres) of mostly open canopy juniper would be cleared and the soil disturbed for access road construction. Access road and line construction, and clearing would cause direct impacts including localized increases in runoff and erosion. Impacts to soils would be moderate and would be most intense during and shortly after construction, diminishing when erosion controls take effect. The proposed access roads would provide needed access to the transmission line, eliminating the potential for inadvertent ground disturbance from road construction during an emergency that requires immediate access by heavy equipment. No prominent drainages are crossed by the proposed access roads. The access road to structure 6/2 is located more than 30 m (100 ft) from an intermittent stream. This is outside the aquatic influence

zone as defined in the revised Forest Plan. State Route 31 is located between Pine Creek and the proposed location, which reduces the sedimentation risk to Pine Creek from construction of the line. Impacts to water quality would be low.

The ROW crosses Pine Creek between structures 6/12 and 7/1. To eliminate impacts at this creek crossing, BPA would exchange existing access for use of a concrete bridge located about 540 m (1800 ft) downstream from the ford currently used. This would eliminate any disturbance caused by reconstruction and use of the existing ford for construction and maintenance. The existing access road follows the periphery of a wetland next to Pine Creek. Soil stabilization, and runoff and sediment controls would be used to prevent sediment from entering the wetland from construction traffic.

Pine Creek Routing Option E — This option departs from the existing ROW at structure 5/8, and would be located primarily on a bench south of Pine Creek with slopes averaging about 15 percent. Impacts would be primarily due to access road and transmission line construction, and clearing. About 485 m (1600 ft) of new roads would be developed off the ROW for this option, exposing about 0.4 hectare (1 acre) of soil. Existing roads would be used where practical. Clearing would remove about 1 to 2 hectares (4-5 acres) of Douglas fir and aspen open canopy forest. Impacts would be low and include increased erosion levels and runoff, and a loss of about 0.3 hectare (0.75 acre) of productive soil where new access is constructed. The alternative crosses Flume Canyon Creek, an intermittent tributary to Pine Creek. No new access road would be constructed across the creek and no clearing would be required. Sediment would not likely enter this waterway during storm events. Although this option crosses Pine Creek twice, the crossings would not require clearing of riparian vegetation. This alternative would decrease surface disturbance compared to Option D because slopes are less steep. This option also has a higher revegetation potential than Option D because of decreased slopes and less droughty soils. However, this option would open another ROW in the area and would not resolve the need for access along the existing line. After construction, impacts would lessen as site restoration and revegetation measures are implemented.

New access along the ROW has been constructed recently between structures 7/1 and 8/5. Between 7/4 and 7/8, some small intermittent drainages are crossed. Clearing of closed canopy Douglas fir forest and disturbance due to construction activities, particularly in wet weather, could cause sediment to reach channels. These short-term increases in sedimentation and stream turbidity could create low to moderate impacts. ROW clearing would slightly increase runoff and peak streamflows.

USFS Road #250 (up Mike Spencer Canyon in T3N, R44E, Sec. 31) would be used to cross Pine Creek and provide access to structure 8/2. This bridge would be replaced to be suitable for construction traffic. The channel and stream bank would be disturbed during construction and impacts would be moderate and short term. Placement of the bridge abutments would cause short-term localized increases in stream turbidity and sedimentation. The bridge would be designed and constructed to prevent any long-term harmful impacts on stream hydraulics, bank erosion, or otherwise degrade the stream's physical characteristics or water quality. Other impacts would result from clearing and structure construction. Revegetation potential is good and the erosion hazard is moderate. Although Idaho state water quality standards could be temporarily exceeded during bridge construction, with the use of BMP's, sedimentation could be reduced to acceptable levels that would not cause degradation of water quality below state or forest standards.

Between structures 8/3 and 8/7, soils are shallow on steep slopes, and there are many rock outcrops. Construction of new access would be needed between structures 8/5 and 8/7. In some areas along this section, the ROW is within 90 m (300 feet) of Pine Creek. Portions of this section may require ripping or blasting bedrock. The density of drainages, clearing requirements, the amount of material disturbed by road construction, and slopes approaching 55 percent in places increase the erosion and sedimentation risk to Pine Creek. With runoff and erosion control measures, impacts would be moderate, decreasing in intensity as runoff and erosion controls take effect and disturbed areas are stabilized.

An existing ford (T3N, R44E, Sec. 29) across Pine Creek used to access the Poison Creek area (structures 9/1 to 9/4) would be used for transmission line maintenance and not for construction. The ford would be evaluated and improved, if needed, so not to pose a risk to aquatic resources. Disturbance of the banks and streams would be minimal and the stream crossing would be maintained to prevent adversely affecting stream channel characteristics or bank stability. These impacts would be low.

Access to structures 9/1 through 9/4 would be along existing access that follows ridge crests to structure sites. These roads are extremely rocky and despite the steep slopes, erosion levels are expected to be low.

Between structures 9/4 and 10/1, previous access that had been put to bed would be reconstructed and new access would be constructed on and off the ROW. Side slopes approach 50 percent, clearing and road construction would create increased runoff and sedimentation, a moderate impact. Erosion would increase slightly above present levels until erosion control seeding



becomes effective. With the use of BMP's, no tributaries to Pine Creek would be affected and impacts to water quality would be low.

An existing ford across Pine Creek (which provides access to structure 10/7) (T3N, R44E, Sec. 28) would be abandoned thereby eliminating impacts from construction and maintenance traffic at this location.

An existing bridge across Pine Creek (USFS Road #252) (T3N, R44E, Sec. 27), which provides access to Tie Canyon and structures 10/1 to 11/6, would continue to be used.

An existing road follows the stream bed of Tie Creek. Water from Tie Creek currently flows across and continues down the road in several places. Traffic and unstable soils contribute sediment to the creek, a continuing long-term impact. Using the existing road for construction and maintenance would contribute sediment to Tie Creek and adjacent wetlands. The existing road would be upgraded, relocating the road's lower section to the east bank before crossing Tie Creek and rejoining the existing access road. The lower road would be located and constructed to avoid unstable soils. The section of the existing road that would be abandoned would be rehabilitated and put to bed. Installation of a bridge or culvert where the new road would cross Tie Creek would cause temporary localized increases in stream turbidity from bank disturbance, channel modification, and abutment placement. The streambank parallel to the road bed would be stabilized to prevent erosion of material during natural stream flows. To reduce sediment and channel bank degradation, it could be necessary to incorporate armoring in the design of the road and stream crossing. Impacts would be short term and moderate. All culverts would be designed and constructed to prevent diversion of streamflow out of the channel and down the road in case of failure, as prescribed in the revised Targhee Forest Plan. All culvert installations would also be coordinated with the U.S. Army Corps of Engineers, appropriate state agencies, and the U.S. Forest Service.

The proposed corridor parallels a tributary to Tie Creek between structures 12/1 to 12/6. The line would be built on the downslope (south) side of the existing ROW, and 3 new structures and spur roads would be within 45 m (150 ft) of the tributary on slopes approaching 25 percent. This is within the 150-foot boundary width prescribed for perennial nonfish-bearing stream reaches in the revised Targhee Forest Plan. This portion of the line is predominantly savanna-like and only a few scattered trees would need to be cleared. Localized erosion and increased run-off, due to surface disturbance, could carry sediment to the drainage, causing moderate short-term impacts to water quality until revegetation of structure sites takes effect and the soil is stabilized. Use of BMP's for construction and maintenance would control erosion and sediment transport and prevent water quality levels

from degradation below Idaho state levels. Road and structure construction, and maintenance activities would not inhibit riparian, wetland or aquatic ecosystems process or functions.

**Teton River Drainage (Little Pine Creek and Warm Creek), Idaho** — From Tie Canyon to Targhee Tap (structures 12/1 to 14/2), the line crosses an area of roughly parallel northwest trending ridges. Southwest slopes are treeless. ROW clearing would be required on northerly exposures, which are dominated by sub-alpine fir and Douglas fir. This section has good existing access, but short spur roads would need to be constructed to structure sites. Roads on steeper slopes are rutted. Upgrading existing access and installing runoff control structures (e.g., more water bars) would minimize erosion and sediment production. Impacts would be low to moderate, with impacts being greatest during construction and tapering off as run-off and erosion control measures take effect.

Between structures 13/5-14/3, several tributaries to Coalmine Fork would be spanned by the transmission line. Portions of existing access roads in this area are rutted. Short spur roads to reach new structure locations would be on ridges and not within riparian zones. Ground disturbance from transmission line construction, reconstruction of existing access and clearing could cause erosion, and sediment could reach these drainages and be transported downstream. Short-term impacts would be low to moderate. Improving access road drainage and use of best management practices would reduce long-term impacts.

A potential staging site is located at Pine Creek Pass on gently sloping terrain. Slopes are approximately 10 to 15 percent and the erosion potential is moderate. Impacts would be initiated by clearing of approximately 0.4 to 0.8 hectares (1 to 2 acres) and from ground disturbance due to heavy equipment movement and storage of construction materials. Impacts from erosion would be low to moderate and would diminish as mitigation and site restoration measures take effect. Clearing would result in a localized increase in run-off, a long-term impact. Implementation of best management practices to control run-off and sedimentation would prevent degradation of water quality below Idaho state standards.

The existing Coalmine Fork crossing near structure 14/2 is a culvert. If the crossing needs to be upgraded, impacts would be moderate, localized short-term increases in stream turbidity. Impacts would diminish to current levels when construction is completed and the site is stabilized.

Between structures 14/6 and 15/4, existing access roads use fords to cross Little Pine, Wood Canyon, and Murphy creeks. The Wood Canyon Creek ford would not be used. A bridge would be constructed at Little Pine Creek and the Murphy Creek ford would be replaced with a culvert causing slight short-term temporary

increases in stream turbidity during installation. The bridge and culvert would not constrict stream flows or collect debris, nor impair riparian or aquatic ecosystem processes or functions, and would be in compliance with the revised Targhee Forest Plan. Clearing requirements to widen the ROW in this section and eastward to Targhee Tap would cause localized increases in runoff, which could increase erosion. Sediment could reach Murphy and Wood Canyon creeks and several intermittent drainages. Use of BMP's for run-off and erosion control would prevent water quality from degrading below Idaho state standards. A spring flows across the existing access road near structure 16/4. A culvert would be sized and designed to adequately carry this water. Culvert installation would result in a temporary increase in turbidity and sediment transport until soil stabilization measures take effect. Impacts would be low.

Existing roads provide access from Targhee Tap to the Trail Creek crossing (18/4 to 21/2). ROW clearing would increase the risk of sediment entering tributary drainages to Warm Creek. Impacts would be low to moderate and short term with use of best management practices to control erosion and runoff. Long-term impacts include an increase in localized erosion and runoff rates relative to preconstruction values.

**Teton River Drainage (Trail Creek), Idaho** — The existing access from Pole Creek to structure 23/4 is susceptible to rutting and would require rock and runoff controls. Impacts would be low to moderate. No impacts from construction or maintenance are expected at the Trail Creek crossing (structures 21/2 to 21/3) (T3N, R46E, Sec. 30) where an existing bridge would be used.

Two possible construction staging areas have been proposed for tracts near the Trail Creek crossing. Both sites, one near Mike Harris Creek and another on the north side of State Route 33 are on level ground with a low erosion hazard. The proximity of the first site to Mike Harris Creek makes it less desirable as a staging area since it could infringe on the riparian boundary of the stream. The alternate site would not infringe on a riparian zone and is unlikely to contaminate or degrade the waters of Moose or Trail Creek. Any staging area should be located out of the 100-year floodplain to avoid contributing pollutants (e.g., fuel, oil, etc.) or debris to waters in case of a flood event.

Where the line would follow Trail Creek up the west side of Teton Pass, there is no current access from structures 23/4 to 24/3 and 24/6 to 26/7. Several potentially unstable areas including debris flows, rock slides, and avalanche chutes occur in these sections. Road construction, clearing, and erecting structures would increase runoff and erosion and could destabilize sensitive areas. The likelihood of sediment moving off-site would increase. Road and structure design and location would cause potential impacts that could result in adverse effects to water quality and the integrity of the transmission lines and access roads.

To minimize the amount of disturbance from road construction, roads would only be constructed to access structures 23/4-23/6 and 23/7-24/5. Access does exist within the Hungry Creek drainage between structures 24/3 and the access road that goes to 24/4. The existing road fords Hungry Creek several times. Construction and maintenance activities would cause short-term, minor increases in sediment within Hungry Creek. To comply with the revised Targhee Forest Plan, any culverts would be designed and installed to accommodate at least a 50-year flood, including associated bedload and debris. Clearing for new roads and ROW would cause localized increases in run-off. With use of best management practices to control runoff and erosion, impacts would be moderate. Helicopter, small construction equipment (brought in by helicopter) and manual construction would be used for structures 24/6 and 26/7. Impacts would be localized; areas surrounding the structure sites would be subject to localized increases in run-off and erosion. Clearing of open canopy forest on south-facing slopes would occur along this section of ROW. Impacts would be greatest during and immediately following construction. As stabilization and erosion control measures become effective, impact intensity would decrease. Although remaining higher than preconstruction values, in the 1-2 years following construction, erosion and runoff rates would decrease and stabilize.

A staging area is proposed at the roadside pull-out on the south side of State Route 22 at the mouth of Squaw Canyon near structures 25/5 and 25/6. The site is between State Route 22 and Trail Creek, is level and has a low erosion control potential. This site would be used as a staging and refueling area during helicopter construction of the line in the Teton Pass vicinity. To protect Trail Creek, berms or other suitable measures should be constructed to contain hazardous materials in the event of an accidental spill.

Current access between structures 26/8 and 27/7 is adequate for small vehicles. The use of helicopter and double-circuit construction removes the need for new roads and reduces potential impacts. This area has a high potential for mass movement; small slumps and earthflows are common, and use of heavy equipment is restricted because of slope. Disturbance could cause sediment to reach a nearby unnamed creek 38-61 m (125-200 feet) away from the existing ROW. Water from a drainage between structures 27/3 and 27/4 currently flows across the existing road. The drainage would be realigned to flow through the existing culvert currently in place. Modification of road drainage would also cause temporary degradation of water quality until runoff and stabilization measures take effect. New access road construction to structure 28/1 would cross an intermittent drainage that would require a culvert. The culvert would be installed so not to impede stream flow or cause degradation, or

pose a risk to aquatic resources. A new access road would also be needed from 28/5 back to structure 28/2. Impacts from line construction, road improvements, and clearing in this area would be moderate to water resources and soils. Use of BMP's would prevent adverse effects to the function and value of aquatic resources and water quality from degrading below Idaho state standards. Impacts would decrease with time as runoff and erosion controls take effect and disturbed areas are stabilized. Road and structure locations would attempt to minimize disturbance and prevent adverse long-term site stability impacts.

**Trail Creek Drainage, Wyoming** — On the east side of Teton Pass the line crosses marginally stable terrain (U.S. Department of Agriculture, Soil Conservation Service, July 11, 1985). No new roads would be constructed in this area; structures would be replaced using helicopters. Impacts to soil and water resources would be low.

The use of a road-side pullout off Highway 22 east of the pass as a staging area would create low impacts because it is paved asphalt. The risk of erosion is extremely low. Due to the impervious nature of the asphalt, existing run-off from the site is high and measures to prevent fuel or other deleterious substances from being transported off site should be instituted. This site shows evidence of ongoing downslope movement but staging activities would be short-term and are not likely to exacerbate this condition.

**Phillips Ridge, Wyoming** — Existing access roads along Phillips Ridge would be used from structures 29/3 to 35/1. From structures 30/5 to 34/7, the line follows Phillips Ridge. Impacts along this portion of the line would be primarily from clearing of continuous coniferous forest, structure construction, and access road improvements. Impacts would include increased runoff with a subsequent increase in erosion and off-site movement of sediment. However, the line and access road follows the ridge line and impacts on water quality would be low since no catchment areas are above the road and the road does not cross any well-defined drainages. The access road from the mouth of Phillips Canyon to the ridge crosses Phillips Creek using an existing concrete bridge. Ongoing stream bank erosion requires that the bridge abutments be reinforced. Work on the abutments would cause localized bank disturbance and small amounts of sediment to be discharged. Impacts to water quality would be short-term primarily until the repair work is completed and the stream bank stabilized. The bridge repair work would be done using BMP's and would not impair stream flow, water quality, or fish passage.

**Fish Creek Drainage, Wyoming** — Phillips, Fish and Lake creeks are crossed between structures 35/1-35/2, 35/5-35/6 and 35/7-35/8 (T41N, R117W, Sec. 2), respectively. There would be no through access across Fish Creek, avoiding impacts associated

with constructing a stream crossing at this location. To access structures, temporary roads would be used. Temporary crossings of Phillips and Lake creeks could be constructed depending on final design and the availability of road easements for ROW access. Construction of a temporary bridge or culverts to cross both Phillips and Lake creeks would disturb the streambank and channel. Impacts would be moderate and short term and include a localized increase in stream turbidity and sedimentation. To comply with state water quality standards, these crossings would be constructed and designed to minimize sedimentation and turbidity, provide for unobstructed streamflow and fish passage, and minimize damage to stream courses. Beneficial stream uses, including fish habitat and irrigation, would be maintained and ecological values would not be impaired by the proposed project.

The risk that sediment, disturbed at structure sites during construction, and removal of existing structures, would reach the creeks is low due to the level terrain and distance separating the construction sites and creeks. From structure 35/6 to Teton Substation the project crosses irrigated pasture. Construction traffic could cause soil compaction and rutting if soils are crossed when wet. Impacts would result in lower soil productivity along the vehicle travel route.

Construction within Teton Substation could allow sediment to enter a nearby unnamed creek. Use of standard erosion control practices during construction would keep impacts low.

**Operation and Maintenance** - The existence and continued use of transmission line access roads will contribute to increased localized erosion and run-off levels. Cleared sites and road surfaces have higher run-off and erosion rates compared to undisturbed areas. Vehicle traffic can dislodge soil particles which are then moved off-site by surface run-off. Use of access roads during wet conditions could cause rutting and consequently alter surface flow patterns, concentrate run-off, and increase erosion. Non-authorized use of access roads could further add to erosion related impacts. Periodic vegetation maintenance, to maintain transmission line access and safe operation, could cause slight localized increases in run-off and erosion due to vegetation clearing and associated minor ground disturbance. Impacts directly related to maintenance and operation activities would be low to moderate and persist for the life of the transmission line. Impacts are likely to diminish in intensity as mitigation and site restoration measures take effect. To minimize impacts; access roads, run-off and water control devices, and site restoration efforts would be periodically monitored. Any measures found to be ineffective or non-functional would be repaired or replaced.

#### 4.6.2.2 Mitigation

Standard mitigation would use the measures best suited to each individual location to reduce erosion and runoff, and stabilize disturbed areas during and after construction. The following measures used alone or in combination would minimize soil disturbance and the effects of increased erosion and surface runoff created by access road improvements and transmission line construction:

- Properly space and size culverts, use ***crossdrains, water bars***, rolling the grade, and armoring of ditches and drain inlets and outlets.
- Improve all existing culverts and stream crossings found to pose a risk to riparian, wetland or aquatic conditions to accommodate at least a 50-year flood and associated bedload and debris as prescribed in the revised Targhee Forest Plan.
- Coordinate all culvert installations with the U.S. Army Corps of Engineers, appropriate state agencies, and the U.S. Forest Service.
- Existing vegetation would be preserved where possible, and disturbed portions of the site stabilized. Stabilization measures would be started where construction activities have temporarily or permanently ceased, as soon as practicable.
- Promptly seed disturbed sites with an herbaceous seed mixture suited to the site.
- Use vegetative buffers and sediment barriers to prevent sediment from moving off-site and into water bodies.
- Assist farm operators with ***subsoiling*** to restore soil productivity.
- Design and construct all fords and bridges to minimize bank erosion. Specific locations and measures would be determined when road and line design are finalized.
- Schedule construction and maintenance operations during periods when precipitation and runoff possibilities are at a minimum to reduce the risk of erosion, sedimentation, and soil compaction.
- Design facilities to meet regional seismic criteria.
- Use double-circuit and/or helicopter construction (if feasible) to reduce impacts to moderate on Teton Pass (structures 26/2 to 29/3).

#### ► For Your Information

*Compaction affects soil productivity, reduces infiltration capacity, and increases runoff and erosion.*

***Subsoiling***, normal farming, cultivation and cropping, and freeze-thaw cycles restore soils to their preconstruction condition.

***Subsoiling*** is plowing or turning up the layer of soil beneath the topsoil.

- Site structures outside of known avalanche chutes or unstable areas to preserve transmission line integrity and slope stability.
- Consider full-bench road construction and end hauling excess sidecast material on slopes exceeding 55 percent if needed to stabilize the roadbed. Prior to construction, suitable waste areas would be located where excess materials could be deposited and stabilized.
- Construct access roads consistent with the standards and guidelines of the revised forest plans for the Targhee and Bridger-Teton National Forests and the BMP's instituted by the states of Idaho and Wyoming.
- Use the BMP's that would prevent further impairment of Water Quality Limited (WQL) drainages. The Teton River (headwaters to Trail Creek) is listed as WQL.
- Avoid riparian areas, drainage ways, and other water bodies. Where these areas cannot be avoided, apply sediment reduction practices to prevent degradation of riparian or stream quality. Riparian plantings may be used where needed to restore streamside vegetation and insure streambank stability.
- Restrict road construction to the minimum needed and obliterate roads in agricultural land.
- Avoid or mitigate water quality and fish habitat degradation. Design and maintain roads so that drainage from the road surface does not directly enter live streams, ponds, lakes, or impoundments. Direct water off roads into vegetation buffer strips or control through other sediment-reduction practices. Restrict road construction to areas physically suitable based on watershed resource characteristics. Design stream crossings to avoid adverse impacts to stream hydraulics and deterioration of stream bank and bed characteristics.
- Avoid discharge of solid materials, including building materials, into waters of the United States unless authorized by a Section 404 permit of the Clean Water Act. Off-site tracking of sediment and the generation of dust shall be minimized. Vegetative buffers would be left along stream courses to minimize erosion and bank instability.
- Prepare a stormwater pollution prevention plan (as required under the National Pollution Discharge Elimination System General Permit).



- Set crossing structures as far back from stream banks as possible near any water body. Avoid refueling and/or mixing hazardous materials where accidental spills could enter surface or groundwater. This information will also be included in the Project Plan.
- Design the project to comply with local ordinances and laws and state and federal water quality programs to prevent degradation of the quality of aquifers and not jeopardize their usability as a drinking water source.

For measures required for stormwater regulations see Section 5.16, **Discharge Permits under the Clean Water Act.**

#### **4.6.2.3 Cumulative Impacts**

Current and future forest and agricultural management practices in the watersheds crossed might increase peak flows and introduce sediment into streams. Increased sediment in streams is expected from construction of the line alternatives in addition to agricultural and forest management activities. The volume of peak flow and the amount of sediment entering streams would depend on site-specific conditions. Mitigation measures proposed for construction of the line and those required by the USFS for logging-related activities would help reduce the chance of large amounts of sediment entering streams. The line alternatives would be constructed to prevent interfering with ongoing farm conservation efforts to control erosion and maintain water quality. Although minor, localized increases in erosion, runoff, and sedimentation are expected from construction and maintenance, these increases would have a low impact on the area's soil resources and water quality and would not impair the current beneficial use of any water body.

### **4.6.3 Single-Circuit Line Alternative**

#### **4.6.3.1 Impacts**

Impacts to water and soils would be the same as the Agency Proposed Action except in the Pine Creek area (structures 6/1-7/2), the Teton Pass area (structures 26/2-29/3), and coming off Phillips Ridge (structures 35/1 to Teton Substation). In these areas, the line would not be double circuit as in the Agency Proposed Action. Soil and water resource impacts would increase relative to the Agency Proposed Action due to greater disturbance from increased clearing and access requirements for the single-circuit line.

#### **4.6.3.2 Mitigation**

- Refer to measures under Agency Proposed Action, Section 4.6.2.2.

#### **4.6.3.3 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.6.2.3).

#### **4.6.4 Short Line Alternative**

##### **4.6.4.1 Impacts**

Impacts from transmission line construction and maintenance would be the same as for the Targhee Tap to Teton Substation portion of the Single-Circuit Line Alternative. Additional impacts would be from construction of the switching station near Targhee Tap.

**Preferred Site on the Row** - BPA would construct the switching station under the existing ROW just west of Targhee Tap. The volume of soil disturbance would be greater at this site due to slopes of over 20 percent. No prominent drainages would be affected and impacts to water quality would be low.

**Site Off the ROW** - The switching station could be placed in agricultural land north of structures 18/3 and 18/4 near the mouth of Pole Canyon. The erosion hazard is low and sediment is unlikely to be transported into any streams.

The potential long-term impacts of the switching station construction, operation, and maintenance would be low. Localized increases in runoff would occur from decreased infiltration at the site from the switching station's impervious surface. BPA would develop and implement a Stormwater Pollution Prevention Plan.

##### **4.6.4.2 Mitigation**

- Mitigation for the transmission portion of the project would be the same as for the Single-Circuit Line Alternative (see Section 4.6.3.2).
- Standard erosion and runoff control practices would be used during construction of the switching station. The specific location and type of measures would be determined when the facility location and design are finalized.

#### 4.6.4.3 Cumulative Impacts

Cumulative impacts would be the same as the Single-Circuit Line Alternative (see Section 4.6.3.3).

#### 4.6.5 SVC Alternative

Both the Teton Substation site and the site at Jackson Substation are nearly flat and there is minimal erosion hazard. Construction impacts related to soil disturbance and possible impacts on water resources would be low. At Teton Substation, preventive measures would be used to stop sediment from moving off-site into nearby waterways. At Jackson Substation, heavy equipment traffic along the existing road between the substation and Flat Creek could disrupt the road surface and allow sediment to be moved off-site. If necessary, sediment barriers would be used to prevent sediment from entering Flat Creek.

#### 4.6.6 No Action Alternative

The current level of impacts would continue under the No Action Alternative. Impacts currently associated with ongoing maintenance and repair activities for the existing transmission line, substations, and right-of-way would persist. These impacts include localized soil disturbance and potential sedimentation due to vehicular traffic, transmission structure replacement, vegetation management activities, and access road improvements. In addition, vehicle and machinery use, and vegetation management practices could contribute minor amounts of pollutants (e.g., fuel, oil, grease, rubber particulate, woody debris) that could be transported to streams.

#### ► For Your Information

*Floodplains are areas periodically inundated with water near lakes and rivers. They provide wildlife habitat, agricultural and forest products, and recreation areas and a channel for flood waters. Protection of floodplains is necessary to prevent damage to these functions and to protect human and natural features within them.*

*Wetlands provide a harbor for specially-adapted plants and animals, and benefit water quantity and quality.*

*Wetlands were identified using USFWS National Wetland Inventory maps, black and white aerial photographs, and field studies. Because of a lack of access to some areas, the whole ROW has not been field checked. Therefore, impacts are discussed for wetlands identified using available resources. When more exact information is available about structure locations, a more thorough field check would determine if additional wetlands would be impacted.*

### 4.7 Floodplains and Wetlands

To comply with federal regulations (Compliance with Floodplain/Wetlands Environmental Review Requirements [10 CFR 1022.12]), BPA has prepared an assessment of the impacts of the Agency Proposed Action and alternatives (see Section 5.8, **Floodplain/Wetlands Assessment**). Executive Order 11988 (Floodplain Management) requires federal agencies to avoid or minimize adverse impacts associated with modification and occupancy of floodplains. Wetlands are also protected by federal legislation (Executive Order 11990,) which discourages development in wetlands whenever there is a practicable alternative. (See Section 5.8.) A notice of floodplain and wetlands

involvement for this project was published in the Federal Register on November 6, 1996. See Section 3.8, **Floodplains and Wetlands** and Map 7 for floodplain and wetland locations.

#### **4.7.1 Impact Levels**

##### **4.7.1.1 Floodplains**

Floodplains can be directly impacted by construction and development when channels for floodwaters are obstructed or changed, increasing downstream flows and/or upstream flooding. Indirect impacts can occur when resources are degraded (i.e., vegetation is removed and soils are compacted) enough to lessen the ability of the floodplain to store excess water, which increases the chance that flooding will occur.

A floodplain **impact** would occur when structures or permanent access roads encroach on designated floodplains and increase the potential for flooding; or might cause loss of human life, personal property, or natural resources within the floodplain.

**No impacts** are expected where floodplains are avoided, spanned, or standard mitigation would effectively eliminate impacts.

##### **4.7.1.2 Wetlands**

Transmission line construction could affect wetland functions directly by altering aesthetics; clearing tall-growing wetland vegetation such as willows or cottonwoods; reducing the ability of a wetland to provide for flood and sediment control; and altering wildlife habitat and patterns of use. Access road construction could directly modify wetland surface and groundwater flow patterns, and in some cases, reduce the wetland's ability to provide flood control. Wetlands can also be indirectly affected when wetland soil structure is changed by compaction or rutting, which in turn could change the productivity, water infiltration rates and flow patterns. Road improvements could increase sediment transport, destroy vegetation and wildlife habitat, and change recreation use patterns and aesthetics.

A **high** impact would occur:

- if wetland hydrology, vegetation, and/or soils, are extensively or permanently altered by excavation or fill, and the ecological integrity of a wetland is profoundly impaired;
- there is complete loss of a wetland or a wetland function is destroyed.

A **moderate** impact would occur:

- if wetland hydrology, vegetation or wet soils are altered by excavation or fill, but the change is seasonal and the ecological integrity is not profoundly impaired. Recovery generally requires restoration and monitoring;
- if there is a partial loss of a wetland or a wetland function is disturbed.

A **low** impact would occur:

- if vegetation or soils are changed for the short term, but hydrology is unchanged. Recovery is usually independent;
- if there is a short-term disruption of a wetland function.

**No impact** occurs if wetlands are avoided and would not be affected by new or rebuilt access roads or construction, operation and maintenance of facilities. Also, no impact would occur if the size, quality and functions of existing wetlands are not reduced.

## 4.7.2 Agency Proposed Action

### 4.7.2.1 Floodplain Impacts

The transmission line corridor would cross four creeks identified by FEMA as 100-year floodplains: Pine Creek and Trail Creek in Idaho, and Fish Creek and Lake Creek in Wyoming. New transmission line structures would not be located in 100-year floodplains if possible, however, impacts would occur from reconstruction of existing access roads and construction of new access roads and bridges.

#### ► Reminder

*Figures 2-3 and 2-4 show locations of Options A-E.*

#### Pine Creek Drainage, Idaho —

Pine Creek Routing Options A-C — These options would not impact the Pine Creek floodplain because the floodplain would be spanned by the transmission line. The existing bridge that crosses Pine Creek is adequate for BPA use during construction. New access roads may be needed but would be located out of the floodplain.

Pine Creek Routing Option D (preferred) — There would be no impacts to the Pine Creek floodplain from double circuiting two to four structures between 6/2 and 6/8 because this would occur across the highway from Pine Creek, which is out of the floodplain.

Pine Creek Routing Option E — There would be no impacts to Pine Creek floodplains from this option. A new line would span the floodplain where it would cross the creek. New roads would be located uphill and away from the floodplain.

A new bridge is needed to replace an existing bridge across Pine Creek on USFS Road #250 (T3N, R44E, Sec. 31) to access structures near Mike Spencer Canyon. The construction of this bridge would have direct, adverse impacts on the floodplains. Abutments to the bridge would be located within the floodplain and would permanently remove about 1170 m<sup>2</sup> (1400 ft<sup>2</sup>) of floodplain. A cement wall would be constructed in front of the abutments to shore up the streambank, and the abutments would most likely be poured-in-place concrete. About 23 m (75 ft) along either side of the creek would be impacted by construction of the abutments and wall, and 15 m (50 ft) back from the abutments would be impacted from reconstruction of the approach. The total disturbed area would be about 348 m<sup>2</sup> (3,750 ft<sup>2</sup>). Disturbance of surrounding soils and vegetation during construction would cause short-term impacts to the floodplain, but would be minimized to the fullest extent possible (see Section 4.7.2.3, **Mitigation**). To mitigate impacts, the bridge and access roads would be designed to withstand and accommodate floodwater, including associated bedload and debris.

Where Poison Creek enters Pine Creek (T3N, R44E, Sec. 29) there is an existing ford across Pine Creek that is used for maintenance purposes only, and would not be used for construction. In compliance with the revised Targhee Forest Plan, this ford would be evaluated and improved if found to pose a risk to riparian, wetlands, or aquatic conditions.

Tie Creek (T3N, R44E, Sec. 27) and Little Pine Creek (T3N, R45E, Sec. 19) would need new bridges for construction. Murphy Creek (T3N, R45E, Sec. 19) would require a new culvert. These creeks are not mapped by FEMA as having 100-year floodplains. Flooding in these creeks can occur in spring and early summer during peak flows. The bridges and culvert would be designed and constructed so water is not restricted during heavy flows and debris does not accumulate.

**Teton River Drainage (Trail Creek), Idaho —** A possible staging area is located in the floodplain of Trail Creek, Idaho at Mike Harris Campground. The staging area would have a temporary impact on the floodplain. However, if the creek floods, it could contribute hazardous materials and debris to floodwaters. It is recommended that the staging area be sited outside the 100-year floodplain to avoid impacts. (Four other staging areas are proposed along the highway as described in Chapter 2. All are located away from floodplains.)

**Fish Creek Drainage, Wyoming** — The transmission line ROW would cross the floodplains of Fish Creek and Lake Creek, a tributary to Fish Creek. There would be no through access constructed across Fish Creek, however, structure 35/6 is located in the Fish Creek floodplain and would be removed to make room for double-circuit structures. A temporary bridge would be constructed over Lake Creek to provide access for installing two structures. Impacts from building the temporary bridge would be similar to those discussed earlier for bridge construction on Pine Creek. A pole would likely be located in the floodplain of Fish Creek. Any temporary roads or permanent structures located in floodplains would be designed so expected flows are not restricted and debris does not accumulate.

**Operation and Maintenance** — With bridges in place, operation and maintenance of the line should not cause further impacts to 100-year floodplains, except potentially at a Pine Creek ford (near Poison Creek). The ford would be evaluated and improved, if needed, so not to impede floodwaters or contribute to downstream flooding. Vegetation would be crushed by vehicles when the ford is used, however, because use is sporadic, it would recover quickly.

#### ► **Reminder**

*Wetlands impact definitions are in Section 4.7.1.2.*

#### **4.7.2.2 Wetlands Impacts**

Riparian associated wetlands and wet mountainside meadows occur along the new ROW. Riparian wetlands are found in association with major creeks such as Pine Creek and Fish Creek, as well as smaller tributaries including Murphy Creek, Tie Creek, Poison Creek, Trail Creek and Lake Creek. As the corridor passes through the mountainous areas, it crosses draws with wetlands and wet mountainside meadows, all being fed by surface runoff and/or seeps. Wetlands would be spanned by the conductor and new structures would not be located in wetlands. The one exception is on the valley floor by Teton Substation, which is discussed later in this section.

Impacts to wetlands could occur from on- and off-ROW road construction. BPA would need to build approximately 4.5 km (2.8 miles) of new roads off ROW and improve about 3.2 km (2 miles) of existing off-ROW roads. These numbers do not include any new trunk or spur roads constructed in the existing or new ROW. None of these new roads would be located through wetlands, however specific locations would be field checked to ensure no road construction could directly or indirectly impact wetlands in the area. If new road construction or upgrading occurs uphill from a wetland, erosion control devices should be placed to ensure soil is not washed downhill during a storm event. Two

**► Reminder**

*Figures 2-3 and 2-4 show locations of Options A-E.*

*Map 2 shows structure numbers and locations.*

existing access roads that ford Pine Creek (Road 7-1 and Road 10-3) would be released and no longer used, which would have beneficial impacts to riparian wetlands.

**Pine Creek Drainage, Idaho —**

Pine Creek Routing Options A, B and D (preferred) — There would be no impacts on wetlands because riparian wetlands associated with Pine Creek are on the south side of State Route 31.

Pine Creek Routing Options C and E — These options would have no to low impacts on wetlands because riparian wetlands associated with Pine Creek would be spanned and an existing bridge would be used for access. Any new road construction or access road improvements on the south side of State Route 31 could carry sediment into the nearby wetland, affecting water quality and biological productivity, however, use of erosion control devices would ensure that these indirect impacts would be kept to a minimum.

The existing access road crosses an area where a seep drains into a wetland adjacent to Pine Creek (downslope from structure 7/1). A new culvert was installed in 1996 to prevent water from flowing across the road and transporting sediment into the wetland. The culvert should be maintained and sediment barriers placed during construction so incidental sediment from construction traffic does not flow into the wetland.

A new bridge to replace the existing one is needed to cross Pine Creek on USFS Road #250 (T3N, R44E, Sec. 31) and access structures near Mike Spencer Canyon. The construction of this bridge would have a moderate impact on the riparian wetlands at Pine Creek. Direct, long-term impacts would include alteration of the vegetation, soils and hydrology due to permanent fill associated with bridge construction. An area of approximately 348 m<sup>2</sup> (3,750 ft<sup>2</sup>) on either side of the creek would be disturbed by construction of the abutments and concrete wall. Approximately 365 m<sup>3</sup> (500 yds<sup>3</sup>) of poured concrete would be required for each abutment and wall. Indirect impacts that could degrade wetland functions include increased sedimentation, which could affect water quality and biological productivity. Implementation of mitigation measures would reduce impacts and ensure recovery of surrounding vegetation within a season (see Section 4.7.2.3, **Mitigation**).

Bridge construction would require a Clean Water Act, Section 404 permit from the Corps of Engineers in coordination with the State Department of Water Resources, and a special use permit from the Forest Service. (See Section 5.1.6, **Clean Water Act Permits**.) Discussion of these impacts is based on a worse-case scenario because final design of the bridge has not been



completed. Coordination between the various agencies on design and permits will facilitate identification of additional mitigation that would further reduce environmental impacts.

USFS Road #252 crosses Pine Creek with an existing bridge. This access road parallels Tie Creek, crosses it and continues up the canyon (T3N, R44E, Sec. 27). The road is used to access structures 10/1-11/6. The existing bridge is sufficient for construction use. However, the lower portion of the road is difficult to use because water from Tie Creek flows across the roadbed into adjacent wetlands. The lower section of the road would be relocated out of any riparian wetland and the old road rehabilitated. A new bridge or culvert would be installed to cross Tie Creek. The bridge or culvert would be located to avoid riparian wetlands as much as possible. Impacts would be localized and short term. BPA would coordinate the design with the Forest Service, Corps of Engineers and the state of Idaho.

An existing access road crosses Little Pine Creek to access structures 15/1 to 18/1. The access road weaves through a scrub/shrub riparian wetland dominated by willows. A new bridge would be constructed across Little Pine Creek and the Murphy Creek ford would be replaced with a culvert. Moderate impacts similar to the bridge construction impacts previously described would occur to the riparian wetland. Impacts would be high but local to the portion of the wetland impacted by fill. Impacts would not profoundly impair the ecological integrity of the wetland. The access road turns sharply after crossing the creek and would need to be straightened so construction vehicles could maneuver the turn. This would require ripping up a portion of the existing road that winds through willows and constructing a small portion of new road elsewhere in the vicinity. The riparian wetlands would be delineated to avoid or minimize wetland impacts when locating the new road section. Design and permitting of the road, bridge, and culvert would be coordinated between BPA, the Corps of Engineers, the Department of Water Resources and the Forest Service.

**Teton River Drainage (Trail Creek), Idaho; and Trail Creek Drainage, Wyoming** — One potential construction staging area proposed south of the highway at Mike Harris Campground could infringe on the riparian boundary of the creek. It is not clear whether this vegetation is wetland vegetation. If equipment is stored away from the creek, no impacts would occur.

Near structures 24/3 and 24/4, in the Hungry Creek drainage (T3N, R46E, [no section], BPA's access road crosses a wet meadow fed by springs and surface runoff. The wetland supports a variety of forbs such as stinging nettles, sedges, and cow parsnip. The existing road is in poor condition and would need to be graded and rocked so it could accommodate construction vehicles. Portions of the road would have to be completely rebuilt. Impacts would be

moderate. Direct impacts would include additional fill where the road needs to be widened or reconstructed. Indirect impacts could occur from increased sediment transport that could impair wetland vegetation. About 365 m (1200 ft) of new road would have to be constructed uphill from the wet meadow to structure 24/3. Slopes are steep and erosion control devices would be required during construction of the road and maintained during construction of the line to ensure sediment is not carried downslope to the wetland. To minimize impacts, vehicles would be confined to the road only, avoiding wetlands.

Along Teton Pass, numerous draws exist that harbor forested and scrub/shrub wetlands. In this area (structure numbers 26/2 to 29/3), some of the existing structure footings would be used with new double-circuit structure bodies and tops. This type of construction would be done with helicopter which can greatly reduce soil disturbance that could cause indirect impacts to wetlands from sediment. Structures 27/5-28/2, 28/5, and 29/3 would need to be totally removed and replaced with new double-circuit towers. Ground disturbance at structures 27/5, 27/6, and 27/7 could cause indirect impacts to wetlands as slopes are steep in this area and sediment could be carried downslope to wetlands. The use of erosion control devices during construction would limit sediment transport.

**Fish Creek Drainage, Wyoming** — As the ROW descends Phillips Ridge and crosses onto the valley floor, the line would switch from single-circuit to double-circuit from structure 35/1 to Teton Substation. The ROW would cross Fish Creek and its tributary Lake Creek, and associated wetlands. A temporary bridge would be built across Lake Creek to access structures between Fish Creek and Lake Creek. Impacts to wetlands from building a temporary bridge would result from fill for bridge abutments and bridge approaches. The approximate area impacted would be 348 m<sup>2</sup> (3,750 ft<sup>2</sup>). Soil compaction and vegetation damaged from vehicular traffic would occur reducing biological productivity. Use of BMP's and mitigation would reduce impacts. Temporary roads located in wetlands would be removed once construction is completed. Impacts would be moderate, but short term.

The double-circuit structures proposed for this area would be tubular steel poles. Each structure would be placed in an augured hole approximately 1.2-1.8 m (4-6 ft) in diameter and backfilled with approximately 3.5-11 m<sup>3</sup> (5-15 yds<sup>3</sup>) of fill material, either crushed rock or concrete. Wetlands in this area would be delineated before final design so they could be avoided if possible. If they cannot be avoided, BPA would work with the Corps of Engineers and the state of Wyoming to determine permit and mitigation requirements for the activity. (See Section 5.16, **Clean Water Act**, for information on regulations and applicable permits.)

If wetlands cannot be avoided, impacts would occur from pole construction and could include disturbance of soil and vegetation including compaction from vehicle traffic. The disturbed area would be limited as much as possible, and the topsoil would be replaced to ensure the best wetland restoration opportunities.

**Operation and Maintenance** — Maintenance activities have the potential to impact wetlands. Sedimentation can reach wetlands from stormwater runoff of access roads improperly maintained. Existing roads should be upgraded to prevent this. If roads are upgraded and properly maintained, impacts would be low.

#### **4.7.2.3 Mitigation**

Standard mitigation measures would effectively keep impacts to a minimum:

- Locate structures and any new roads to avoid floodplain.
- Remove debris from construction and clearing.
- Design and construct bridges to minimize bank erosion, accommodate flood waters and associated bedload and debris.
- Use helicopter construction in areas where steep slopes and road construction would impact wetlands.
- Limit disturbance to the minimal amount necessary when working in wetlands and floodplains.
- Locate new access roads to avoid wetlands and floodplains.
- Locate staging areas to avoid wetlands and floodplains.
- Place all structures in upland where possible.
- Minimize vegetation removal where road construction impacts riparian zones.
- Delineate wetlands before final design so avoidance of wetlands is maximized.
- Identify and flag wetlands in project area for avoidance during construction.

- Use erosion control measures when conducting any earth-disturbing work uphill from a wetland.
- Stockpile wetland topsoil when excavating. Redeposit soil in place for site restoration after construction.
- Refuel equipment in designated areas away from water resources.
- Construct access roads and bridges consistent with the standards and guidelines of the revised forest plans for the Targhee and Bridger-Teton National Forests and the best management practices instituted by the states of Idaho and Wyoming.
- Coordinate activities between BPA and regulatory agencies to ensure compliance with wetland and floodplain regulations.

Mitigation would be monitored throughout the construction and post-construction phases to ensure effectiveness. Where adverse impacts could not be avoided, any necessary mitigation would be determined with appropriate jurisdictional agencies.

#### **4.7.2.4 Cumulative Impacts**

Building new bridges and improving access roads in floodplains would result in incremental impacts to floodplains as more of the floodplain is developed.

Wetlands over time have had incremental losses and degradation which have seriously depleted wetland resources. Cumulative impacts would result from line construction and maintenance. The disturbance from maintenance vehicles would be reduced by the use of permanent or temporary bridges (instead of fords) where wetlands are crossed. Maintenance vehicles using access roads upslope of wetlands could produce minor amounts of sediment that would temporarily impair wetland functions. Installation of permanent abutments in riparian wetlands would reduce the total size of these wetlands by a minor amount.

#### **4.7.3 Single-Circuit Line Alternative**

##### **4.7.3.1 Impacts**

Impacts to floodplains and wetlands would be similar to those of the Agency Proposed Action. Using single-circuit wood pole structures requires smaller spans than double-circuit steel structures, therefore, it would be difficult to avoid placing

structures and locating temporary roads in wetlands associated with Fish and Lake creeks. A temporary bridge would be needed across Lake Creek. Impacts would be high and long term. Direct impacts to wetlands would include wetland fill from permanent bridge abutments and structure footings. Indirect impacts would result from soil compaction and sediment transport from vehicular traffic. BPA would coordinate with regulatory agencies to develop site-specific mitigation.

#### **4.7.3.2 Mitigation**

- Refer to mitigation under Agency Proposed Action, Section 4.7.2.3.

#### **4.7.3.3 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.7.2.4).

#### **4.7.4 Short Line Alternative**

Impacts to wetlands from this alternative would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

A new switching station would be built near Targhee Tap.

**Preferred Site on the ROW** - The switching station would be located directly under the line in the ROW. There would be no impacts to floodplains or wetlands from construction at this site.

**Site off the ROW** - The switching site would be located on the valley floor, downhill from Targhee Tap in agricultural land. The site would be field checked to make sure no wetlands are impacted. No impacts would occur to floodplains.

No additional mitigation is required and cumulative impacts would be the same as the Single-Circuit Line Alternative.

#### **4.7.5 SVC Alternative**

There would be no impacts from this alternative to floodplains or wetlands.

No mitigation is required and no cumulative impacts are expected.

#### **4.7.6 No Action Alternative**

Current levels of impacts would continue under this alternative. (See **Operations and Maintenance** in Section 4.7.2.2, **Wetlands Impacts**, and Section 4.7.2.4, **Cumulative Impacts**.)

### **4.8 Vegetation**

resources can be directly affected by construction, operation and maintenance of transmission facilities. Short-term impacts can occur during construction and usually have minimal lasting impacts on vegetation. Other impacts are long term, such as ongoing maintenance practices that can permanently alter plant species composition and communities.

#### **4.8.1 Impact Levels**

Direct impacts to vegetation would be caused by access road construction, road improvements, clearing, structure construction and on-going maintenance activities. Road and structure construction would remove vegetation, including the root system and topsoil. Clearing can remove the overstory, which indirectly results in a change to the ecological community of the understory. Vehicular traffic can crush vegetation and cause dust that clogs the pores of plants. Soil compaction can also indirectly reduce plant productivity.

A **high** impact would be expected where:

- Native plants and their ecological communities are permanently removed (i.e., topsoil and the root system of the plant are removed), or noxious weeds are spread due to construction or maintenance.

**Moderate** impacts would be expected where:

- Native plants and their ecological communities are temporarily disturbed, the soil is compacted, but the topsoil and the root system remain intact.

**Low** impacts would be expected where:

- Native plants and their ecological communities are disturbed without displacing the root system or compacting soils.

## 4.8.2 Agency Proposed Action

### 4.8.2.1 Impacts

**Construction** — Construction of the Agency Proposed Action would require that the ROW be widened in some places between 0-30 m (0-90 feet), with an average additional width of about 12 m (40 ft). Clearing would include trees that interfere with the construction and operation of the line both in the ROW and outside. This includes trees that could be removed at a staging area proposed at Pine Creek Pass.

Approximately 31 ha (77 acres) of timber would be cleared. These trees include mixed conifers, predominately Douglas fir, lodgepole pine, and aspen. Impacts to vegetation from clearing would be moderate because root systems would be left intact, and the topsoil would not be removed. Also, the amount and type of vegetation cleared is relatively small compared to the amount of similar vegetation in the area. Clearing trees would open up the canopy, changing the habitat to a shrub/grass/forb community within the new ROW. Changing the habitat could impact those plants dependent on shade to survive. Impacts would be high to shade-loving plant species. In those areas where double-circuit structures are used on the existing ROW (from structures 6/2 to 6/8, 26/2 to 29/3, and 35/1 into Teton Substation), clearing would be limited; some clearing would occur between structures where the lines hang at their lowest point and could interfere with the tops of trees.

Wood H-frame and single wood or steel poles would be used for most of the project. To erect the structure, an H-frame structure would require two augured holes about 0.9-1.5 m (3-5 feet) in diameter, whereas a single wood or steel pole would require one augured hole about 1.2-1.8 m (4-6 feet) in diameter. As the holes are dug, a small amount of vegetation would be removed, causing low, localized impacts to vegetation. Additional disturbance would include vegetation crushed by vehicular and foot traffic.

Overall impacts to vegetation from structure construction would be low to moderate because the type of vegetation removed is abundant in the area, and any small disturbed area would be reseeded immediately after construction. Reseeding with native seed appropriate for the area and keeping topsoil intact in surrounding disturbed areas would help mitigate impacts. South facing slopes, shallow or unstable and excessively rocky soils would be more difficult to revegetate.

Low to moderate impacts would occur to vegetation that is crushed by vehicular traffic and equipment and material stockpiled at staging areas. Without root disturbance it should recover within a season depending on the degree of soil compaction.

**► Reminder**

*About 6-8 km (4-5 miles) of new roads are needed to have a complete trunk road system in place. Most existing access roads would need improvements, which would include grading the roads to 4 m (14 feet) wide, 5-6 m (18-20 feet) wide at the curves. Clearing and construction activities for new access would disturb an additional 3 m (10 feet) on either side of the road.*

Approximately 4.5 km (2.8 miles) of permanent road construction off-ROW would require clearing approximately 6 ha (15 acres) of mixed conifers. Topsoil and any organic debris (i.e., roots, grasses, etc.) would be removed and gravelled to construct a stable roadbed. Impacts would be high where plants and topsoil are permanently removed, however the overall impacts to the ecological community would probably be moderate because the plant community being removed is relatively abundant in the area.

Road construction on-ROW would consist of 7.4 km (4.7 miles) of temporary road where land is privately owned and in agriculture. Impacts to vegetation would be low. The vegetation has been previously disturbed for crops or grazing, and the soil would be tilled and replanted after the road is removed.

About 2.7 km (1.7 miles) of new, permanent trunk roads and 7.2 km (4.5 miles) of permanent spur roads would be built on-ROW. The vegetation along with the topsoil would be permanently removed, creating high localized impacts to vegetation. However, because the vegetation has been previously disturbed and is maintained as a low-growing shrub/grass community, overall impacts would be moderate.

For a staging area proposed at Pine Creek pass, minor amounts of Douglas fir could be cleared to make the area larger. This would have a low impact on vegetation.

**Pine Creek Drainage, Idaho** — There are five options for routing the transmission line across Pine Creek from structures 5/8 to 7/1.

Pine Creek Routing Option A — About 5.3 hectares (13 acres) of vegetation would be cleared for this option. Overall impacts would remain moderate because roots and topsoil would not be removed. Road construction would have high, localized impacts to vegetation; revegetation would be difficult on steep slopes.

Pine Creek Routing Option B — About 2.8 hectares (7 acres) would be cleared for this option. Impacts would be moderate. Road construction would have high, localized impacts and revegetation would be difficult on steep slopes with shallow soils.

Pine Creek Routing Option C — About 3.2 hectares (8 acres) would be cleared for this option. Overall impacts to vegetation would be moderate. Access road construction would have high, localized impacts, but revegetation potential is fair.

Pine Creek Routing Option D (preferred) — Approximately 0.6 hectare (1.6 acres) of juniper with scattered Douglas fir would be cleared to build 485 m (1600 feet) of new road to access structure 6/2, and 150 m (500 feet) of spur roads to access structures 6/4 and 6/5. Up to seven single-circuit structures would

*Figures 2-3 and 2-4 show locations of Options A-E.*



be removed and two to four double-circuit structures constructed. No clearing would be necessary since the double-circuit section would be within the existing corridor. This area has steep slopes of up to 55 percent, with fair to poor revegetation potential due to shallow, droughty soils. Impacts to vegetation could be high but localized from road construction because topsoil and roots would be removed and revegetation potential is fair to poor.

Pine Creek Routing Option E — This area was previously logged and replanted with Douglas fir trees. Approximately 485 m (1,600 feet) of new road construction would be developed off-ROW removing about 1 to 2 ha (4 to 5 acres) of Douglas fir trees and aspen. Impacts from road construction would be moderate because of the small amount of trees removed and revegetation potential is fair.

No clearing of riparian vegetation for the new line is necessary at these Pine Creek crossings. An existing bridge across Pine Creek would be adequate for access during construction.

Impacts to riparian and wetland vegetation along several creeks in the mountains would occur from upgrading or constructing new road crossings. New bridges would be constructed to cross Pine Creek, Tie Creek, and Little Pine Creek. The construction of the bridges and road approaches would permanently remove a small amount (21 m [70 feet]) of riparian vegetation (dominated by willows) along the streambank causing long-term, high localized impacts to the vegetation. Areas of disturbance could be replanted with willow cuttings and reseeded immediately after construction to lessen impacts.

**Fish Creek Drainage, Idaho** — In the valley, near Teton Substation, wetlands are found associated with Fish Creek and its tributaries. Approximately 1.6 km (1 mile) of temporary access road would be constructed between Fish Creek Road and Teton Substation. Wetlands in the area have not been delineated, but they do exist to some extent throughout the area. Road construction could temporarily impact wetland vegetation (various grasses, sedges and rushes), causing moderate impacts. Temporary bridges or culverts would be needed to cross Phillips Creek and Lake Creek. Bridge construction would involve construction of permanent abutments that would permanently remove a small amount of wetland vegetation. Impacts from bridge and/or culvert installation would be high but localized to the vegetation removed, however, overall impacts would be moderate because of the small amount removed.

### ► For Your Information

*“Sensitive” is used here as a general term to describe a plant that holds special status.*

**“Sensitive” Species** — The survey completed during the summer of 1997 documented the presence of four sensitive species within the Wyoming portion of the project area: Payson’s bladderpod (*Lesquerella paysonii*), Scouler hawkweed (*Hieracium scouleri*), Columbia brome (*Bromus vulgaris*), and Western

► For Your Information

The Forest Service prepared a **Biological Evaluation** on Forest Service Sensitive Species. Eighteen species are classified “sensitive” by the Regional Forester in Region 4, the Targhee National Forest, and the Bridger-Teton National Forest. The Forest Service determined that the habitat of 17 species was not present in the project area. Payson’s bladderpod is present in the project area. The Forest Service determined that the project may impact individuals or habitat but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.

twayblade (*Listera caurina*). Some populations of these species are within the Targhee National Forest and other populations are within Bridger-Teton National Forest. None of the sensitive species are listed by the U.S. Fish and Wildlife Service as threatened or endangered. One specie is a USFS Region 4 Sensitive Species on both the Targhee and Bridger-Teton National Forest (a **Biological Evaluation** was completed by the Forest Service). Each species has been assigned a global and state rank by the National Wyoming Heritage Program. All of the sensitive species encountered are Wyoming State Species of Concern.

These four species are found from Mile 26 through Mile 34 of the existing and proposed ROW. The first species, Payson’s bladderpod, is found at high elevations on rocky, sparsely vegetated slopes. A single large population (1,000-5,000 individuals) was found on either side of the boundary between the Targhee and Bridger-Teton National Forests (David Evans and Associates, 1997). This species is a Region 4 Sensitive Species on both the Bridger-Teton and Targhee National Forest. It is also on the state of Wyoming “Watch List” as being rare or local throughout its range or found locally in a restricted range. The habitat of this plant is open, with very few trees, so tree removal would probably not impact the species. The population was found within the existing ROW where BPA would double circuit the proposed line. Activities could include removal of the existing structure, construction of a new larger double-circuit structure, and road construction. These activities could have adverse, high impacts on the population. It would be necessary to delineate the populations to determine if it is possible to avoid them.

Scouler hawkweed is found in a wide elevational range, occurring from the foothills to rather high elevations in the mountains. It grows in dry, open or brushy places, open woods and occasionally in dense woods. This species is not listed as a USFS Region 4 Sensitive Species or as a Sensitive Species by the Targhee or Bridger-Teton National Forests. The Wyoming state rank assigned means the species is critically imperiled. Scouler hawkweed is present on the existing ROW in Miles 26, 32, 33 and 34, on steep forested slopes, and shrubby areas at an elevation of approximately 2255 m (7,400 feet) (David Evans and Associates, 1997). The 12 populations are small and found in areas that could potentially be impacted by road and structure construction, as well as foot and vehicular traffic. These populations should be delineated and flagged for avoidance. Clearing should not impact the species since it seems to have a broad tolerance for habitat conditions.

Columbia brome, a perennial grass species, is found in habitat described as moist hillsides in woods or meadows. The elevational range is broad. Columbia brome is not listed as a USFS Region 4 Sensitive Species or as a Sensitive Species by either the Targhee or Bridger-Teton National Forests. The Wyoming state rank of S1/S2

means it is critically imperiled or imperiled. It is found scattered throughout Miles 24 through 33 in the Phillips Ridge area. The populations occur within the existing ROW, proposed ROW, existing access roads, and along proposed access roads within the Targhee and Bridger-Teton National Forests. Those populations are found in portions of the existing ROW with trees and in the forested portions of the proposed ROW. This species is shade-loving, and could be indirectly impacted by tree removal, which could result in their destruction. Clearing should be kept to an absolute minimum in these areas and the populations should be flagged for avoidance so as not to be trampled by foot or vehicular traffic. Transplantation of these individuals is an option that could be considered. (David Evans and Associates, 1997.)

Western twayblade is a small orchid that grows in the shade of conifers. This species is not listed as a USFS Regional 4 Sensitive Species or as a Sensitive Species by the Targhee or Bridger-Teton National Forests. The Wyoming state rank is S1, which means it is critically imperiled. Three small populations are located in Miles 26 and 27. One population extends into the existing ROW, while the other two populations are in the proposed ROW. Since this is a shade-loving species, even without direct harm to the individuals, tree removal could indirectly result in their destruction. Tree removal should be limited to the least amount necessary and populations should be delineated and flagged for avoidance from foot and vehicular traffic. (David Evans and Associates, 1997.)

**Threatened and Endangered** — The USFWS has listed Ute Ladies'-tresses as threatened and as potentially occurring in the project area. Surveys did not locate any populations, however potential habitat exists in several places where access roads cross creeks and wetlands. Since the plant species is known to have periods of prolonged dormancy, those areas of potential habitat would be resurveyed during the summer of 1998 to again try and identify whether the plant species might be present.

**Noxious Weeds** — Noxious weeds are plant species designated by federal or state law. Disturbed areas such as transmission corridors often become infested with undesirable or non-native plants species. These species take advantage of disturbed soils and the lack of competing vegetation in areas recently cleared. Construction would disrupt vegetation and disturb soils, encouraging invasion of noxious weeds. Vehicles can transport seeds from infested areas to locations along the ROW and access roads. For specific measures that BPA would take to lessen the spread or introduction of non-native plant species during construction see Section 4.8.2.2, **Mitigation**.

A preconstruction weed inventory was conducted during the summer of 1997 to document existing infestations. The inventory provides baseline data to establish the need for and/or to develop

a weed control plan. A post-construction inventory would be conducted the second year after construction to determine if noxious weeds have invaded areas disturbed by construction.

The survey targeted species listed on state, regional and county weed lists. Thirteen species were documented as occurring on the existing and proposed ROW. The size and distribution of the populations of each of these species differs. Only three species were documented as being common and scattered throughout the survey area: Canada thistle, musk thistle, and hound's tongue. Other species that were found and are less common are spotted knapweed, bull thistle, erect cinquefoil, ox-eye daisy, and leafy spurge. These species only occur in one location on the ROW or as individuals: yellow toadflax, common burdock, tansy ragwort, and St. John's-wort.

The information gathered from this survey would be used to plan control or eradication measures. BPA would assist and cooperate with the USFS, landowners, and local weed control boards to control noxious weeds along the ROW.

**Operations and Maintenance** — Within the corridor, vegetation would be periodically cleared and kept low-growing to allow access to transmission facilities and prevent hazards to the line. Tall-growing brush and trees that could interfere with lines would be removed. Continued use of access roads could cause indirect impacts such as soil compaction and dust. Soil compaction damages root systems, and dust clogs leaf surfaces. Often access roads can become roads for off-road vehicles that can cause additional and ongoing destruction of plant habitat. Overall, maintenance-related impacts could be low to moderate, and would continue for the life of the line. In areas where soils are disturbed by maintenance activities, noxious weeds could invade causing high impacts to vegetation.

#### **4.8.2.2 Mitigation**

The following recommended mitigation measures would minimize impacts to vegetation. Site-specific mitigation action plans would be developed with the USFS before construction starts.

- Locate proposed project adjacent to existing corridor to keep clearing to a minimum.
- Use existing access road system with minimal development of new roads.
- Keep additional vegetation clearing to the minimum needed to maintain safety and operational standards.
- Delineate and flag sensitive species populations to avoid direct and indirect impacts from occurring.

- Ensure that adequate topsoil depth and texture are in place. Promptly reseed or revegetate disturbed areas with native seed mix as soon as construction in an area is completed.
- Limit construction activities during wet periods to minimize damage to plants.
- All reclamation plans would consist of native plant seed mixes approved by the USFS.
- Seed mix composition, rates and reclamation plans would be approved by the USFS.
- Any disturbed areas would require a minimum of 10.2 cm (4 inches) of native topsoils.
- Mulches would be approved by the USFS.

**Control measures for sensitive plant species:**

- Designate vegetation management zones that restrict certain activities.
- Delay tree removal until the fall, if possible, to avoid trampling species while they are flowering and fruiting. The areas should be disturbed as little as possible. If trees are felled into the habitat of these species from adjacent areas, they should be removed from the habitat so they do not crush and smother plants.
- Spot spray weed species within habitats of sensitive plants. Use extra caution in these areas. Crews responsible for spraying should be able to identify these species so they can avoid spraying near them or inadvertently trampling them. A knowledgeable person could accompany spray crew members or flag sensitive populations prior to any spraying.
- To minimize impacts to *Lesquerella paysonii*, access structure 28/2 by overland travel, cabling, and by minimizing tree and/or branch removal.

**Control measures for undesirable plant species:**

- Minimize disturbance to native species to the greatest extent possible during construction to prevent invasion by non-native species.
- Work with the Forest Service and county agencies to determine appropriate methods for treating existing weed populations before construction.
- Conduct preconstruction weed survey to document existing weed populations.
- Wash all earthmoving equipment at established wash stations prior to entry into project area.

- If earthmoving equipment has been operating in an area heavily infested with noxious weeds, wash equipment before moving into another area.
- Ensure that earth materials (such as gravel, fill, etc.) brought in from other sites are free of weed seed.
- Seed applied will be Wyoming and Idaho “CERTIFIED” as noxious weed free.
- Use certified noxious weed-free mulch.

#### **4.8.2.3 Cumulative Impacts**

Plant species and natural communities are interdependent parts of a complex system of soil, water, human and animal life, and many other biological resources. The system is weakened when plant communities become fragmented or when important native habitats are invaded by non-native weeds. The new corridor would be placed next to an existing corridor that has plant communities that have already been disturbed. The new transmission facilities would remove some plants from the plant community and noxious weeds could invade the area. This could have a continuing impact to vegetation.

#### **4.8.3 Single-Circuit Line Alternative**

Overall impacts would be similar to the Agency Proposed Action. The Single-Circuit Line Alternative would remove about 73 hectares (181 acres). This would be more than twice the amount needed to clear for the Agency Proposed Action. Areas where a double-circuit line would be used in the Agency Proposed Action would require less clearing and disturbance of existing vegetation than the Single-Circuit Line Alternative. Structure height and slope would determine how many additional trees in danger of falling into the line would be removed outside the ROW.

##### **4.8.3.1 Mitigation**

- Refer to mitigation under Agency Proposed Action, Section 4.8.2.2.

##### **4.8.3.2 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.8.2.3).

#### **4.8.4 Short Line Alternative**

Impacts would be similar to the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation. A new switching station would be constructed near Targhee Tap.

**Preferred Site on the ROW** — The switching station would be located uphill and under the existing and proposed line. Approximately 0.4 hectare (1 acre) of mixed lodgepole pine, Douglas fir and aspen would be removed. Impacts would be moderate.

**Site off the ROW** — The switching station would be located in agricultural land below Targhee Tap, permanently removing about 0.4 hectare (1 acre) of pasture. A permanent road would be needed to access the substation. The road would be about 4 m (14 feet) wide and gravelled.

##### **4.8.4.1 Mitigation**

- Refer to mitigation under the Single-Circuit Line Alternative, Section 4.8.3.1.
- Locate the switching station in a cleared area to minimize tree removal.

##### **4.8.4.2 Cumulative Impacts**

Impacts would be the same as the Single-Circuit Line Alternative.

#### **4.8.5 SVC Alternative**

##### **4.8.5.1 Impacts**

At Teton Substation, the expansion could occur into an existing parking lot on the northwest side of the substation. A riparian wetland is present on the north and east sides of the substation. The existing parking lot is bordered by a ditch which carries irrigation water and surface runoff from a nearby field. Moving the fence line would remove little vegetation since the surface is currently gravelled. Overall impacts to vegetation from substation expansions would be low.

At Jackson Substation there would be no to low impacts from expanding the substation to the north and removing 13.5 m<sup>2</sup> (150 ft<sup>2</sup>) of vegetation that has been previously disturbed.

#### **4.8.5.2 Mitigation**

Mitigation would be the same as those for the Agency Proposed Action, Section 4.8.2.2.

#### **4.8.5.3 Cumulative Impacts**

There would be no cumulative impacts to vegetation.

#### **4.8.6 No Action Alternative**

There would be no impacts to vegetation, but continued impacts from operation and maintenance of the existing transmission line would remain.

### **4.9 Wildlife**

#### **4.9.1 Impact Levels**

**High** impacts on wildlife occur when an action would create a significant adverse change in present wildlife populations, individuals, or habitats. Significant adverse changes include impacts that:

- create an unavoidable adverse effect on a federally-listed threatened or endangered animal species;
- significantly reduce the quantity or quality of a regionally or nationally significant wildlife population or habitat area;
- significantly reduce the quantity or quality of habitat critical for the survival of local populations, such as big-game winter range; or
- adversely affect rare or declining species or other species with high public profiles, values, or appeal (e.g., sandhill crane, deer, and elk) at the regional level. For this project, the regional level is considered the Greater Yellowstone Ecosystem.

**Moderate** impacts on wildlife occur if the impacts:

- create an effect on threatened or endangered species that could be mitigated partially through interagency consultation with the USFWS under Section 7 of the Endangered Species Act;
- cause a local reduction in the quantity or quality of wildlife habitats (as opposed to regional reductions); or



- marginally reduce the productivity of adjacent wildlife habitats or resources (such as nest sites).

**Low** impacts occur when an action creates an impact that would:

- create an effect that could be largely mitigated;
- reduce the quantity or quality of wildlife habitat or species confined to the site of the action;
- cause no significant effect on productivity of adjacent wildlife habitat;
- temporarily disturb common wildlife species;
- reduce habitat that is very common in the project vicinity;
- adversely affect relatively common species at a local level (i.e., occurring within the immediate vicinity of the project and not affecting regional populations); or
- cause temporary effects or those that can be minimized by site planning or by placing seasonal restrictions on construction activities.

**No impacts** occur when an action creates no impacts or fewer impacts than the low impact level.

## **4.9.2 Agency Proposed Action**

### **4.9.2.1 Impacts**

**Construction** — Wintering deer, elk, and moose could be disturbed by construction noise and activity in or near delineated wintering areas described in Chapter 3. With mitigation, construction during winter would cause a low impact to these animals because the impact could be partially to fully avoided through timing restrictions. (See Section 4.9.2.2, Mitigation.)

Habitat loss from clearing the ROW would impact mostly species that use lodgepole pine and aspen forests. These forest types are plentiful in the area and the amount of clearing required would reduce forest habitat and increase shrub habitat. Because shrub habitat is not as common as the forest habitat that would be removed, the overall result is a minor increase in habitat diversity. Loss of about 31 hectares (77 acres) of mixed conifer trees along the ROW (including access roads) would be a very minor change in relationship to the amount of this habitat available in the immediate project vicinity and throughout the region. Clearing during construction would benefit species using shrubby, open habitats. This would cause a low impact for species associated

with forest (e.g., American marten and cavity-nesting birds) and a low beneficial impact for species associated with shrub habitats and forest edge (e.g., northern flicker and American kestrel).

Because the transmission line would either cross streams by spanning drainages, or be located well upslope of stream channels, little if any riparian vegetation would need to be removed during clearing. Construction or replacement of permanent or temporary bridges would incidentally remove a minor amount of riparian vegetation. Removing riparian vegetation during construction could affect wildlife. Riparian habitat provides water and dense cover, and food sources that attract wildlife. However, since such a small amount would be affected, the overall impact level would be low.

Impacts caused by noise from equipment and material stored and moved about at staging areas along the highway would be low and temporary. Ground disturbance would occur but recovery should occur in the following season.

Nesting habitat would be lost for veery, rose-breasted grosbeak, and olive-sided flycatcher, which are neotropical migrant species for which populations have declined somewhat (less than 3 percent) in North America. Nesting habitat would also be lost for Forest sensitive species and mammals. However, habitats that would be lost are common in the project vicinity and impacts would be confined to the site of action, so the level of impact would be low.

**► Reminder**

*Figures 2-3 and 2-4 show locations of Options A-E.*

Pine Creek Routing Options A and B — Option A would require 5.3 hectares (13 acres) of clearing. Option B would require 2.8 hectares (7 acres) of clearing. Option A contains more cliff habitat that may contain hawk nests or other bird nests. The potential impacts on these species are greater than Option B.

Pine Creek Routing Option C — Option C requires 3.2 hectares (8 acres) of clearing. This option would cause greater spacing between where the existing and new lines cross the highway. This could increase the potential for avian collisions. This option would result in a minor increase in the amount of forest habitat lost. However, the overall impact from habitat loss would be the same as described previously. This option could also increase human access in the area near Pine Creek, resulting in a minor increase in human disturbance to wildlife habitat.

Pine Creek Routing Option D (preferred) — Double-circuiting two to four structures between 6/2 and 6/8 and constructing new road access to these structures would not substantially change impacts to wildlife from those anticipated with the Agency Proposed Action. The increased height of double-circuit structures increases bird collision risks somewhat over those associated with single-circuit structures; however, since the double-circuit structures would be located along a steep slope, an

*Map 2 shows structure numbers and locations.*

area that is not likely to be used as a major flyway, the overall increased risk would be minimal. Routing Option D would require clearing about 0.6 hectares (1.6 acres) of juniper since the double-circuit structures would require no additional clearing other than that necessary to create spur roads to access the structures.

Pine Creek Routing Option E — This option requires two more transmission line crossings of Pine Creek than the other options, resulting in an increased level of risk for bird collisions with power lines. However, since markers have been shown to effectively mitigate this impact, the level of impact would be considered moderate. Though markers minimize the risk of bird collisions, the moderate level of impact is assigned because the species at risk (sandhill cranes, great blue herons, and other waterfowl) are high-profile species in some of the areas of concern. Routing Option E would require about 1-2 hectares (4-5 acres) of clearing.

**Access Roads** — Access roads would be improved and new access roads would be built. New roads would indirectly increase wildlife disturbance because of increased recreational use. Existing roads are used extensively by a wide range of recreationists. Teton Pass receives particularly high recreational use.

The most notable effect on wildlife would be for new access roads created within the big-game winter range areas identified in Chapter 3. The WDFW recommended that new access roads be minimized in these areas. Winter recreational use is not a major issue at higher elevations because most animals migrate to lower elevations or hibernate during winter. However, the WDFW has recommended seasonal restrictions on construction (prior to November 15 and after April 30) between the Idaho border and Mail Cabin Creek (from existing structure 22/8 to about structure 27/2) to protect big-game winter range. About 1.8 km (1.1 miles) of new roads would be constructed within this section, resulting in a moderate level of impact due to habitat loss and potential increased disturbance. The IDFG has recommended seasonal restrictions on construction activities (prior to December 15 and after April 15) from Poison Creek southwest to the Swan Valley substation. If unusually adverse weather conditions occur, restrictions are requested prior to December.

Increased recreation access during spring, summer, and fall would introduce human disturbance into areas that previously contained secure wildlife habitat. Species vulnerable to human presence, such as deer, elk, and nesting raptors, may avoid new roads that attract recreational use. Gating of new roads can partially mitigate this impact, though foot traffic may still occur.

**Operation and Maintenance** — Motorized access and project-related maintenance activities could occur during the fall big game hunts which begin August 30. Maintenance crews need to take advantage of the summer season to improve access roads and do whatever type of maintenance is needed on the transmission line.

Some types of birds, particularly water birds such as ducks and geese, are susceptible to collisions with power lines. Collisions typically occur in very specific locations where conditions combine to create a high potential for birds striking lines (Avian Power Line Interaction Committee, 1994). Four factors contribute to this potential: the current level of risk, the type of power lines, the amount of use, and the inherent tendency of species to collide with overhead wires. (See Appendix G, **Wildlife Report**, for a detailed discussion of collision risk.)

The existing transmission line creates a level of risk. Areas of highest concern are where lines cross bird flight paths in Swan Valley (between Swan Valley Substation and structure 4/3), along the second crossing of Pine Creek (between structures 6/12 and 7/1), Teton Pass (between structures 28/1 and 28/5), and the Jackson area (between structure 35/2 and Teton Substation). Trumpeter swans and other species of waterfowl, including sandhill cranes, may fly up Pine Creek drainage on their way between Teton Valley and Swan Valley, though no mortality has been reported where the existing transmission line crosses Pine Creek.

Other migratory birds, including neotropical songbirds, are potentially at risk but are not prone to collision because of their small size and ability to maneuver (Avian Power Line Interaction Committee, 1994). While actively migrating, most birds fly at very high altitudes (Alerstam, 1990) well above the altitude of transmission lines. However, during inclement weather, such as extreme low pressure or at storm fronts, these birds may fly low enough to be at risk.

Because a new line would be placed within an area already containing the same potential risk, the impact would be less than if a new line were placed where there is no existing line. Risks and associated mortality would increase, but risks would not double because there is already risk with the existing line. Avian collision hazards can be reduced by installing line markers. (See Section 4.9.2.2, **Mitigation**.) Markers have been shown to reduce collisions by 57 to 89 percent (Avian Power Line Interaction Committee, 1994). Because sandhill cranes, great blue herons, and other waterfowl are high-profile species in some of the areas of concern, this risk would be considered a moderate-level impact.

Double-circuit structures placed at Teton Pass, and from just below Phillips Ridge into Teton Substation would be taller than existing structures. Risks and associated mortality may increase because of the greater height. Avian collision hazards can be reduced by installing line markers (see Section 4.9.2.2, **Mitigation**).

### ► Reminder

*A ground wire is typically a single wire spanning the top of the transmission structure that is used to protect the lines from lightning strikes. Ground wires are usually much smaller in diameter than transmission line conductors (or wires).*

Many reports list ground wires as a contributing factor to avian collisions. Ground wire would be installed about 3 m (10 ft) above the transmission line conductors. Fiber optic cable would also be added. The cable can be added to the ground wire or attached to the structure below the conductors. Separate ground wire and fiber optic cable could contribute more to avian mortality than if ground wire and fiber optic cable were installed together.

Generally, collision with transmission lines is not a major source of mortality for raptors (Olendorff and Lehman, 1986). Impacts to raptors are expected to be low.

Bird electrocution occurs where two energized lines are close enough for a bird to touch both at the same time. Larger perching birds, such as golden eagles, red-tailed hawks, and other perching raptors, are the types of birds most at risk. To prevent the problem, BPA provides adequate separation of poles, crossarms, and wires; insulates wires and other hardware where sufficient separation cannot be attained; and places perching platforms away from energized hardware (see Olendorff, et al., 1981). No or few avian electrocutions are expected.

**Threatened, Endangered, Candidate, and Forest Service Sensitive Species** — Disturbance from construction noise and activity and loss of habitat would have no significant effect on threatened, endangered, or candidate species listed under the Endangered Species Act except for possibly the bald eagle (a threatened species).

Wintering bald eagles occasionally occur along Pine Creek, occur in good numbers in the Jackson area, and occasionally forage along Trail Creek and scavenge on big game winter ranges (Oechsner, 1997). Wintering bald eagles would avoid active construction areas, and their primary foraging areas along the Snake River would be unaffected. Wintering bald eagles are likely to be relatively tolerant of human disturbance because they occur near human population centers. Bald eagle nests are far (2 km [1.2 miles]) from construction. Construction would have a moderate level of impact on individual wintering bald eagles if construction were to occur at that time (which is highly unlikely). Construction timing restrictions, similar to restrictions to protect big-game winter range, would substantially reduce the impact. Collision risk would incrementally increase to bald eagles. However, transmission lines are relatively common in the Swan Valley and Jackson areas, yet no bald eagle mortality from transmission lines has been reported. Human development is the primary factor affecting bald eagle populations, and mortality associated with power lines has a low to no effect on the local populations.

Impacts to species are given in Table 4-2.

**Table 4-2. Impacts to Threatened and Endangered, Forest Sensitive, and Candidate Species**

Species	Listing	No Impact	Not Likely to Adversely Affect Population Or Species	May Impact Individuals or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Loss Of Viability To Population Or Species	Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species	Beneficial Impact
Bald Eagle	Threatened		X			
Peregrine Falcon	Endangered		X			
Whooping Crane	Endangered		X			
Grizzly Bear	Threatened		X			
Gray Wolf	Threatened		X			
Mountain Plovers	Category 1		X			
Western boreal toads	Category 1			X		
Ute Ladies'-tresses	Threatened		X			
Spotted Bat	USFS Sensitive	X				
Townsend Big-eared Bat	USFS Sensitive			X		
Canada Lynx	USFS Sensitive and Category 1			X		
Wolverine	USFS Sensitive			X		
Boreal Owl	USFS Sensitive			X		
Flammulated Owl	USFS Sensitive			X		
Common Loon	USFS Sensitive			X		
Harlequin Duck	USFS Sensitive			X		
Three-toed Woodpeckers and Other Cavity-nesting Species	USFS Sensitive			X		
Great Gray Owl	USFS Sensitive	X				
Northern Goshawk	USFS Sensitive			X		
Spotted Frog	USFS Sensitive			X		
Fisher	USFS Sensitive			X		
Yellowstone Cutthroat Trout (fine-spotted form)	USFS Sensitive			X		
Trumpeter Swan	USFS Sensitive			X		

Peregrine falcon nests are far from construction, closer to the Snake River and beyond. A low level of collision risk is expected for peregrine falcons because most of their activity is likely to occur along the Snake River, which is outside the project area. The project area receives very low use by both grizzly bear and gray wolf (both threatened), and no denning is expected near the project. Mountain plovers have never been reported in the area. Because most of the transmission line would either cross streams by spanning drainages, or be located well upslope of stream channels, few if any streams or wetlands that the western boreal toads may use would be disturbed directly during clearing. No to low impacts would occur to these species. Higher impacts could occur from construction of new access roads and placement of permanent or temporary bridges.

The Canada Lynx has been added as a candidate for listing by the USFWS. Canada lynx are extremely uncommon in the project area. Though they may be present near the project area, they are mobile and have large home ranges, so they could shift their use patterns with little or no effect on their survival.

### ► For Your Information

*The Forest Service prepared a Biological Evaluation on Forest Service Sensitive Species. Determinations are shown in Table 4-2.*

Some USFS sensitive species could be affected by construction. The boreal owl, flammulated owl, great gray owl, northern goshawk, and three-toed woodpeckers and other cavity-nesting species, nest in the vicinity. Construction noise and activity would disturb local nesting three-toed woodpeckers and other cavity-nesting species. Low impacts are expected.

Although there are no known nests of boreal owl, flammulated owl, great gray owl, or northern goshawk near the ROW, surveys have not been completed and other nest sites may be present. Vegetation clearing would reduce potential habitat for these and other raptor species including Cooper's hawks, sharp-shinned hawks, Swainson's hawks, red-tailed hawks, northern harriers, and great horned owls. These species are particularly common in the Swan Valley (between Swan Valley Substation and structure 4/3) and Jackson area (between structure 35/2 and Teton Substation). Construction would temporarily disturb foraging areas. The largest potential impact for raptors is disturbing active nest sites.

Noise from heavy equipment and workers can cause raptor species to abandon their nest sites, particularly during the early stages of nest tending, when raptors are more likely to leave a nest (Newton, 1979). Raptors that remain at nests near active construction sites may have fewer young survive because adults spend energy defending their nest, rather than obtaining food for themselves and their young. In some situations, raptors may accept the activity as nonthreatening after a few days and remain unaffected. As a general rule, nests within 0.4 km (0.25 mile) are most vulnerable to abandoning or reduced survival. If nests are located and protected, impacts would be low.

Spotted bat and Townsend's big-eared bat are potentially present but no Townsend's big-eared bat roosting or breeding habitat is present (Christy, R. and S. West, 1993). Between existing structures 6/2 and 6/7, the Pine Creek drainage contains potential habitat for spotted and other bat species. Construction could temporarily disturb this area. Impacts would be low.

The wolverine, like the Canada Lynx (described above) are extremely uncommon in the project area. Though they may be present near the project area, they are mobile and have large home ranges, so they could shift their use patterns with little or no effect on their survival.

Harlequin duck nesting habitat is potentially present along Pine Creek, which would be spanned causing little or no disturbance to this potential habitat. Common loons are not found in the area.

Spotted frogs could be present within wetlands and streams but with standard construction practices no to low impacts are expected.

Trumpeter swan nest sites are outside the project area and would not be disturbed. Wintering trumpeter swans may use the Swan Valley and Jackson areas. Construction would temporarily disturb a small portion of wintering swan habitat. Low impacts are expected.

The whooping crane is no longer considered viable in the area, and has been removed from the Targhee National Forest's endangered species list it maintains through consultation with the USFWS (Oechsner, 1997).

More detail on the impacts to these species is provided in Appendices G and H.

#### **4.9.2.2 Mitigation**

To minimize raptor nest disturbance and comply with the Migratory Bird Treaty Act:

- Time project activity to avoid critical nesting periods (nest trees may be removed once young have fledged and/or a permit has been issued from the USFWS).
- Prior to initiating ground disturbing activities, conduct wildlife surveys, as determined through coordination with the USFS. BPA has worked closely with the Forest Service on survey timing and requirements. All surveys will be conducted in 1998 per an Interagency Agreement with attached protocols jointly developed by the Forest Service and BPA in 1997.



- After wildlife surveys are completed, coordinate with the USFS, USFWS, and the state wildlife agencies (IDFG or WDGF) on mitigation strategies. Mitigation would incorporate Revised Forest Plan for the Targhee National Forest standards and guidelines and may include nest site monitoring, shortened work days, or minimizing disturbance during the most critical early nesting period.
- If required, survey in spring (from March to June) to identify nest site locations for Cooper's and sharp-shinned hawks, Swainson's hawks, red-tailed hawks, northern harriers, goshawk, and owls. If necessary, BPA will develop site-specific management prescriptions in consultation with the Forest Service to protect nest sites or other sensitive features identified during pre-construction surveys. BPA and the Forest Service would implement construction constraints pending the results of the surveys.
- For danger trees that would be cut outside the new ROW, BPA will work with the Forest Service on the possibility of topping some of these trees for wildlife habitat.

To minimize disturbance of big-game winter range and disturbance related to new or expanded roads:

- Avoid construction at lower elevations (Swan Valley, Teton Basin, and the Jackson area) during extreme winter weather or unusually heavy snow accumulations, when big-game species are less mobile and more vulnerable to disturbance. Coordinate with the state wildlife agencies to ensure that construction does not significantly interfere with big-game wintering.
- Construct from the Idaho state line to Mail Cabin Creek (from structure 22/8 to about structure 27/2) prior to November 15 or after April 30 to protect big-game winter range (Baughman, 1996).
- Follow IDFG recommended seasonal restrictions on construction activities (prior to December 15 and after April 15) from Poison Creek southwest to the Swan Valley substation. If unusually adverse weather conditions occur, restrictions are requested prior to December.
- If an early spring occurs, BPA will coordinate construction in agricultural fields near Swan Valley before April 15 with the USFS and IDGF. BPA will request USFS and IDFG biologists to assess whether evidence of wintering deer, elk, and moose is in the area and whether construction may affect populations.

- Timing restrictions for activities in deer, elk, and moose wintering habitat would begin on November 15. Work in the fall may continue past November 15 for emergency reasons, and will be coordinated with the Forest Service, WDGF, and IDFG. Timing restrictions would not conflict with timing restrictions for other species.
- Gate new roads and consider posting some or all of the new roads for no trespassing.

To reduce avian collisions:

- Consult an expert on avian power line collisions to identify appropriate line markers, such as aerial marking spheres, spiral vibration dampers, or bird flight diverters. Areas where markers should be considered include the Swan Valley area (between Swan Valley Substation and structure 4/3), the second crossing of Pine Creek (location depends on which Pine Creek Routing Option is chosen), Teton Pass (between structures 28/1 and 28/5), and the Jackson area (between structure 35/2 and Teton Substation).
- Where possible, line up new structures with existing structures to minimize the vertical separation between the two sets of lines.
- After construction, periodically monitor potential problem areas to identify unmitigated problem areas and increase or modify markers as appropriate.

#### **4.9.2.3 Cumulative Impacts**

Most long-term impacts associated with building a new transmission line would be additive to similar impacts ongoing as a result of the existing transmission line. The risk of avian collisions with power lines has already been introduced. The new line would increase the risk. The cumulative risk of the two lines would be greater than the existing level of risk or the added risk caused by the new transmission line alone. However, when the risks from both lines are considered together, and because no or few avian electrocutions are expected, the project would not contribute to a situation that is likely to harm bald eagles, peregrine falcons, whooping cranes or other birds.

If construction occurs during winter, disturbance of wintering bald eagles, big game, and other species in the Swan Valley, Teton Basin and Jackson Hole areas would be additive to the increasing level of disturbance in these areas from residential development and associated human presence.

The project would add to the existing human influences that have altered the landscape. Development of additional roads in the project area, considered collectively with the existing impact, would result in a linear connection across the project alignment. However, road density standards in the Targhee Forest Plan would not be exceeded. While mitigation may include access restriction, use of the alignment by people would increase.

### **4.9.3 Single-Circuit Line Alternative**

#### **4.9.3.1 Impacts**

Impacts would be the same as the Agency Proposed Action except for the possible increased risk of collision from the taller double-circuit structures in the Agency Proposed Action.

#### **4.9.3.2 Mitigation**

- Refer to measures under Agency Proposed Action, Section 4.9.2.2.

#### **4.9.3.3 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.9.2.3).

### **4.9.4 Short Line Alternative**

#### **4.9.4.1 Impacts**

Impacts would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation. A new switching station would be built.

**Preferred Site on the ROW** - Construction of a new switching station at Targhee Tap on the ROW would require removal of aspen and conifer forest habitat. Although the exact dimensions have not yet been determined, about 0.4 hectare (1 acre) would be disturbed. To minimize the amount of forest that would need to be removed, the site would be built within the existing ROW as much as possible.

Site off the ROW - There would be no additional impacts from the switching station at this location.

#### **4.9.4.2 Mitigation**

- Mitigation would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

#### **4.9.4.3 Cumulative Impacts**

Impacts would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

#### **4.9.5 SVC Alternative**

##### **4.9.5.1 Impacts**

Construction at Teton Substation or Jackson Substation would have no significant effect on wildlife. Operation and maintenance of the SVC would have no significant impact on wildlife because minimal noise or activity would be generated. Jackson Substation is in an urban environment and though bald eagles may use nearby Flat Creek, there would be no major added disturbance to eagles.

##### **4.9.5.2 Mitigation**

- Survey the area within 0.8 km (0.5 mile) of Teton Substation for nesting hawks. If nests are found, construction activities should be coordinated with the WDGf to minimize disturbance.

##### **4.9.5.3 Cumulative Impacts**

No cumulative impacts would occur.

#### **4.9.6 No Action Alternative**

No project-specific or cumulative impacts to wildlife would occur, but impacts would continue from operation and maintenance of the existing transmission line and substations.

### ► For Your Information

Construction and operation of a transmission line can cause impacts to fisheries. If topsoil and vegetation are removed, soil erosion occurs and water quality in nearby streams can be degraded. Construction activities near streams could be scheduled to avoid sensitive fish spawning, incubation, and migration periods (April to mid-June). Though construction activities may occur in spring, BPA would try to use existing, new, reconstructed, or temporary bridges to cross sensitive streams. Culverts would typically be installed on smaller or intermittent streams and would pose no significant threat to sensitive fish resources.

The Forest Service completed a Biological Evaluation on Forest Service Sensitive Species. The fine-spotted form of the Yellowstone Cutthroat Trout is classified "sensitive" by the Regional Forester in Region 4 and the Targhee National Forest. The Forest Service has determined that the project may impact individuals or habitat but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species. See Table 4-2.

## 4.10 Fisheries

### 4.10.1 Impact Levels

An impact would be **high** if an action causes:

- the killing of a federally-listed or proposed threatened or endangered fish species; or
- a significant long-term adverse effect on the populations, habitat, and/or viability of USFS sensitive fish species and state fish species of concern as a whole, which would result in trends toward endangerment and the need for federal listing.

An impact would be **moderate** if an action causes:

- a localized and/or short-term (to three years) reduction in the quantity or quality of an aquatic resource or habitats which does not result in the killing of a federally-listed species, or significantly affect a USFS sensitive species or state species of concern.

An impact would be **low** if an action causes:

- a temporary (less than 3 years) reduction in the quantity or quality of aquatic resources or habitats confined to the site of the action.

**No impacts** would occur when an action creates no impacts or fewer impacts than the low impact level.

### 4.10.2 Agency Proposed Action

#### 4.10.2.1 Impacts

**Construction** — The staging of equipment and material, and the construction of transmission lines, structures, and access roads have the potential to impact fisheries by disturbing stream beds and banks, removing riparian vegetation, and increasing stormwater runoff from disturbed upland sites and roads. New culverts and bridges could impede fish passage; however, all temporary and permanent culverts and bridges installed as part of this project would be designed to facilitate fish passage. No impacts to fish passage are anticipated.

Tree removal and construction of new ROW could result in a temporary, low to high increase in hillslope erosion and sedimentation to streams. However, nearly all ROW construction

would occur outside riparian buffers of streams, and BPA would implement BMP's to minimize sediment transport to streams from the ROW (see Section 4.6.2.2, **Mitigation**).

The use of staging areas along the highways could result in a temporary, low increase in erosion and sedimentation to streams. BPA would implement BMP's where needed to minimize sediment transport to streams from these areas (see Section 4.6.2.2, **Mitigation**).

Construction of access roads has a higher potential to impact fish habitat than other construction activities because roads are more permanent erosion sources and, in some cases, stream crossings would be required.

BPA evaluated access road alternatives to minimize potential impacts to fisheries (e.g., water quality degradation, removal of riparian vegetation, and habitat degradation from stream crossings). Several measures would be taken to avoid or minimize potential impacts to fisheries from access road construction and road use, including implementing construction BMP's to protect water quality (see Section 4.6.2.2); minimizing construction activities on steep or unstable slopes; eliminating the construction and use of fords during construction; using temporary or permanent culverts and bridges where required; moving or avoiding existing access roads or crossings with known erosion problems; and double circuiting or using helicopter construction techniques in lieu of new road construction in areas with high potential for erosion. Also, existing roads would be improved to remedy potential erosion problems prior to construction.

For about 80 percent of the proposed line, new access road construction would be limited to construction of short spurs from existing access roads within the ROW to new structure sites. With the exception of two locations, construction of these spur roads would occur in upland areas and is not anticipated to result in impacts to fisheries. New access roads in these three areas (discussed below) would be temporary, and would be restored following construction.

**Pine Creek Drainage, Idaho** — Temporary roads would be constructed on agricultural land from structures 1/3 to 3/7, and 4/1 to 5/1. After construction, these roads would be plowed under and returned to agricultural production. Roads would not cross Pine Creek in this section, and no impacts to fisheries are anticipated.

BPA proposes to replace one bridge and construct two new bridges in the Pine Creek drainage to facilitate equipment access to the ROW without using fords. The bridge on Mike Spencer Canyon Road (USFS Road 250) that crosses Pine Creek would be replaced with a wider bridge. A new bridge is proposed for crossing Tie Creek where the road would be realigned to avoid an

### ► Reminder

*Map 2 shows structure numbers and locations.*

*Figures 2-3 and 2-4 show locations of Options A-E.*

erosion source and Little Pine Creek. Bridge construction could result in a temporary increase in turbidity and sedimentation. Bridges would be designed so they do not constrict flow or impede fish passage, and would be constructed to minimize bed and bank disturbance and removal of riparian vegetation. Impacts to fisheries would be low to moderate, but temporary and localized. Where fords would be replaced with bridges, potential impacts to fish would decrease.

Pine Creek Routing Options A-C — These routing options would generally result in no to low impacts, the same level of impact to fisheries described above.

Pine Creek Routing Options D (preferred) and E — Routing Option D includes two to four double-circuit structures between 6/2 and 6/8 and constructing new road access to them. Routing Option E includes construction of three new structures and an access road on the north side of Pine Creek, and the construction of nine new structures to the south of Pine Creek. Although more ground would need to be disturbed under Option E, both Options D and E would create no to low impacts to fisheries.

**Teton River Drainage (Trail Creek), Idaho** — In the Trail Creek drainage (west slope of Teton Pass), several short sections of new access road outside the ROW are proposed. They include access between structures 23/4 and 23/6, 23/10 and 24/1, 24/3 and 24/4, a road extension to 26/2, access between 27/7 and 28/1, and 28/2 and 28/5. This could result in a temporary increase in sediment transport to fish bearing streams (Trail Creek) downstream of the roads. However, road design and culvert installation would include BMP's to minimize sediment disturbance and transport (see Section 2.5.2.2).

BPA proposes to construct most of the structures within the Trail Creek drainage (structures 26/2 to 29/3) using a helicopter although some of the structure footings would need to be removed with an excavator. This would substantially reduce potential erosion and sedimentation problems in the drainage, and would eliminate the need for new roads in this area with the exception of the new access mentioned above between 27/1 and 28/1, and 28/2 and 28/5.

**Fish Creek Drainage, Wyoming** — Temporary roads are also proposed to access structure locations in the Fish Creek (structures 35/2 to 35/5) and Lake Creek (structures 35/6 to 36/4) portions of the proposed line near Teton Substation. Construction of these access roads would require temporary bridges and/or culverts to cross Lake Creek and Phillips Creek. Fish Creek would not be crossed. The bridges and/or culverts would be designed to facilitate fish passage while in place, and construction BMP's would be implemented to minimize erosion and maintain bank stability (see Section 4.6.2.2). Construction of these temporary

roads and structures is expected to result in low impacts to fish due to temporary and localized increases in turbidity during construction.

**Operation and Maintenance** — Operation and maintenance of the project has the potential to impact fisheries if erosion of roads or the ROW transports sediment to streams, or if herbicides used in vegetation management are transported to streams. The potential for these types of impacts would be minimized by road maintenance and coordinating vegetation management with the Forest Service over the life of the project (see Section 2.1.7, Maintenance). BPA would prepare a ROW Management Plan that would address how BPA would maintain the line, including roads and vegetation. In general, if roads or the ROW are disturbed during maintenance, areas would be repaired and reseeded (if necessary). Vegetation management, including the selective use of herbicides, would be used to control vegetation growth in the ROW. Buffers would be established to prevent the contamination of streams with herbicides. Only manual or biological methods of vegetation management would be allowed within 90 m (300 feet) of streams. With implementation of the ROW Management Plan, operation and maintenance of the line would cause no to low impacts to fisheries.

### ► For Your Information

*Manual methods of vegetation management include removing vegetation by chain saws and hand tools. Biological methods include encouraging low-growing species to dominate by eliminating the taller trees and introducing species-specific parasites.*

#### **4.10.2.2 Mitigation**

- Because BPA would use standard bridge and culvert construction, and stabilization and erosion control measures, no other mitigation is required (see Section 4.6.2.2, Mitigation).

#### **4.10.2.3 Cumulative Impacts**

Construction is not expected to contribute significantly to existing amounts of sediment in streams. Very little riparian vegetation, streambeds, or banks would be disturbed by the proposed project.

#### **4.10.3 Single-Circuit Line Alternative**

##### **4.10.3.1 Impacts**

Impacts to fisheries would be the same as the Agency Proposed Action.



#### **4.10.3.2 Mitigation**

- Refer to measures under Agency Proposed Action, Section 4.10.2.2.

#### **4.10.3.3 Cumulative Impacts**

Cumulative impacts would be the same as the Agency Proposed Action (see Section 4.10.2.3).

#### **4.10.4 Short Line Alternative**

Impacts would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

#### **4.10.4.1 Mitigation**

- Mitigation measures would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

#### **4.10.4.2 Cumulative Impacts**

Cumulative impacts would be the same as the Single-Circuit Line Alternative from Targhee Tap east to Teton Substation.

#### **4.10.5 SVC Alternative**

#### **4.10.5.1 Impacts**

Although there are streams and drainages around Teton Substation, new equipment would not require expansion into undisturbed areas. No impacts to fisheries would occur.

Jackson Substation is isolated from nearby Flat Creek. The site is fairly level and there is little risk of sediment reaching the creek. No impacts to fisheries would occur.

#### **4.10.5.2 Mitigation**

No mitigation measures would be required.

#### **4.10.5.3 Cumulative Impacts**

No cumulative impacts to fisheries would occur.

#### **4.10.6 No Action Alternative**

No additional project-specific or cumulative impacts to fisheries would occur.

### **4.11 Cultural Resources**

#### **4.11.1 Agency Proposed Action, Single-Circuit Line Alternative, Short Line Alternative and SVC Alternative**

##### **► Reminder**

*A traditional cultural property is defined generally as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs (e.g., traditions, beliefs, practices, lifeways, arts, crafts, and social institutions) of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community.*

##### **4.11.1.1 Prehistory and Traditional Cultural Property**

No prehistoric sites were found during the surveys in 1997 and 1998.

The Wind River (Eastern) Shoshone identified a concern that a new transmission line would have the potential to affect traditional cultural property in the Teton Pass area. Consultation with the Tribe did not identify traditional cultural property in or near the existing ROW. The Tribe did express that they would prefer BPA to stay within the existing ROW at Teton Pass. This would be done under the Agency Proposed Action.

##### **4.11.1.2 History**

Two historic sites were found during the survey in 1997: a wagon road also used as a stock trail; and an abandoned ditch once used to bring water to Pine Creek Bench (see Appendix I). The historic sites are eligible for the NRHP. BPA has made a determination of no adverse effect as portions of these sites could be affected by construction but the effect would not be harmful. BPA has coordinated this determination with the Wyoming and Idaho SHPO and the Advisory Council on Historic Preservation. Mitigation in the form of recordation is proposed. BPA would work with the USFS and the SHPO's on mitigation. Mitigation would be done before construction.

##### **4.11.2 No Action Alternative**

No impacts are expected from this alternative.

## 4.12 Socioeconomics

### ► For Your Information

*In addition to positive and negative impacts, short-term socioeconomic impacts include those created by an influx of construction workers into a local area and the additional tax monies generated. Long-term impacts include the value of any agricultural crops taken out of production, interference with agricultural practices, the value of forestlands taken out of production, and the perceived effects on property values from new transmission and substation facilities.*

### 4.12.1 Impact Levels

- A **positive** impact would provide employment, increase tax revenues, increase property values or create other similar effects on the social and economic vitality of affected communities.
- A **negative** impact would take land out of production without compensation, reduce a tax base, reduce employment or create other similar effects on the social and economic vitality of affected communities.

### 4.12.2 Agency Proposed Action, Single-Circuit Line Alternative, Short Line Alternative and SVC Alternative

#### 4.12.2.1 Population

These alternatives respond to population growth occurring in northwestern Wyoming. Implementation of these alternatives could encourage growth if new businesses locate in the area because a stable power supply and other infrastructure such as water and sewer are available. This could have both positive and negative impacts on a community. Electricity is usually not the limiting factor in population growth, unless the economy is based on an industry that needs a large amount of energy.

None of the construction alternatives would have a negative impact on minorities or economically disadvantaged groups in the area because these groups do not reside in large numbers (fewer than 5 percent) in the project area.

#### 4.12.2.2 Employment

Because transmission line construction requires specialized labor, construction crews would likely be brought in from outside the local area. Many workers would come from such places as Spokane, Billings, and/or Salt Lake City, and return home in the off-season, and following project completion.

Construction would likely occur over two years. About 18-24 persons would be needed to construct a project of this scale. This would be a positive impact on employment in general but not necessarily in the area if workers do not come from the project area.

#### **4.12.2.3 Housing/Public Services**

Socioeconomic impacts on public services and temporary housing facilities are relatively minor for transmission line construction projects in most areas. Because low-cost temporary housing is in short supply in the area, especially during spring and summer, most construction workers would likely provide their own housing (e.g., campers and trailers) rather than seek commercial lodging. Because of limitations imposed on camping within national forests (usually a 14-day maximum) construction crews would likely use RV parks. RV parks are available in the Swan Valley, Driggs, and Victor areas of Idaho and also in the Jackson and Wilson areas of Wyoming. These parks could accommodate construction personnel. Facilities are available by the day, week, month or season. Because of the large number of RV parks in the area and the relatively small size of the construction crews who would build the project, there should not be any negative impacts to the temporary housing supply in the area.

#### **4.12.2.4 Sales Tax/Use Tax**

The major cost of any transmission line project is labor and materials. No sales or use tax would be levied in Wyoming on materials purchased by BPA for the proposed project, but Idaho would assess a 5 percent sales/use tax on those materials. No additional amount would be assessed by counties within the state. Therefore, the Agency Proposed Action would generate about \$200,000 for the state of Idaho.

Idaho and Wyoming sales taxes would also be assessed on incidental purchases by the contractor, crews, and subcontractors. Because crews would be in the area only temporarily and would not likely stay in commercial lodging facilities, incidental purchases would be limited to provisions such as food (tax exempt), fuels (non-tax exempt) and other minor purchases such as tools and clothing. These purchases would be in small amounts and any sales tax collected would be a positive but minor impact.

#### **4.12.2.5 Income Tax**

Construction of the alternatives would generate additional income taxes for the state of Idaho, a positive impact. No additional funds would be generated for the state of Wyoming, since Wyoming does not assess a state income tax.

#### **4.12.2.6 Property Tax**

BPA, as a federal agency, is exempt from paying local property taxes, so the alternatives may not benefit local governments.

The expansion of Jackson Substation in the Town of Jackson to accommodate an SVC would require additional land be acquired next to the substation. Depending on whether BPA or LVPL would acquire the land, and which entity would own the facility, property taxes could be assessed on the new facility by the Wyoming Department of Revenue. Because public utilities cross county lines, they are not a locally assessed item (Sutton, 1997).

If it is determined that property taxes would be levied on the land and new facility at Jackson Substation, and assuming the market value of the improvement (including the land) would be between \$3-5 million, property taxes would range from \$22-36,000 per year, based on the current 11.5 percent level of assessment placed on industrial properties within the state, and the current millage rate of 64.04 for the Town of Jackson (Uhrich, 1997). This would be a small positive impact for the state of Wyoming and the property owners within those taxing districts who would benefit from the increased tax base.

If BPA owns the land and improvements and they would be exempt from property taxes, the land acquired would be removed from the tax rolls for the life of the facility, about 50 years. This would be a small negative impact for the state of Wyoming, Teton County and the Town of Jackson.

#### **4.12.2.7 Property Value**

Any new transmission line or access road easement would be appraised, and the landowners would be offered the fair market value for these land rights. Some short-term adverse impacts on property value and salability along the proposed new ROW may occur on individual properties. However, these impacts are highly variable, individualized, and not predictable. The new line is not expected to cause overall long-term adverse effects on property values along the existing ROW. (See Appendix L, **Property Impacts**, for more information on impacts to property.)

#### 4.12.2.8 Land Taken Out of Production

For the Agency Proposed Action and the Single-Circuit Line Alternative about 400-1200 m<sup>2</sup> (0.1 to 0.3 acre) of land in wheat and barley would be removed from production for the life of the line in the Swan Valley area. From Teton Substation west about 1.6 km (1 mile), the legs of the new structures for the Single-Circuit Line Alternative would permanently remove a small amount of land available for grazing.

#### ► Reminder

*BPA estimates that about 31 hectares (77 acres) of trees would be cleared for the Agency Proposed Action and about 73 hectares (181 acres) would be cleared for the Single-Circuit Line Alternative. About half that amount would be cleared for the Short Line Alternative.*

The Agency Proposed Action, the Single-Circuit Line Alternative, and the Short Line Alternative would remove both marketable and non-marketable forest products from the Targhee and Bridger-Teton National Forests. The Forest Service may require BPA to lop and scatter or burn all or portions of the timber. If any of the timber can be sold it would be a beneficial impact to the three counties affected, that is, Bonneville and Teton counties, Idaho, and Teton County, Wyoming. About 25 percent of the stumpage value of the trees harvested would be distributed and used for county roads improvements and schools within these counties. This would be a short-term, positive impact.

The Short Line Alternative would remove land for a switching station.

**Preferred Site on the ROW** - Siting the switching station within the Targhee National Forest would change a small portion of the forest, up to 0.4 hectare (1 acre) from multiple use such as recreation/wildlife habitat to a developed industrial use. Since the proposed use would be located within and on either side of the existing ROW (between structures 18/3 and 18/4), this impact would be low.

**Site off the ROW** - The switching station may be placed in agricultural land north of structures 18/3 and 18/4 near the mouth of Pole Canyon. The potential long-term impacts would be moderate and would include the permanent removal of 1-2 hectares (3-5 acres) from production and altered grazing practices. Short-term impacts would include soil compaction around the area surrounding the switching station construction site and a subsequent decrease in soil productivity.

#### 4.12.2.9 Mitigation

- BPA would compensate private landowners for the fair market value of any land taken out of production.
- BPA would work with the landowners/land managers to site the proposed line and individual structure locations to minimize the impact.

#### **4.12.2.10 Cumulative Impacts**

These alternatives respond to increasing load growth that has stressed the transmission system so that voltages are unstable. The introduction of new, more stable, infrastructure as a catalyst to population growth is unclear. Other infrastructure such as water, sewer, etc. play an important role in whether an area can absorb population increases. These alternatives could contribute, along with other factors, to increased growth in the area.

#### **4.12.3 No Action Alternative**

##### **4.12.3.1 Impacts**

The No Action Alternative could lead to voltage collapse if a critical line is lost on the system. Collapse of the system could continue over a long period (a week or more) if outages occur in winter when deep snows make access to the existing transmission system difficult. The chance that service would be disrupted increases with time as load grows. Commerce and industry would be adversely affected as the quality and reliability of power decreased. Some businesses and their employees could decide to relocate to an area where the power supply is more reliable. Loss of businesses and an unstable power supply could influence whether some people move to the area.

When a loss of electricity occurs, all services provided by electrical energy cease. Illumination is lost. Lighting used by residential, commercial, industrial and municipal customers for safe locomotion and security is affected. Residential consumers lose heat. Highways experience gridlock where traffic signals fail to operate. Industrial production is halted. Residential, commercial, and industrial customers experience comfort/safety and temperature impacts, increases in smoke and pollen, and changes in humidity, due to loss of ventilation. Mechanical drives stop, causing impacts as elevators, food preparation machines, and appliances for cleaning, hygiene, and grooming are unavailable to residential customers. Commercial and industrial customers also lose service for elevators, food preparation, cleaning, office equipment, heavy equipment, and fuel pumps. Transportation impacts include propulsion loss. Sewage transportation and treatment can be disrupted.

Electricity for cooking and refrigeration is lost. Residential, commercial, and industrial customers cannot prepare or preserve food and perishables. A special problem is the loss of industrial continuous process heat. Electricity loss also affects alarm systems, communication systems, cash registers, and equipment for fire and police departments.

The No Action Alternative has negative socioeconomic impacts.

## 4.13 Air Quality

### 4.13.1 Impact Levels

A **moderate** impact would create one or more of these outcomes:

- Create an effect that could be mitigated partially.
- Cause a localized reduction in air quality.
- Create a possible, but unlikely risk to human health or safety.

A **low** impact would create one or more of these results:

- Create an effect that could be largely mitigated.
- Reduce the air quality near the construction/clearing.
- Create insignificant or very unlikely health and safety risks.

A **low or no** impact would create no, or fewer impacts than the low impact level.

### 4.13.2 Agency Proposed Action, Single-Circuit Line Alternative, and Short Line Alternative

#### 4.13.2.1 Impacts

Short-term impacts during construction would be created by vehicles and **slash** burning.

Vehicles and heavy equipment would emit pollutants such as **carbon monoxide (CO)**, **sulfur oxides**, particulate matter, **nitrogen oxides**, **volatile and semi-volatile organic compounds**, and **carbon dioxide (CO<sub>2</sub>)**. Emissions would be short term and would have no to low impacts on air quality.

Dust generated during line construction and clearing activities would have a short-term effect on air quality. Dust would have no to low impact on air quality.

Burning slash would emit particulate matter, CO, CO<sub>2</sub> and semivolatile and volatile organic compounds. Predicting the precise quantity of air emissions from these fires is difficult since variables such as the exact quantity of debris to be burned and wood moisture content are not known. However, if the Agency Proposed Action were chosen and 60 percent of the tree mass was slash and burned, approximately 19 metric tons (21 tons) of particulate matter would be emitted. For the Single-Circuit Line Alternative, between 27-45 metric tons (30-50 tons) of particulate

#### ► For Your Information

Burning slash is an option, but it is not BPA's preferred method for disposing of slash. Disposal methods would be coordinated with the Forest Service on all National Forest lands.

#### ► Reminder

BPA estimates that about 31 hectares (77 acres) of trees would be cleared for the Agency Proposed Action and about 73 hectares (181 acres) would be cleared for the Single-Circuit Line Alternative. About half that amount would be cleared for the Short Line Alternative.



matter would be emitted. The Short Line Alternative would emit about half that amount. The amount depends on the exact acreage to be cleared and the tree density. All of these amounts are a relatively large amount of particulate matter that would temporarily affect visibility in several Class I Areas, and create a moderate impact on local air quality.

The only potential for long-term impacts to air quality would be from the transmission lines themselves, which cause limited air emissions. The high electric field strength of an 115-kV transmission line can cause a breakdown of air at the surface of the conductors called corona. Corona has a popping sound that is most easily heard during rain storms. When corona occurs, small amounts of ozone and oxides of nitrogen are released. These substances are released in very small quantities too small to measure. No impacts are expected.

#### **4.13.2.2 Mitigation**

- If necessary, water trucks would be used to spray roadways and construction areas to minimize dust.
- All on-road vehicles would be in good running condition, thus minimizing their emissions.
- On-road vehicles would use low sulfur fuel.
- BPA would try to avoid burning slash because of its potential detrimental effects on local air quality and visibility in nearby Class I areas.
- Burning permits and ignition approval would be obtained from Wyoming and Idaho and all permit requirements would be met.
- Burning on national forests would be coordinated with the USFS.
- Burn as little material as possible.
- Burning would not occur during inversions.
- Initiate burning in late October or early November, after the first snows. Burning during this period would allow the slash to dry, decreasing emissions; provide fire protection (because of the snow); and adequately disperse smoke from the fires, reducing impacts to the Jackson Valley and to the surrounding Class I areas.
- Lop and scatter residues on the ROW to degrade.

#### **4.13.2.3 Cumulative Impacts**

There would be no cumulative effects on local or global air quality over the long term. In the short term, if burning occurs in the fall when woodstoves are being used, it could cumulatively add to air quality impacts already caused by wood burning stoves.

#### **4.13.3 SVC Alternative**

No impacts are expected.

#### **4.13.4 No Action Alternative**

No impacts are expected from this alternative.

### **4.14 Short Term Use of the Environment and the Maintenance and Enhancement of Long-Term Productivity**

The alternatives under consideration do not pose impacts that would significantly alter the long-term productivity of the affected environment. A good example of this is the existing line. It was built in 1968. The affected environment has recovered since then and while there is never complete recovery, the long-term productivity of the affected environment has not been significantly altered. Likewise, if the measures proposed in the alternatives were removed and the affected areas restored, little change in the long-term environmental productivity would have been caused.

#### **► For Your Information**

**Irreversible commitment of resources** is use of nonrenewable resources such as minerals and petroleum-based fuels.

**Irretrievable commitments of resources** cause the lost production or use of renewable resources such as timber or rangeland.

#### **4.15 Irreversible and Irretrievable Commitment of Resources**

The Agency Proposed Action, Single-Circuit Line Alternative, Short Line Alternative, and the SVC Alternative would use aluminum, steel, wood, gravel, sand, and other nonrenewable material to construct steel structures, wood poles, conductors, insulators, access roads and other facilities. Materials may come either from on-site borrow pits or from outside sources. These alternatives would also require some petroleum-based fuels for vehicles and equipment and steel for structures.

Development of the Agency Proposed Action, Single-Circuit Line Alternative, and the Short Line Alternative would cause commitments that result in the loss of wildlife habitat for certain species and lost production or use of renewable resources such as timber and rangeland. These alternatives would permanently convert wildlife habitat, forested land, and rangeland to utility and

transportation uses. Increased volume growth that could have been achieved through silvicultural prescriptions would be foregone, an irreversible and irretrievable commitment of timber resources. This loss of timber would also cause an irreversible and irretrievable commitment of wildlife habitat. Other irretrievable commitments include small amounts of land lost to grazing, crop production, and in some cases, recreational use if access roads are gated. These commitments are irretrievable rather than irreversible because management direction could change and allow these uses in the future.

#### **4.16 Adverse Effects that Cannot be Avoided**

Adverse effects on some resources cannot be avoided by actions proposed under the alternatives. Actions to benefit one resource may have temporary or permanent effects on another. Alternatives include recommended mitigation to avoid or reduce adverse environmental effects. Many adverse effects would be temporary, occurring during site-specific activity.

Some of the adverse effects that cannot be avoided in the alternatives include the following:

- Intermittent and localized decreases in air quality from dust from road construction, road maintenance and use.
- Long-term, localized increases in visual impacts from the addition of elements of the construction alternatives: new access roads and spur roads, new structures, clearing, and new equipment at substations.
- Short-term, localized increases in visual impacts from construction equipment and ground disturbing activities, and maintenance activities.
- Short-term, localized increases in soil compaction, soil erosion, vegetation degradation and stream sedimentation from construction and maintenance.
- Elimination of small areas of vegetation, including some wetland vegetation, due to construction of permanent physical developments such as transmission line structures and bridge abutments.
- Temporary disturbances of wildlife and their habitat in localized areas from increased human activity during construction.



## Chapter 5 Consultation, Permit and Review Requirements

In this Chapter:

- **Laws and procedures to follow**
- **Consultations**

Several federal laws and administrative procedures must be met by the alternatives. This chapter lists and briefly describes requirements that would apply to elements of this project, actions taken to assure compliance with these requirements, and the status of consultations or permit applications. This Draft EIS is being sent to tribes, federal agencies, and state and local governments as part of the consultation process for this project.

### 5.1 National Environmental Policy Act

This Draft EIS was prepared according to NEPA (42 USC 4321 et seq.). NEPA is a national law for protection of the environment. NEPA applies to all federal projects or projects that require federal involvement. BPA would take into account potential environmental consequences and would take action to protect, restore, and enhance the environment.

### 5.2 Endangered and Threatened Species

The Endangered Species Act (16 USC 1536) provides for conserving endangered and threatened species of fish, wildlife and plants. Federal agencies must determine whether proposed actions would adversely affect any endangered or threatened species. When conducting an environmental impact analysis for specific projects, agencies must identify practicable alternatives to conserve or enhance such species.

BPA received letters from the USFWS (U.S. Department of the Interior, Fish and Wildlife Service, May 30, 1996, November 14, 1997, and January 21, 1998) that listed the endangered and threatened species that could be affected by the project. A Biological Assessment was sent to the USFWS in Cheyenne, Wyoming and Pocatello, Idaho. Both offices concurred with BPA's determinations of not likely to adversely affect endangered and threatened species. The Wyoming office did notify BPA that since BPA's species list request and the Biological Assessment, the USFWS identified the Canada lynx as a candidate. BPA has surveyed the project area for the Canada lynx and has found no evidence of their presence in the project area.

Possible impacts of the alternatives to federal threatened or endangered species are discussed in this section and in Chapter 4. Detailed discussions of Federal Candidate species, U.S. Forest Service Sensitive Species, and other special status species are included in Appendix F, Swan Valley-Teton Line Right-of-Way Threatened, Endangered and Sensitive Plant Species Survey and Noxious Weed Survey, Appendix G, Wildlife Report, and Appendix H, Biological Assessment.

**Animals** – The USFWS lists two species, the bald eagle and the peregrine falcon, as potentially occurring within the project area.

ESA regulations require that a Biological Assessment be prepared to identify any threatened or endangered species that are likely to be impacted by a federal action. A Biological Assessment was prepared between the draft and final EIS (see Appendix H). The Biological Assessment also describes potential impacts to candidate species.

The only potential impact to the bald eagle or peregrine falcon may be an incremental increase in collision risk with transmission lines in the Swan Valley and Jackson areas. However, bald eagle mortality has not been reported from any existing transmission lines in the project area. Similarly, most peregrine falcons use habitat along the Snake River that is outside the project area, which creates a low level of collision risk.

No significant habitat loss for nesting and wintering bald eagles would occur. Habitat loss would also be insignificant for the peregrine falcon because no major use area would be affected. Wintering bald eagles may be temporarily disturbed by construction if it occurs during winter, which is highly unlikely.

Other species listed under the Act that may occur in the project area (grizzly bear, and gray wolf) are not present in significant numbers, causing no or minimal impacts. The whooping crane is no longer found in the area.

Potential impacts to all these species are discussed in Section 4.9.2.1 and in Appendices G and H.

**Plants** – Ute Ladies'-tresses is listed threatened by the USFWS and could potentially occur in the project area. A focused survey during the summer of 1997 did not locate any plant species, however potential habitat exists. The plant is known to occur along creeks and wetlands and is also known for having prolonged periods of dormancy. Though no plant species were found, a botanist will resurvey the areas of potential habitat during the appropriate time of year in 1998.

For detailed information about this plant see Appendix H, **Biological Assessment**. For information on impacts, see Section 4.9.2.1, **Impacts**, in Chapter 4. (See also Section 3.9.5, **Special Status Plants**).

### 5.3 Fish and Wildlife Conservation

The Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) encourages federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the Fish and Wildlife Coordination Act (16 USC 661 et seq.) requires federal agencies undertaking projects affecting water resources to consult with the USFWS and the state agency responsible for fish and wildlife resources.

Mitigation designed to conserve wildlife and their habitat is provided in Chapter 4 (see Sections 4.6.2.2. and 4.9.2.2, **Mitigation**). Standard erosion control measures would be used during construction to control sediment movement into streams, protecting water quality and fish habitat.

### 5.4 Heritage Conservation

Congress passed many federal laws to protect the nation's cultural resources. These include the National Historic Preservation Act, the Archeological Resources Protections Act, the American Indian Religious Freedom Act, the National Landmarks Program, and the World Heritage List. Preserving cultural resources allows Americans to have an understanding and appreciation of their origins and history. A cultural resource is an object, structure, building, site or district that provides irreplaceable evidence of natural or human history of national, state or local significance. A cultural resource can also include traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, often referred to as traditional cultural property. Cultural resources include traditional cultural property, National Landmarks, archeological sites, and properties listed (or eligible for listing) on the National Register of Historic Places.

#### ► Reminder

*A traditional cultural property is defined generally as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs (e.g., traditions, beliefs, practices, lifeways, arts, crafts, and social institutions) of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community.*

Construction, and operation and maintenance of the Agency Proposed Action, the Single-Circuit Line Alternative, and the Short Line Alternative could potentially affect cultural resources. A literature review of the project area was done to determine the prehistory and history of the area and the probability of finding cultural resources that may be affected by the project. A cultural survey of the existing and proposed ROW and access road system was completed during 1997 to determine if any cultural resources are present and would be impacted. A survey of the proposed

staging areas was completed in 1998. Two historic and no prehistoric sites were found during the surveys. The sites are described in Section 3.12, **Cultural Resources**.

The two historic sites are eligible for the NRHP. BPA has made a determination of no adverse effect as portions of these sites could be affected by construction but the effect would not be harmful. BPA has coordinated this determination with the Wyoming and Idaho SHPO and the Advisory Council on Historic Preservation. Mitigation in the form of recordation is proposed. BPA would work with the USFS and the SHPO's on mitigation. Mitigation would be done before construction.

The Wind River (Eastern) Shoshone identified a concern that a new transmission line would have the potential to affect traditional cultural property in the Teton Pass area. Consultation with the Tribe did not identify traditional cultural property in or near the existing ROW. The Tribe did express that they would prefer BPA to stay within the existing ROW at Teton Pass. This would be done under the Agency Proposed Action.

If, during construction, previously unidentified cultural resources that would be affected by the proposed project are found, BPA would follow all required procedures set forth in the following regulations, laws, and guidelines: Section 106 (36 CFR Part 800) of the National Historic Preservation Act of 1969, as amended (16 USC Section 470); the National Environmental Policy Act of 1969 (42 USC Sections 4321-4327); the American Indian Religious Freedom Act of 1978 (PL 95-341); the Archaeological Resources Protection Act of 1979 (16 USC 470a-470m); and the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601).

## 5.5 Federal, State, Areawide, and Local Plan and Program Consistency

No conflicts with state, areawide or local land use plans or programs are anticipated. BPA would work with agency planners to minimize conflicts between proposed activities and the land use plans of Bonneville County, Idaho, Teton County, Idaho, and Teton County, Wyoming. More details on consistency with these plans are given in Appendix K, **Local Plan Consistency**.

### ► For Your Information

*NFMA passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of regional and forest plans and the preparation of regulations to guide that development.*

Both the Targhee and Bridger-Teton National Forests have adopted forest plans. These forest plans were developed in accordance with the National Forest Management Act (**NFMA**) of 1976. Forest plans are intended to guide all natural resource management activities within the forests and establish management standards as well as the suitability of lands for resource development. Forest plans are valid until revised, and typically commit forest managers to a course of action no longer



### ► Reminder

*A **management prescription** defines management practices selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.*

### ► For Your Information

*In Tables 5-1 and 5-2, BPA only lists prescription information that would apply to the construction, operation and maintenance of a transmission line and access roads.*

than 15 years. The forest plans take state and local regulations into consideration as well as federal law so as to avoid, or at least to minimize, potential conflicts with other agencies and plans.

**Targhee National Forest** — All transmission line alternatives cross land managed by the Targhee National Forest. The Targhee National Forest has just finished updating its Land and Resource Management Plan. The existing ROW is within **management prescription** 8.1, Concentrated Development Areas. This prescription allows for concentrated utility development. Access roads fall within 8.1 and other prescription areas adjacent to 8.1. Table 5-1 lists the Standards and Guidelines, Goals, and Objectives for these management prescriptions. Table 5.1 also includes the actions BPA would take to be consistent with the management direction of each prescription. See Map 11, **Management Prescriptions for the Targhee and Bridger-Teton National Forests**, for the location of each prescription area.

In addition to the management prescriptions, the Revised Targhee Land and Resource Management Plan provides management direction at two additional levels: forestwide and subsection. The existing and new ROW pass through the Teton Range and Big Hole Mountains Subsections. BPA would be consistent with the applicable forestwide goals and objectives, and standards and guidelines for all the alternatives. BPA would also be consistent with the applicable desired future conditions, goals and objectives, and standards and guidelines of the subsections. For the construction line alternatives, BPA may not be able to meet the standards for the goshawk, great gray owl, flammulated owl, and boreal owl in Prescription Area 8.1. If one of these alternatives is chosen, the Revised Forest Plan could be amended so the chosen alternative is exempt from meeting the goshawk habitat, flammulated owl habitat, boreal owl habitat #1, and great gray owl habitat #1 standards.

*This information would be helpful when looking at Tables 5-1 and 5-2:*

- **Preservation** is defined as an area where no modifications to visual resources with the exception of natural occurrences is allowed.
- **Retention** is defined as an area where management activities are allowed but should not be seen.
- **Partial Retention** is defined as an area where management activities can be apparent but not dominant.
- **Modification** applies to less visually-sensitive areas where changes can dominate the natural landscape but should look natural from a long distance.
- Map 10 shows ROS designations
- Map 11 shows Management Prescriptions on each forest.
- Map 12 shows the USFS Visual Quality Objectives for each forest.

**Bridger-Teton National Forest** — All transmission line alternatives would cross Management Area 41, Jackson Hole South, and the Palisades Wilderness Study Area. Table 5-2 lists the forestwide Goals and Objectives, Standards and Guidelines, and the prescriptions for Jackson Hole South and the Palisades Wilderness Study Area that would apply to the alternatives. BPA would be consistent with the forestwide Goals and Objectives, Standards and Guidelines, and the prescriptions for Jackson Hole South and the Palisades Wilderness Study. Map 11 shows the location of the prescriptions. Table 5-2 also describes the actions BPA would take to meet Forest Service requirements.

## 5.6 Farmland Protection

The Farmland Protection Policy Act (7 USC 4201 et seq.) directs federal agencies to identify and quantify adverse impacts of federal programs on farmlands. The Act's purpose is to minimize the number of federal programs that contribute to the unnecessary and irreversible conversion of agricultural land to non-agricultural uses.

The location and extent of prime and other important farmlands designated by the Natural Resource Conservation Service (**NRCS**), formerly the Soil Conservation Service, were obtained from NRCS soil survey information. The Agency Proposed Action, the Single-Circuit Line Alternative, and the Short Line Alternative would locate transmission facilities on soils designated by the NRCS as farmland of statewide importance. About 0.04-0.12 hectare (0.1-0.3 acre) would be permanently affected by construction of the Agency Proposed Action and the Single-Circuit Line Alternative. About 1-2 hectares (3-5 acres) would be affected if the Short Line Alternative is built and the switching station site of the ROW is chosen. Evaluation of the project area according to criteria set forth in the Act indicates the alternatives would have minimum impact on area farmlands since:

- Except for the immediate area surrounding structures, no additional nonfarmland would be created due to interference with existing land patterns.
- Agricultural operations within the corridor are currently affected by the existing line but no additional farmland that is currently unaffected (i.e., adjacent to or near the existing line) would be impacted or converted to non-agricultural uses because of the proposal.
- No existing substantial and well maintained on-farm investments would be affected.
- The alternatives would not cause the agricultural use of adjacent farmlands to change, nor jeopardize the continued existence of area farm support services.



















## 5.7 Recreation Resources

The northeastern Idaho and western Wyoming area is scenic and boasts several national parks, designated wilderness areas, a national monument, a wildlife refuge, and a wild and scenic river. The existing ROW does not cross any of these areas of national environmental concern, but it does cross a wilderness study area on the Bridger-Teton National Forest. BPA would not impact or change the character of the wilderness study area and would not compromise the ability of the study area to become a wilderness area in the future. Most of the existing transmission line is on national forest. The portions of line outside of national forest are on private property and have few or no regulations governing recreation use.

The USFS developed the Recreation Opportunity Spectrum to provide direction for land management and recreation planning within national forests. The existing ROW crosses five ROS designations: Rural, Roaded Natural Appearing, Semi-Primitive Motorized, Semi-Primitive Nonmotorized, and Primitive (see Map 10). Construction, operation, and maintenance of the Agency Proposed Action, the Single-Circuit Line Alternative, or the Short Line Alternative, are not expected to cause conflicts or changes to ROS designations. Impacts to ROS designations are also described in Section 4.3, **Recreation Resources.**

Pine Creek and its perennial tributaries from 100 yards downstream of the existing transmission line crossing near Pine Basin Lodge to the confluence with the South Fork Snake River are designated “natural” rivers (Idaho Water Resource Board, 1996). Pine Creek from the headwaters to 100 yards downstream of the existing transmission line crossing near Pine Basin Lodge and some of its perennial tributaries (Tie Canyon, Poison Creek, West Pine Creek and Mike Spencer Canyon) are also designated “recreational” rivers (Idaho Water Resource Board, 1996). A recreational or natural river is defined as a “waterway which possesses outstanding fish and wildlife, recreation, geologic or aesthetic values” (Idaho Code 42-1731[7] and [9]). These designations do not restrict or interfere with expansion or maintenance of existing uses including activities necessary to maintain and improve existing utilities and roadways (Idaho Water Resource Board, 1996.) Federal agencies are encouraged to manage lands to compliment these designations.

State Route 31 and part of State Route 33 are Idaho Scenic Byways. The existing line is visible from these roads in many locations, mostly in the middleground and background of most views, not as a dominant feature. Portions of the new ROW are expected to become somewhat more visible to tourists traveling

through the area. However, the new line is not expected to become the dominant feature in the landscape, nor is it expected to change the perception of tourists that this is a highly scenic area.

## **5.8 Floodplain/Wetlands Assessment**

In accordance with Department of Energy regulations on compliance with Floodplains/Wetlands environmental review requirements (10 CFR 1022.12), and Executive Orders 11988 and 11990, BPA has prepared the following assessment of the impacts of the alternatives on floodplains and wetlands. BPA published a notice of floodplain/wetlands involvement for this project in the Federal Register on November 6, 1996.

### **5.8.1 Project Description**

The need and purpose of the project are described in Chapter 1. Map 7 shows locations of floodplains and wetlands with respect to the Agency Proposed Action and other alternatives. The locations of the 100-year floodplains were determined from Flood Insurance Rate Maps published by the Federal Emergency Management Agency, U.S. Department of Housing and Urban Development.

Wetlands that would be affected by the alternatives were identified by three methods: Wetland Inventory Maps prepared by the USFWS for Idaho and Wyoming; aerial photo interpretation; and field inspections.

### **5.8.2 Floodplain/Wetland Effects**

Floodplain impacts are discussed in Section 4.7. Based on preliminary engineering design of the alternatives, all floodplains would be spanned by the new line, avoiding placement of structures in floodplains. Where improvements need to be made on existing access roads through floodplains, such as construction of new bridges, soil and vegetation would be disturbed. Impacts to wetlands/floodplains would be moderate, but BPA would implement measures to reduce or avoid impacts.

Upgrading existing access roads in floodplains would not significantly increase the risk of flooding or flood damage. The fords and bridges that would be replaced would not be vulnerable to damage by floodwaters because they would be designed to withstand flooding. Displacement of floodwaters by bridges would be negligible; bridges are not expected to alter the floodplain storage volume or to cause a local increase in the flood stage. Fill for bridges would be limited to the amount necessary for construction.

Wetlands that would be crossed by the alternatives are discussed in Section 4.7. Riparian wetlands associated with Pine Creek, Trail Creek (Idaho), and Fish Creek would be spanned. Wet meadows found in mountainous regions would also be spanned. New bridges are needed to cross Pine Creek, Tie Creek, and Little Pine Creek. All of these creeks have riparian associated wetlands. Disturbance to the wetlands would include approximately 348 m<sup>2</sup> (3,750 ft<sup>2</sup>) with about 382 m<sup>3</sup> (500 yds<sup>3</sup>) of fill for each abutment. Impacts to wetlands would be long term. Direct impacts include placement of fill within wetlands from concrete abutments and crushed rock on the bridge approaches, as well as soil compaction and vegetation removal from vehicle disturbance. Temporary bridges and/or culverts would be needed to cross Phillips and Lake creeks. Impacts would be similar because fill would be placed in wetlands from concrete for the bridge abutments or crushed rock to backfill around the culvert. Construction, operation, and maintenance of the alternatives are not expected to affect the long-term survival, quality, or natural and beneficial values of the wetlands involved. Activities in wetlands would be coordinated with the Corps of Engineers (Idaho and Wyoming offices) and Idaho and Wyoming state regulatory agencies. The appropriate permits would be acquired.

### 5.8.3 Alternatives

Under Executive Orders 11988 and 11990, developments on floodplains and in wetlands are discouraged whenever there is a practical alternative.

The Short Line Alternative would require building a line half the distance of the Agency Proposed Action and the Single-Circuit Line Alternative. Only a temporary bridge and/or culverts would be needed to cross Phillips and Lake Creeks. Less road construction would occur too. The Agency Proposed Action includes using double-circuit structures on the valley floor into Teton Substation. This would allow longer spans, which would enable wetlands and floodplains to be spanned. The Single-Circuit alternative would require more structures in that area, possibly requiring placement of one or two structures in a wetland or floodplain.

The SVC Alternative would require construction at Teton Substation or Jackson Substation. Teton Substation has wetlands nearby but any construction would be within the previously-disturbed substation yard and parking area within the property boundary, and would not impact these wetlands. Jackson Substation is not on or near wetlands and no wetlands would be impacted. The No Action Alternative is discussed in more detail along with the other alternatives in Chapter 2.

### 5.8.4 Mitigation

Mitigation for site-specific impacts is discussed in Section 4.7.2.3. BPA would minimize, to the extent possible, siting structures and new access roads in wetlands or floodplains and would minimize to the extent possible the access road improvements through wetlands and floodplains. BPA would field survey all access roads and existing and new ROW for wetlands to ensure full compliance with the Clean Water Act. BPA would also work with the appropriate agencies to mitigate fully any actions that would alter the function of a wetland.

#### **► For Your Information**

*The Executive Order on Environmental Justice (Executive Order 12898) was enacted in February 1994 to ensure that federal agencies do not unfairly inflict environmental harm on economically disadvantaged and minority groups within the United States or any of its territories.*

*Gases contributing to global warming are called greenhouse gases. Greenhouse gases include: water, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ground level ozone (and the pollutants which generate ground level ozone), and stratospheric ozone depleting substances such as chlorofluorocarbons and carbon tetrafluoride. CO<sub>2</sub> is the most common greenhouse gas in the atmosphere. Greenhouse gases warm the atmosphere by absorbing infrared radiation given off by the earth, preventing heat loss to outer space.*

### 5.9 Executive Order on Environmental Justice

The socioeconomic analysis contained in this EIS determined that the alternatives would not adversely affect any minority or economically disadvantaged groups in the project area because they do not reside in the project area in large numbers, and are less than 5 percent of the population (see Section 3.13.1). The alternatives would be located on either agricultural lands or on lands managed by the USFS. For these reasons, the alternatives would not violate the intent of the Executive Order on Environmental Justice.

### 5.10 Global Warming

Clearing timber releases CO<sub>2</sub> to the atmosphere and eliminates CO<sub>2</sub>-collecting trees. If the Agency Proposed Action is chosen, BPA would clear about 31 hectares (77 acres) of forested land. If the Single-Circuit Line Alternative is chosen, BPA would clear about 73 hectares (181 acres) of forest land. About half that amount would be cleared for the Short Line Alternative. The exact amount to be cleared depends on the alternative chosen, the number of trees removed and the exact location of new access roads.

BPA would minimize carbon releases to the atmosphere by selling all marketable timber from clearing operations so that it could be used for building materials. The amount of carbon going into long-term storage as building material, and not into the atmosphere, averages about 40 percent of the tree's total carbon (Harmon, et al., 1990). This 40 percent accounts for carbon contained in wood waste generated during milling. Wood wastes are either burned in boilers or used for paper products. In either case, carbon contained in this waste is assumed to be released to the atmosphere fairly rapidly.

The remaining 60 percent of the trees' total carbon is nonmarketable material (limbs, brush, roots and other residue). It would be burned or lopped and scattered on the ROW to degrade. Burning slash is not BPA's preferred method for disposing of slash.

If residues are lopped and scattered, rather than burned, they would gradually degrade, releasing carbon to the atmosphere over approximately 100 years (U.S. Environmental Protection Agency, 1994). Additionally, over the course of 100 years, about half the carbon in the residue would be reabsorbed by new growth (U.S. Environmental Protection Agency, 1994). The Agency Proposed Action would release about 15.7 metric tons (17.3 tons) of carbon (as CO<sub>2</sub>) annually over the next 100 years which is approximately equal to the annual CO<sub>2</sub> emissions of 3-4 cars. The Single-Circuit Line Alternative would release between 27-36 metric tons (30-40 tons) of carbon (as CO<sub>2</sub>) annually over the next 100 years which is approximately equal to the annual CO<sub>2</sub> emissions of 6-8 cars. The Short Line Alternative is assumed to be about half that amount. Carbon emissions from the alternatives would have low to no impact if residues are lopped and scattered.

### ► For Your Information

*CO<sub>2</sub> emissions assume the average car is driven 10,000 miles/year, emits 5 tons of CO<sub>2</sub> per year, gets 20 miles per gallon and there are 20 lbs. CO<sub>2</sub> /gallon gas (Brook, 1990).*

Burning would be discouraged and is not a common BPA practice. If material must be burned, burning residue would emit particulate matter, CO, CO<sub>2</sub> and semivolatile and volatile organic compounds. For the Agency Proposed Action, this would cause a one-time, short-term release of approximately 3,100 metric tons (3,500 tons) of carbon to the atmosphere and is about equal to the annual CO<sub>2</sub> emissions of approximately 700 cars, or 7000 head of range cattle. For the Single-Circuit Line Alternative, this would cause a one-time, short-term release of 5000-7000 metric tons (6000-8000 tons) of carbon to the atmosphere and is about equal to the annual CO<sub>2</sub> emissions of 1200-1600 cars, or 12,000-16,000 head of range cattle. This would be partially mitigated by regrowth of low-growing vegetation on the ROW. Regrowth would absorb between 0.55-5.5 metric tons/hectare (0.5-5 tons/acre) annually (Trexler, 1993), mitigating between 35-340 metric tons/year (39-385 tons/year) for the Agency Proposed Action and between 60-800 metric tons/year (60-925 tons/year) for the Single-Circuit Line Alternative (half that amount for the Short Line Alternative).

*Range cattle emit about 119 lbs. of methane/year (Kerstetter, 1993), which is equivalent to over half a ton of CO<sub>2</sub> per head.*

It would take over 170,000 projects such as the Agency Proposed Action and 300,000 projects such as the Single-Circuit Line Alternative (half that amount for the Short Line Alternative) to raise the atmospheric concentration of CO<sub>2</sub> 1 part per million (U.S. EPA, 1994). Even the worst alternative, burning residues, would have low to no impact on global warming.

### 5.11 Coastal Zone Management Consistency

Because the project area is in northeastern Idaho and western Wyoming, it does not fall within or come near a coastal zone as defined by the Coastal Zone Management Act (U.S.C. 1951, et. seq.). Since the alternatives do not affect a coastal zone, a determination of consistency or of no effect is not required.

### 5.12 Energy Conservation at Federal Facilities

The proposed changes at Teton or Jackson substations for the SVC Alternative would require adding a new control house. The building design would meet federal energy conservation design standards as they apply to existing structures.

### 5.13 Pollution Control at Federal Facilities

Several pollution control acts apply to this project:

**Resource Conservation and Recovery Act (RCRA)** – The Resource Conservation and Recovery Act, as amended, is designed to provide a program for managing and controlling hazardous waste by imposing requirements on generators and transporters of this waste, and on owners and operators of treatment, storage, and disposal (*TSD*) facilities. Each TSD facility owner or operator is required to have a permit issued by EPA or the state. Typical construction and maintenance activities in BPA's experience have generated small amounts of these hazardous wastes: solvents, pesticides, paint products, motor and lubricating oils, and cleaners. Small amounts of hazardous wastes may be generated by the project. These materials would be disposed of according to state law and RCRA.

**Toxic Substances Control Act** – This Act is intended to protect human health and the environment from toxic chemicals. Section 6 of the Act regulates the use, storage, and disposal of PCBs.

BPA adopted guidelines to ensure that PCBs are not introduced into the environment. Equipment proposed in any of the alternatives would not contain PCBs. Any equipment removed that may have PCBs would be handled according to the disposal provisions of this Act.

**Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)** – This Act registers and regulates pesticides. BPA uses herbicides only under controlled circumstances. Herbicides are used on transmission line rights-of-way and in substation yards to control vegetation, including noxious weeds.



When BPA uses herbicides, the date, dose, and chemical used is recorded and reported to state government officials. Herbicide containers are disposed of according to RCRA standards.

## 5.14 Noise Control Act

The Federal Noise Control Act of 1972 (42 U.S.C. 4903) requires that federal entities, such as BPA, comply with state and local noise requirements.

Neither Idaho nor Wyoming have noise regulations. However, the Town of Jackson and Teton County, Wyoming have noise regulations limiting noise in certain zoning districts to 55 dBa at the emitting property boundary line.

A new transmission line (the Agency Proposed Action, the Single-Circuit Line Alternative, or the Short Line Alternative) in Teton County would not increase the ambient audible noise level along the transmission line route or in the substation.

The SVC Alternative would create an additional noise source and additional noise depending on background noise and equipment operation. The SVC would be designed so that the maximum noise level would be at 55 dBa at the emitting property line, and would meet the Town of Jackson and Teton County noise standards.

## 5.15 Emission Permits under the Clean Air Act

The Federal Clean Air Act as revised in 1990 (PL 101-542, 42 USC 7401) requires the EPA and states to carry out programs intended to assure attainment of the National Ambient Air Quality Standards. In Idaho, EPA has delegated authority to the Idaho Department of Health and Welfare, Division of Environmental Quality. In Wyoming, EPA has delegated authority to the Department of Environmental Quality.

Section 160 of the Clean Air Act requires the protection, preservation or enhancement of air quality in national parks, wilderness areas and monuments. The 1977 Clean Air Act amendments called for a list of existing areas to be protected under section 160. These are called Class I (one) areas (40 CFR 81 Subpart D). Several Class I areas are located near the project area (see Section 3.14, **Air Quality**). Rubbish from clearing activities that may be burned should not negatively affect the long-term air quality in nearby Class I areas.

If material is burned, contractor's performing the work would apply for permits from one or all of these agencies: the Department of Environmental Quality in Wyoming and the Bureau of Land Management or the Palisades Ranger District in the Targhee National Forest in Idaho.

**General Conformity Rule** — 40 CFR Part 51, subpart W, 40 CFR Part 93 subpart B, and 40 CFR section 6.303 assures that federal actions do not interfere with state programs to improve air quality in nonattainment areas. Because none of the alternatives are within a nonattainment area, they are not subject to General Conformity Requirements.

## 5.16 Discharge Permits under the Clean Water Act

The Clean Water Act (CWA) regulates discharges into waters of the United States.

**Section 401** — Section 401 of the Clean Water Act, the State Water Quality Certification program, requires that states certify compliance of federal permits and licenses with state water quality requirements. A federal permit to conduct an activity that results in discharges into waters of the United States, including wetlands, is issued only after the affected state certifies that existing water quality standards would not be violated if the permit were issued. The Idaho Department of Health and Welfare, Division of Environmental Quality and Wyoming Department of Environmental Quality, Water Quality Division would review permits for compliance with state water quality standards.

**Section 402** — This section authorizes storm water discharges associated with industrial activities under the National Pollutant Discharge Elimination System (**NPDES**). For Idaho and Wyoming, the EPA has a general permit authorizing federal facilities to discharge storm water from construction activities disturbing land of 2 or more hectares (5 or more acres) into waters of the U.S., in accordance with various set conditions. BPA would comply with the appropriate conditions for this project, such as issuing a Notice of Intent to obtain coverage under the EPA general permit and prepare a Storm Water Pollution Prevention (SWPP) plan.

The SWPP plan helps ensure that erosion control measures would be implemented and maintained during construction. The SWPP plan would address best management practices for stabilization, stormwater management, and other controls (see Section 4.6.2.2, **Mitigation**).

**Section 404** — Authorization from the U.S. Army Corps of Engineers is required in accordance with the provisions of Section 404 of the CWA when there is a discharge of dredged or fill

material into waters of the U.S., including wetlands. This includes excavation activities that result in the discharge of dredged material that could destroy or degrade waters of the U.S.

Waters of the U.S. (including wetlands) could potentially be impacted in the states of Wyoming and Idaho by access road upgrades and construction. Field surveys would be conducted for the presence of wetlands to ensure full compliance with the CWA. Once all impacts to waters of the U.S. (including wetlands) are fully identified, authorization would be sought from the Corps and the appropriate state agencies in Idaho and Wyoming. (See Section 5.8, **Floodplains/Wetlands Assessment**, for more information.)

### **5.17 Underground Injection Permits under the Safe Drinking Water Act**

The Safe Drinking Water Act (42 U.S.C. sec 300f et. seq.) is designed to protect the quality of public drinking water and its sources. BPA would comply with state and local public drinking water regulations. None of the alternatives would affect any ***sole-source aquifers*** or other critical aquifers or adversely affect any surface water supplies.

### **5.18 Permits from the Army Corps of Engineers**

The U.S. Army Corps of Engineers administers several permit programs, of which Section 404 of the Clean Water Act would apply. Section 404 is described in Section 5.16.

The Corps' authorization is also required under Section 10 of the Rivers and Harbors Act for work or placement of structures below the ordinary high water mark of, or affecting, navigable waters of the U.S. None of the alternatives cross navigable waters in Idaho or Wyoming, so authorization would not be required.

### **5.19 Special Use Permit for Transmission Lines Across Federal Lands**

The Agency Proposed Action, the Single-Circuit Line Alternative, and the Short Line Alternative would cross federally managed lands requiring the approval of the agency administering the lands. The USFS is a cooperating agency on this EIS and manages 84 percent of the land crossed by the existing ROW. BPA is working with USFS representatives to gain their approval for building a transmission line across the national forest. If any of these alternatives are chosen by BPA and the USFS, the USFS would issue a Special Use Permit.

## 5.20 Notice to the Federal Aviation Administration

As part of transmission line design, BPA seeks to comply with Federal Aviation Administration (**FAA**) procedures. Final locations of structures, structure types, and structure heights are submitted to FAA for the project. The information includes identifying structures taller than 60 m (200 ft.) above ground, and listing all structures within prescribed distances of airports listed in the FAA airport directory. BPA also assists the FAA in field review of the project by identifying structure locations. The FAA then conducts its own study of the project, and makes recommendations to BPA for airway marking and lighting. General BPA policy is to follow FAA recommendations.

Table 5-1. Targhee Forest Plan Management Prescriptions

Rx	Goals and Objectives, Standards and Guidelines	Consistency
1.1.6	<p>Designated Wilderness - Opportunity Class I (applies to the Winegar Hole Wilderness and portions of the Jedediah Smith Wilderness)</p> <p>Goals &amp; Objectives: Maintaining the natural diversity of wildlife species is the highest priority. Outstanding opportunities exist for solitude, self-reliance, and challenge. Trails are non-existent. No measurable downward trend in plant species composition and diversity. Forestwide Standards &amp; Guidelines (S&amp;G) apply.</p> <ul style="list-style-type: none"> <li>• No motorized cross country or road and trail travel allowed (Standard).</li> <li>• Recreation Opportunity Spectrum (ROS) is primitive (Standard).</li> <li>• Visual Quality Objective (VQO) is preservation (Standard).</li> </ul>	<ul style="list-style-type: none"> <li>• No lands within wilderness will be impacted by construction or operation of the transmission line.</li> </ul>
1.1.7	<p>Designated Wilderness - Opportunity Class II (applies to areas of the Jedediah Smith Wilderness)</p> <p>Goals &amp; Objectives: Maintaining the natural diversity of wildlife species is a high priority and there is limited displacement of wildlife. Human activities are managed so that limited modification of natural succession only occurs at campsites, trails, and grazed areas. Soil erosion may occur. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• No motorized cross country or road and trail travel allowed (Standard).</li> <li>• Recreation Opportunity Spectrum (ROS) is primitive to semi-primitive nonmotorized (Standard).</li> <li>• Visual Quality Objective (VQO) is preservation (Standard).</li> <li>• Evaluate and protect heritage resources for public visibility (Goal).</li> </ul>	<p>Same as above.</p>
1.1.8	<p>Designated Wilderness - Opportunity Class III (applies to areas of the Jedediah Smith Wilderness)</p> <p>Goals &amp; Objectives: Maintaining the natural diversity of wildlife species is a high priority but does not necessarily dominate other uses. Human activities are managed so that modification of natural succession only occurs at campsites and a moderate amount of soil erosion may occur. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• No motorized cross country or road and trail travel allowed (Standard).</li> <li>• Recreation Opportunity Spectrum (ROS) is primitive to semi-primitive nonmotorized (Standard).</li> <li>• Visual Quality Objective (VQO) is preservation (Standard).</li> </ul>	<p>Same as above.</p>
1.2 and 1.3	<p>Wilderness Study Area (WSA)</p> <p>Goals &amp; Objectives: Protect and perpetuate wilderness character. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Allow prescribed fires from both natural and management-ignition when they meet the objectives of the WSA.</li> <li>• Use indigenous species to reestablish vegetation as the first choice. Where native species are unlikely to succeed, use appropriate self-extirpating naturalized species (Goal).</li> <li>• Wildlife habitat manipulation can only occur if the project can be done with assurance that there will be no serious or lasting damage to wilderness value (Standard).</li> <li>• No motorized cross country or road and trail travel allowed (Standard).</li> <li>• Roads are allowed only to the extent they already exist (Standard).</li> <li>• ROS is primitive or semi-primitive nonmotorized (Goal).</li> <li>• VQO is preservation (Standard).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA and the Forest Service have created a new alternative that uses double-circuit structures through Teton Pass and the WSA.</li> <li>• BPA would follow Targhee requirements on the clearing and treatment of non-marketable timber.</li> <li>• BPA would revegetate disturbed areas with low-growing native seed mix.</li> <li>• Low-growing vegetation would be allowed to regenerate on the ROW. Disturbed areas would be reseeded after construction for quicker regeneration.</li> <li>• BPA would use existing access roads for construction.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places trees could be removed beyond the edge of the ROW creating a feathered or scalloped effect.</li> </ul>
2.1.2	<p>Visual Quality Maintenance</p> <p>Goals &amp; Objective: Manage travel corridors to protect their visual quality and provide dispersed recreational opportunities. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Rely on natural regeneration to the greatest extent possible (Goal).</li> <li>• VQO is retention to maximum modification (Goal).</li> <li>• Cross-country motorized travel is not allowed. Motorized use is allowed on designated routes (Standard).</li> <li>• Recreation is managed to provide a combination of semi-primitive nonmotorized to roaded natural opportunities (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> <li>• BPA and the Forest Service have created a new alternative that uses double-circuit structures through Teton Pass and the WSA.</li> <li>• Low-growing vegetation would be allowed to regenerate on the ROW. Disturbed areas would be reseeded with native seed mixes after construction for quicker regeneration.</li> <li>• BPA would improve and use the existing access road system and has worked with the Targhee on the placement of new roads</li> </ul>
2.5	<p>Eligible Recreation River</p> <p>Goal: Maintain and protect the outstandingly remarkable values of the river and corridor which qualify it as a Recreational River. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• All activity fuels will be treated to meet the partial retention VQO in foreground within one season following timber harvest (Goal).</li> <li>• Consider the use of indigenous or appropriate naturalized species to reestablish vegetation where there is no reasonable expectation of natural healing (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would follow Targhee requirements on the clearing and treatment of non-marketable timber.</li> <li>• BPA would revegetate disturbed areas with low-growing native seed mix.</li> </ul>
2.7(a)	<p>Elk and Deer Winter Range</p> <p>Goals &amp; Objectives: Provide quality elk and deer winter range. Forested vegetation is managed to maintain or improve cover or forage conditions needed for wintering deer and elk. Nonforested vegetation is managed to maintain or improve forage production needed for wintering deer and elk. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Minimize human disturbance to wintering big game animals (Goal).</li> <li>• Cross country travel is not allowed. Motorized use is allowed on designated routes (Standard).</li> <li>• ROS is semi-primitive nonmotorized to roaded natural (Goal).</li> <li>• Manage recreation sites to maintain winter habitat conditions (Goal).</li> <li>• VQO is retention to modification (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would follow Targhee requirements on the clearing and treatment of non-marketable timber.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• BPA has worked with the Targhee on location of gates to limit access.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> </ul>



Table 5-1. continued

Rx	Goals and Objectives, Standards and Guidelines	Consistency
2.8.3	<p>Aquatic Influence Zone (No Allowable Sale Quantity)                      Goals &amp; Objectives: Riparian, wetland and aquatic ecosystems are managed to promote their health and function within the range of variation, where feasible. Minimize adverse effects to aquatic and riparian dependent species from past, existing and proposed management activities. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Boundary widths for the five water types apply until a site-specific analysis is completed (Goal).</li> <li>• Avoid locating staging areas in these lands (Goal).</li> <li>• No motorized cross country travel allowed (Standard).</li> <li>• No new roads, trails, or landings will be constructed within these lands until appropriate standards for construction, maintenance, and operations are in place (Goal).</li> <li>• New stream crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in case of failure (Goal).</li> <li>• Constructed temporary stream crossings, such as log and culvert installations, may be allowed if temporary crossings will be constructed and used in such a way as to minimize sediment input and to provide for fish passage. They will be maintained during use and removed and rehabilitated as soon as they are no longer needed (Goal).</li> <li>• ROS primitive to urban (Goal).</li> <li>• VQO retention to modification (Goal).</li> <li>• Fell hazard trees that pose an unacceptable safety risk and leave on site unless adequate levels of woody debris already occur on site (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• For the Agency Proposed Action, BPA proposes to locate the line on the uphill side of the existing ROW to maintain a larger buffer between Pine Creek and areas of disturbance.</li> <li>• BPA would coordinate with the Targhee on location of staging and erection areas needed for line construction.</li> <li>• BPA would improve and use the existing access road system and work with the Targhee to place and develop new roads.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• Where required by the Targhee, BPA would gate existing and new roads to limit access.</li> <li>• BPA would work with the Targhee to identify the appropriate locations and methods for stream crossings whether by permanent or temporary bridge, or ford.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• BPA would follow Targhee requirements on the clearing and treatment of non-marketable timber.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> </ul>
3.2(g&j)	<p>Semi-primitive Motorized                      Goals &amp; Objectives: Maintain or enhance semi-primitive motorized dispersed recreation opportunities. Access roads not open on the travel plan will be low standard roads and gated to allow operator access only. Nonwinter motorized use behind locked gates is authorized only for permitted activities. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Emphasize prescribed natural fire whenever conditions permit (Goal).</li> <li>• Cross country travel not allowed. Motorized use is allowed on designated routes (Standard).</li> <li>• Bridges are constructed/maintained to accommodate motorized vehicle traffic, where allowed (Goal).</li> <li>• Generally no new road construction (Goal).</li> <li>• Motorized use is allowed on designated routes; cross country motorized not allowed (Goal).</li> <li>• VQO retention to partial retention (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would follow Targhee requirements on the clearing and treatment of non-marketable timber.</li> <li>• BPA would improve and use the existing access road system and work with Targhee to place and develop new roads.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• Where required by the Targhee, BPA would gate existing and new roads to limit access.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> </ul>
4.1, 4.2	<p>Developed Recreation Sites and Special Use Permit Recreation Sites                      Goals &amp; Objectives: Protect and enhance a natural appearing environment to the extent possible within and adjacent to the existing sites while providing for recreation opportunities including wildlife watching. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Use rehabilitation techniques that do not detract from the recreation opportunity (Goal).</li> <li>• Avoid new construction on unstable or highly erosive soil (Goal).</li> <li>• On new developments provide adequate vegetation filters to maintain and/or enhance riparian-dependent resources (Goal).</li> <li>• Corridor ROW's will avoid summer homes, group facilities, and campgrounds (Goal).</li> <li>• No motorized cross-country travel allowed (Standard).</li> <li>• Prescription 4.1 - ROS semi-primitive motorized to urban; VQO retention to modification (Goal).</li> <li>• Prescription 4.2 - ROS roaded natural to urban; VQO partial retention to maximum modification (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would work with Targhee on placement of structures to avoid highly unstable and erosive slopes and soils.</li> <li>• New ROW would not cross campgrounds but would be in the viewshed of other recreational facilities such as trails.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> </ul>
4.3	<p>Dispersed Camping Management                      Goal &amp; Objectives: Provide a balance between recreation use and other resource needs that attract recreation use. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• No new roads, trails, or landings will be constructed within these lands until appropriate standards for construction, maintenance, and operations are in place (Goal).</li> <li>• Roads and trails, culverts and stream crossings found to have detrimental effects on wetlands, riparian habitat, fish spawning areas, and aquatic ecosystem processes will be improved, relocated, or obliterated.</li> <li>• Culverts and stream crossings posing a risk to wetland or aquatic conditions will be designed to a 50-year flood and to prevent diversion of streamflow out of the channel (Goal).</li> <li>• Temporary stream crossings must minimize sediment input and provide for fish passage (Goal).</li> <li>• ROS is primitive to urban and VQO is retention to modification (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• New ROW would not cross campgrounds but would be in the viewshed of other recreational facilities such as trails.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> <li>• BPA would improve and use the existing access road system and work with the Targhee to place and develop new roads.</li> <li>• BPA would work with the Targhee to identify the appropriate locations and methods for stream crossings whether by permanent or temporary bridge, or ford.</li> </ul>
8.1	<p>Concentrated Development Areas                      Goals &amp; Objectives: Allow concentrated development in small areas for mineral development and infrastructure needs. Applies to all existing concentrated developments including utility corridors. Restrict development of concentrated development sites to the smallest area possible. Energy/utility corridors will be no more than 600 feet in width. Forestwide S&amp;G's apply.</p> <ul style="list-style-type: none"> <li>• Cross country motorized uses not allowed, except as authorized in a site-specific analysis. Open Road and Open Motorized Trail Route Density does not apply (Standard).</li> <li>• ROS is semi-primitive nonmotorized to urban (Goal).</li> <li>• VQO is generally partial retention to maximum modification (Goal).</li> </ul>	<ul style="list-style-type: none"> <li>• BPA proposes to locate the new ROW adjacent to the existing corridor limiting dispersed development of utility corridors.</li> <li>• New ROW would be limited to that needed to accommodate the new line.</li> <li>• Motorized travel would be restricted to new and existing access roads during construction and maintenance activities.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> </ul>

Source: U.S. Department of Agriculture, Forest Service. April 1997.





**Table 5-2. Bridger-Teton Forest Plan Management Prescriptions**

Forestwide Goals and Objectives		Consistency
<p>Goal 1.1 Communities continue or gain greater prosperity. Objective 1.1(i) Help utilities provide services.                      Goal 3.2 Recovery is achieved for the endangered species on the BTNF. Objective 3.2(d) Reduce preventable, human caused mortality of bald eagles on the BTNF to zero per year, with emphasis on public education. Objective 3.2(g) Prevent human caused mortality of whooping cranes.                      Goal 4.1 Road management preserves wildlife security, soil, visual resources, and water quality values. Objective 4.1(b) Design roads and structures to retain soil, visual resources, and water quality values.</p>		<ul style="list-style-type: none"> <li>• BPA would work with the BTNF to locate and design structures that minimize bald eagle and whooping crane collisions and electrocutions.</li> <li>• BPA would work with the BTNF to use existing access roads and if needed, design new access roads that minimize adverse effects to soil, water quality, and visual resources.</li> </ul>
Forestwide Prescriptions/Goals and Objectives/Standards and Guidelines		Consistency
<b>Utilities</b>	<p>Utilities and utility corridors are permitted on the BTNF. • Electrical Transmission Standard - Utility and telephone lines will be buried wherever technically feasible. • Utility Corridor Guideline - Utilities should be constrained to one utility corridor except as needed to meet other resource objectives. • Transmission Lines in Riparian Areas Standard - If new or rebuilt transmission lines are built across riparian areas (or upland areas adjacent to riparian areas), they will be placed underground when feasible to eliminate possible collisions with birds.</p>	<ul style="list-style-type: none"> <li>• While technically feasible, an underground line through the BTNF would increase project costs by a factor of seven making the project economically infeasible.</li> <li>• BPA has begun working with the BTNF to determine which sections of line should be double circuit.</li> <li>• No riparian areas would be crossed but BPA would work with the BTNF to locate and design structures that minimize the potential for bird collisions.</li> </ul>
<b>Visual Quality</b>	<ul style="list-style-type: none"> <li>• Visual Quality Objective (VQO) is retention to partial retention along certain visually sensitive travel routes.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> <li>• BPA and the Forest Service have developed a new alternative that uses double-circuit structures through Teton Pass and the Wilderness Study Area.</li> </ul>
<b>Soil, Water, Air</b>	<ul style="list-style-type: none"> <li>• A geotechnical evaluation is required prior to earth moving activities on marginally stable, unstable, and landslide areas. Special design considerations will be incorporated as needed to control the risk of mass wasting and sedimentation. A slope-stability assessment or evaluation will be conducted on marginally stable, unstable, and landslide areas prior to vegetative manipulation.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would conduct appropriate geotechnical evaluations.</li> </ul>
<b>Access</b>	<ul style="list-style-type: none"> <li>• Existing roads will be evaluated for sediment delivery to live streams, lakes, and riparian areas. Roads will be designed and maintained so that drainage from the road surface does not directly enter live streams, ponds, lakes, or impoundments. Water will be directed off the road into vegetation buffer strips or controlled through other sediment reduction practices. • Closed or restricted roads will be used only when authorized by the BTNF Supervisor when recommended by the District Ranger. • Commercial users of forest roads will be required to contribute to road maintenance and reconstruction commensurate with levels of use. • Wherever possible, roads will avoid riparian areas or drainageways. Where they cannot be avoided, location and design of roads will apply sediment reduction practices to prevent degradation of riparian or stream quality. Roads presently within riparian areas will be relocated outside riparian areas where possible. • Maintenance, improvement, or repair of roads within riparian zones will avoid or mitigate water quality and fish habitat degradation. Debris from road maintenance, snow removed from roads, and earthwork soil materials, except designed for riprap, will be diverted or removed to avoid deposition in ponds, lakes, stream channels, or the 100-year floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would work with the BTNF to use existing access roads and if needed, design new access roads that minimize adverse effects to soil and water quality.</li> <li>• BPA would use erosion control measures during construction near riparian areas to discourage sediment movement into those areas.</li> <li>• BPA would work with the BTNF to gate existing and/or new roads to control access.</li> </ul>
Jackson Hole South Management Area 41 Prescriptions		Consistency
<b>2B</b>	<p>Motorized Recreation: Forest development roads will be built and maintained to standards appropriate for traffic service levels B - D. New road building will be kept to the minimum standard and density necessary to achieve resource objectives, predominately roaded recreation.</p>	<ul style="list-style-type: none"> <li>• BPA would work with the BTNF to upgrade existing roads and design new access roads to BTNF standards.</li> </ul>
<b>9A</b>	<p>Campgrounds, other noncommercial areas, and Forest Service administrative sites, including related roads and sites:</p> <ul style="list-style-type: none"> <li>• Manage for campgrounds, picnic grounds, trailheads, visitor information centers, water-related recreation facilities and concentrated use areas in Roaded Natural areas. • Focus is on developed recreation sites.</li> <li>• Maintain the desired vegetative mix and character while providing for public safety. • VQO is Retention to Partial Retention. • Timber harvest is not scheduled, vegetation management enhances recreation values.</li> <li>• Recreation Opportunity Spectrum is primitive to rural with development levels none to 4. • Fire management emphasis is on protecting facilities.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> <li>• BPA and the Forest Service have developed a new alternative that uses double-circuit structures through Teton Pass and the Wilderness Study Area.</li> <li>• BPA would follow the BTNF requirements on the clearing and treatment of non-marketable timber.</li> <li>• The new right-of-way would not cross campgrounds but will be in the viewshed of other recreational facilities such as trails.</li> <li>• BPA would not limit access to the right-of-way with gates unless required to do so by the BTNF.</li> </ul>



Table 5-2. continued

Jackson Hole South Management Area 41 Prescriptions		Consistency
10	<p>Simultaneous development of resources, opportunities for human experiences, and support for big game and a wide variety of wildlife species:</p> <ul style="list-style-type: none"> <li>• Manage to provide long-term and short-term habitat to meet the needs of wildlife managed in balance with timber harvest, grazing, and minerals development. All surface disturbing activities are designed to have no effect or beneficial effects on wildlife.</li> <li>• Areas of both semi-primitive motorized and non-motorized are provided.</li> <li>• VQO is retention.</li> <li>• All management activities should be concentrated to within the shortest period of time and to the smallest possible area.</li> <li>• Most travel is limited to arterial and collector roads with seasonal or long-term closure of many local roads for wildlife security.</li> <li>• Forest development roads will be built and maintained to traffic service levels B - D.</li> <li>• Average open road density will be one mile/sq. mile of standard or equivalent road with 1-5 year variations of 0.25 to 1.25 miles of road/sq. mile. Temporary roads will be returned to elimination class 3 or 4 standards.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA has worked with the BTNF to determine which sections of line should be double circuit to stay within existing ROW and minimize disturbance.</li> <li>• BPA would match structure locations and structure types to the maximum extent possible to maintain visual quality.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• BPA has worked with the BTNF on location of gates to limit access.</li> <li>• BPA would follow all construction timing restrictions for wildlife.</li> <li>• In certain places danger trees would be removed for safety reasons beyond the edge of the ROW creating a feathered or scalloped effect. Additional selective cutting can be done to enhance this effect.</li> <li>• BPA and the Forest Service have developed a new alternative that uses double-circuit structures through Teton Pass and the Wilderness Study Area.</li> </ul>
12	<p>Backcountry big game hunting, dispersed recreation, and wildlife security areas:</p> <ul style="list-style-type: none"> <li>• Existing and future road systems should be managed to retain backcountry areas that are large and remote enough to provide semi-primitive recreation.</li> <li>• VQO is retention.</li> <li>• All management activities should be concentrated to within the shortest period of time and to the smallest possible area.</li> <li>• Existing forest development roads needing improvement to meet transportation, resource or safety requirements will be designed and improved to standards appropriate for traffic service level D. Traffic service level B or C roads may be allowed where proper mitigation is assured.</li> </ul>	<ul style="list-style-type: none"> <li>• See prescription 10 consistency items.</li> <li>• BPA has worked with the BTNF to upgrade existing roads to BTNF standards.</li> </ul>
Palisades Wilderness Study Area Prescriptions		Consistency
6S	<ul style="list-style-type: none"> <li>• Manage to protect long-term wilderness attributes.</li> <li>• No activities will be allowed that will jeopardize the eligibility of the Study Area for future Congressional designation as Wilderness.</li> <li>• Existing uses of the Study Area will be allowed to continue.</li> </ul>	<ul style="list-style-type: none"> <li>• BPA and the Forest Service have developed a new alternative that uses double-circuit structures through Teton Pass and the Wilderness Study Area.</li> <li>• BPA does not propose to build any new access roads in the wilderness study area.</li> <li>• BPA would follow BTNF requirements on the clearing and treatment of non-marketable timber.</li> <li>• BPA would revegetate disturbed areas with low-growing native seed mix.</li> <li>• Low-growing vegetation would be allowed to regenerate on the ROW. Disturbed areas would be reseeded after construction for quicker regeneration.</li> <li>• Conductors and structures would be treated to reduce reflectivity. Ceramic or polymer insulators would also be used to reduce reflectivity.</li> <li>• In certain places danger trees could be removed beyond the edge of the ROW creating a feathered or scalloped effect.</li> </ul>

Source: U.S. Department of Agriculture, Forest Service. November 1989a.



## Chapter 6 Comments and Responses

In this Chapter:

- Comments
- Responses

BPA sent the Draft EIS to the public for comments on the Agency Proposed Action and alternatives. The Draft EIS was distributed to agencies, groups, individuals and libraries in June 1997. A 45-day public review period ended on August 5, 1997. Public meetings with an open house format were held in Driggs, Idaho and Jackson, Wyoming to review and receive comments on the Draft EIS. The comment period was extended at the request of some potentially affected landowners until September 11, 1997. This chapter records and provides responses to the comments on the Draft EIS. This Final EIS also provides updated information developed as a result of the comments received on the Draft EIS.

This chapter contains the written comments from letters and comment sheets, and oral comments from public meetings. Letters and comment sheets were recorded in the order they were received. Separate issues in each letter were given separate codes, for example, 1-1, 1-2, 1-3, etc. for issues in the first letter received. Comments from the public meetings were recorded similarly and are listed with code DPM for comments from the public meeting held in Driggs, Idaho, and JPM for comments from the public meeting held in Jackson, Wyoming. BPA prepared responses to individual comments. This chapter contains the coded comments from the public meetings and letters first, followed by the coded responses beginning on page 6-59.

Breaks in the numbering system are due to duplicate letters logged in with separate numbers.



# Comment Letters

## BPA/Lower Valley Transmission Project

Driggs, ID, July 22, 1997

4-8 p.m.

American Legion, Wallace and Main

- DPM-1 What is difference between single pole structure and regular structure?
- DPM-2 Are roads going to be in wilderness study area?
- DPM-3 You would either close the road or have a tower in middle of road if you continue as planned in my area.
- DPM-4 Spot towers in Swan Valley along side of existing structures and north and west of existing line.
- DPM-5 No problem if you build on the north and west side. (He has farm land in pasture. (238 + 50.5)
- DPM-6 Biggest problem for me is the blocking of road at structure 4/7.
- DPM-7 Can you avoid potential building site next to structure 4/4 ?
- DPM-8 1st choice: build on other side of road. Second choice: move access road southeast of structure 4/7.
- DPM-9 No preference for wood or steel structures other than possible concern for fire.
- DPM-10 Are you expanding the right-of-way (near proposed development)?
- DPM-11 Why are you expanding?
- DPM-12 What side?
- DPM-13 Originally helped site this line using Lady Bird Johnson's guidelines for views of the line.
- DPM-14 Concern for visual impacts.
- DPM-15 Will you cut trees on Forest land?
- DPM-16 Are you running any lines off of this to serve the valley?
- DPM-17 How much compensation are you getting from Lower Valley to build this?
- DPM-18 We're tired of getting Jackson's crap.

- DPM-19 We have no reason to have this, yet we suffer the impacts.
- DPM-20 There is an access road on the development property - (PGT-AR-15-4)
- DPM-21 Will you be improving the access road?
- DPM-22 Will you open the access road for snowmobiling?
- DPM-23 Will you get a Forest Service permit?
- DPM-24 Will structures be similar to what is there now?
- DPM-25 If you build an SVC, will you still need to build the line?
- DPM-26 What tower type will be at 18/5?
- DPM-27 Can new line be north of existing line at 18/5? (My biggest concern).
- DPM-28 Can we move existing tower at 18/5 out of view?
- DPM-29 Can we let roads revegetate to go back to two tracks after construction,
- DPM-30 Will we use helicopter construction?
- DPM-31 Tank traps eliminates road from inventory.
- DPM-32 If you put it on east side, we have a road there - and we wouldn't like that - at structure 4/7.
- DPM-33 Other side is ok.
- DPM-34 East side cuts right through lots we have at structure 4/4.
- DPM-35 We also have a lot of trees from structure 4/4 through structure 4/8.
- DPM-36 The lots you would affect are future building sites.
- DPM-37 Don't disturb property stake at structure 4/7.
- DPM-38 Most of land is in pasture - no preference on structure type. Wood looks like it wouldn't take up so much room (smaller footprint).
- DPM-39 What information are we going to have when the Record of Decision is signed?

## Comment Letters

DPM-40 If BPA builds routing option C, Forest Service would want BPA to either now or later, move the existing line parallel to it. Could be a mitigation measure.

DPM-41 When will BPA and Forest Service decide to kick the dirt?

\*\*\*

### BPA/Lower Valley Transmission Project

Comments on Draft EIS

Jackson WY - July 23, 1997

4-8 p.m.

Lower Valley Power & Light Office

4000 South Highway 89

- JPM-1 What would happen if the present system went down in the winter?
- JPM-2 Why underground? Visually and environmentally it would be worse at Teton Substation.
- JPM-3 What year do you plan to build?
- JPM-4 Why would visual and environmental impacts be worse with underground?
- JPM-5 Underground would be preferable.
- JPM-6 Lake Creek II access to realtors and information useful for evaluating property values in Jackson Hole.
- JPM-7 BPA should hire a 'human' environmental specialist, someone who approaches analysis in a more holistic way when actions affect humans re: noise, visuals, and property values.
- JPM-8 At Teton substation, does the landscaping proposal cover all present and future development at the substation or does the underground alternative take care of issues?
- JPM-9 Where does Forest Service commitment play into our (Lake Creek) needs?
- JPM-10 What does the \$60,000 for landscaping at Teton substation go for?
- JPM-11 Can all the landscaping projects at Teton substation be done as one?
- JPM-12 This is a nice group of people.
- JPM-13 Where does double circuit start and why?
- JPM-14 How do we get you to paint the rest of the Teton Substation?
- JPM-15 Can you go underground?
- JPM-16 Could you use existing easement to underground?
- JPM-17 On mitigation, you probably put in more than we (Teton County) would have required.



# Comment Letters

JPM-18 Where would that dead-end structure be? In the substation yard or out? Inside fence or out?

JPM-19 Do you have photo of that dead-end?

JPM-20 Model of Teton Substation before and after? Would like to see one.

JPM-21 Anything underground would be good.

JPM-22 What is cost of undergrounding?

JPM-23 Cost of undergrounding should be assumed by the users.

JPM-24 ... not by those who live right there.

JPM-25 Value is now being taken from those living by the Substation.

JPM-26 The people living by the substation are the ones who will suffer from the noise, views, etc. of the substation. Therefore, consider the cost of burying line and it should be shared by all those who created the need and the eventual users.

JPM-27 The costs may be higher to those users - as it should be.

JPM-28 Would like more time to review Draft EIS.

JPM-29 Wanted Appendixes.

JPM-30 Did get impression that undergrounding is feasible. Would definitely support that option.

JPM-31 Realize a state-of-the-art substation would look quite different than Teton Substation does.

JPM-32 How far will the underground go?

JPM-33 Is someone working on building a more attractive substation?

JPM-34 What do they do in a high population substation?

JPM-35 Could BPA move the Teton Substation?

JPM-36 Because you're Federal, does that mean no one can question what you do?

JPM-37 Who can citizens appeal to?

JPM-38 If all growth in Valley is causing this need, why do they not contribute to this?

JPM-39 Is anyone else supplying power right now?

JPM-40 Have you looked at upgrading Palisades instead?

JPM-41 My point is, people don't have any other place (utility) to go for power. There seems no other way to go.

JPM-42 Where will you put the double structure?

JPM-43 Where will the new lines come in from at the Teton Substation?

JPM-44 Have you looked at different color lines?

JPM-45 Draft EIS is misleading on the \$60,000 mitigation - whether it is for past mitigation or future.

JPM-46 Can the public have a say in where the structures go?

JPM-47 Do double-circuit structures stay within the existing right-of-way?

JPM-48 We need this.

JPM-49 Thanks for the meeting.

JPM-50 Have you picked a color? Neutral gray; a lot of gray in aspens. (Own property north of the line as line heads into Teton Substation.)

JPM-51 Groundwater is lowest across landowners property in fall (September - October).

JPM-52 Prefers single-pole structure.

JPM-53 Have you addressed landscaping at Teton Substation?

JPM-54 What are noise levels at Teton Substation?

JPM-55 How will noise levels change, specifically at our homes and property line (each home) with comparisons among alternatives?

JPM-56 Explain the cost of \$250,000.

JPM-57 What is overhead cost difference of over-grounding and under-grounding at Teton Substation?

JPM-58 What is the reference to the law that prevents BPA from going through local process?

# Comment Letters

- JPM-59 Asked what dead-end tower would look like if line goes underground at Teton Substation.
- JPM-60 Would like the underground part of all the line alternatives.
- JPM-61 Undergrounding seems like fair mitigation for people who live near Teton Substation.
- JPM-62 Things are done differently here because we are a gateway to the parks. For example, a landfill could not be located here; we use a transfer station and send garbage to another county. Same with gravel processing.
- JPM-63 The owners of lots around Teton Substation bought and built homes next to existing substation; now they want rate payers to pay for measures above and beyond normal mitigation measures to further increase their land values. (Long time resident).

DIVISION DIRECTOR  
Karyl Denison Robb, Ph. D.

# WYOMING

## DIVISION OF CULTURAL RESOURCES

State Historic Preservation Office  
6101 Yellowstone Road  
Cheyenne, WY 82002  
(307) 777-7697  
FAX (307) 777-6421

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-001
RECEIPT DATE: JUL 09 1997

June 18, 1997

Mr. Mike Johns  
Project Manager  
Bonneville Power Administration  
P.O. Box 3621  
Portland, OR 97208-3621

RE: Bonneville Power Administration/Lower Valley Transmission Project; SHPO #0697RLC061

Dear Mr. Johns:

Richard Currit of our staff has received information concerning the aforementioned project. Thank you for allowing us the opportunity to comment.

1-1 Management of cultural resources on transmission projects is conducted in accordance with Section 106 of the National Historic Preservation Act and Advisory Council regulations 36 CFR Part 800. These regulations call for survey, evaluation and protection of significant historic and archeological sites prior to any disturbance. Provided the Bonneville Power Administration (BPA) follows the procedures established in the regulations, we have no objections to the project. Specific comments on the project's effect on cultural resource sites will be provided to the BPA when we review the cultural resource documentation called for in 36 CFR Part 800.

Please refer to SHPO project control number #0697RLC061 on any future correspondence dealing with this project. If you have any questions contact Richard Currit at 307-777-5497 or Judy Wolf, Deputy SHPO, at 307-777-6311.

Sincerely,

*Judy F. Wolf*  
for John T. Keok  
State Historic Preservation Officer

JTK:RLC:jh

THE STATE OF WYOMING  
Jim Geringer, Governor



DEPARTMENT OF COMMERCE  
Gene Bryan, Director

# Comment Letters



DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, OMAHA DISTRICT  
215 NORTH 17TH STREET  
OMAHA, NEBRASKA 68102-4978

REPLY TO  
ATTENTION OF

July 7, 1997

Wyoming Regulatory Office  
2232 Dell Range Blvd., Suite 210  
Cheyenne, Wyoming 82009

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-002
RECEIPT DATE: JUL 15 1997

Mr. Mike Johns  
Bonneville Power Administration  
Public Involvement Office-ACS  
P.O. Box 12999  
Portland, Oregon 97208

Dear Mr. Johns:

This is in response to your agency's June 2, 1997 correspondence, received June 16, 1997, requesting comments on the Draft BPA/Lower Valley Transmission Project Environmental Impact Statement. Thank you for the opportunity to comment.

A review of the document indicates that discharges of dredge and/or fill material into waters of the U.S. will occur in the State of Wyoming associated with the project's implementation. Therefore, authorization is required in accordance with the provisions of Section 404 of the Clean Water Act (Act). It appears, based on National Wetland Inventory data contained in the document, that crossing Fish Creek and Lake Creeks will require authorization. Additionally, access road upgrades and construction may have impacts as well. It is strongly encouraged that the project alignment for the power line as well as access roads be field surveyed for the presence of wetlands to ensure full compliance with the Act. Once all impacts to waters of the U.S. (including wetlands) are fully identified, authorization should be sought from this office for impacts in Wyoming.

If you have any questions concerning this matter, please contact Chandler Peter at (307) 772-2300. Your file number is 199640188.

Sincerely,

*Matthew A. Bilodeau*  
Matthew A. Bilodeau  
Program Manager  
Wyoming Regulatory Office

GARY W. GRANDY  
P. O. Box 1111  
Petersburg, Alaska 99833-1111

June 28, 1997

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-003
RECEIPT DATE: JUL 15 1997

Nancy Whitpen  
Bonneville Power Administration  
Public Involvement Office - ACS  
P. O. Box 12999  
Portland, Oregon 97208

Dear Ms. Whitpen:

This letter is a follow-up to the telephone conversation I had with you yesterday. This documents my concerns regarding the Draft EIS for the BPA/Lower Valley Transmission Project. I have also discussed these matters this past week with Mike Johns, Project Manager, and Dusty Gians, of your Idaho Falls office.

Our concern is regarding page 2-13 of your EIS. The second paragraph under the heading of "2.3 Short Line Alternative" refers to a new switching station which would be located north of the present Targhee Tap and would require 3-5 acres of agricultural land. This description indicates that the switching station would be located on our property directly behind our house and barn and would create a deep intrusion into a significant portion of our 148 acre ranch. Our property would either still surround the switching station or be on three sides of it. In addition there would be a 60 foot right of way with a 20 foot rock road across another part of our acreage in order to access the switching station. All of this really chops up our property.

We certainly understand that this "Short Line Alternative" is not the preferred route for the power line expansion. However, we do know that sometimes things happen. Therefore, we oppose and will vehemently work to see that this alternative is not used, unless we can get a change to the location of the switching station. To locate the switching station on our property is an intolerable situation and we request that it be located on the alternative site which we earlier recommended and which we again propose.

We will oppose the switching station being on our property because of our concerns regarding that much unsightly electrical equipment being located near our home and barn. Quaken aspen trees would not fully hide this equipment and especially during months without leaves. Pine trees do a much better job of hiding equipment.

## Comment Letters

3-4

We are also extremely concerned about the amount of electrical field that much equipment creates and the detrimental affect it could have on humans (us) and our animals. Do you or does anyone really have all of the facts about living around electrical equipment of a major power line and switch yard?

Next, as was told to you on the telephone, we do not intend to sell our property. However, and as you probably know, the title to the land is in a trust for our four married children. They likewise do not intend to create a subdivision with it. However, we cannot predict the future and whether it would be sold as an entire acreage or in chunks at some future date needs to be considered.

Four years ago, we had a serious offer, which we did not accept, for any 20 acres of our land. The party was willing to pay \$10,000 per acre for a total price of \$200,000. This offer plus our knowledge of real estate values for the Teton Valley area indicates that the entire acreage is easily worth \$1,500,000. We believe it is worth much more than that but for discussion purposes we will use this low figure. Our concern is regarding the property devaluation that will be created because you locate an unsightly switching station in the middle of our land resulting in people not wanting to locate near that equipment. We visualize that our \$1,500,000 property could easily devalue to \$1,000,000 or \$500,000.

My wife's grandfather was an early settler on Flat Creek in Jackson Hole, Wyoming. In 1927, he was forced to sell his 320 acre ranch for \$7,000. That property is now a part of the National Elk Refuge. Do you realize what that acreage would be worth today if the family had been able to retain it? Millions! The point is that we learn from the past and will take a firm stand to see that history does not repeat itself.

The original line and access easements (Smith Canyon) were bought by Bonneville Power for nominal amounts. One of the heartaches we had at that time was that the valuations were based on farm ground market prices, which were low at that time. We would expect best usage values to be used which would place the property in potential subdivision/recreational or large land tract next to a National Forest prices. This means that five acres alone could be worth \$100,000. This expense plus the "entrance road" easement value and property damages need to be considered in your "Short Line Alternative" calculations.

3-7

When the original Targhee Tap of the present line was placed on the hill on Forest Service property southwest of our house it was done because of our concerns at that time which were similar to the ones we have again expressed. Bonneville Power was cordial and cooperative in listening to our concerns and accommodated our wishes and placed the Targhee Tap where it is mostly hidden from view by the trees. We respectfully request and hope that you will likewise appropriately address and handle our present concerns.

3-8

In the original request for comments in May, 1996, we stated, "Also, place the new switching station West of the present Targhee Tap, where it would be hidden behind the trees on a flat area rather than anywhere near our house or property." We also said, "The new switching station should be West of Victor near the present station." We are not sure why these recommendations were not more carefully explored.

3-9

As I stated on the telephone, we have owned this property since 1965 and we do understand the topography of the land around the Targhee Tap. There really is sufficient government, Forest Service, land directly west of the Targhee Tap which could be cleared and easily leveled to locate a switching station and it would be hidden from the public and off private property. We recommend that this site be used should the "Short Line Alternative" become a reality.

In closing, I thank you for listening to me on the telephone and in reviewing our concerns and recommendations of this letter. As you can tell, our private property environment is extremely important to us. Therefore, we ask that the revised EIS address these concerns; and, we solicit your cooperation to move the switching yard to the alternate site west of the Targhee Tap.

Sincerely,

*Gary W. Grandy*  
Gary W. Grandy  
for Triangle G Trust

# Comment Letters

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-004  
RECEIPT DATE: JUL 24 1997

12 July, 1997

Chi Melville  
Route 1 Box 3736  
Alta, WY 83422

BPA  
Public Involvement Office - ACS  
PO Box 12999  
Portland, OR 97208

Dear Sir / Madame:

As a resident of Teton County Wyoming, I am writing to express my concerns about BPA's Lower Valley Transmission Project from Swan Valley, Idaho to Jackson, Wyoming.

I believe the Draft EIS to be fundamentally flawed and cannot support any of the alternatives offered.

4-1 [ First, there is one glaring omission from the study, namely conservation. Nowhere in the summary that I read was any mention of *reducing the need* for the powerline. There are many conservation measures that could be implemented to reduce electricity needs.

Jackson is well known for it's 10,000+ square foot vacation homes that only get used for a few weeks a year, and I suspect that these types of houses are having a significant impact on the area's electricity demands as they have to remain heated through Jackson's long cold winters.

4-2 [ Several solutions could be offered to reduce electricity consumption. One would be to alter the rate structure to encourage alternate heating sources such as natural gas, oil and solar. What has happened to BPA's conservation program that lead to dramatic decreases in the demand for electricity in the past? I would hope that this would remain the first alternative when studying expansion projects like this one?

4-3 [ Secondly, there was no alternative listed for upgrading one of the existing sets of towers to carry more lines, rather than cutting a new swath along the corridor.

4-4 [ Third, does the dam on Jackson Lake provide any hydropower? If so, could it be upgraded for improved efficiency? If there is no hydropower, then it's a resource that should be looked at.

4-5 [ I find the proposed alternative of cutting a wider swath to install a second power line totally unacceptable.

Sincerely,

*Chi Melville*  
Chi Melville

B O N N E V I L L E P O W E R A D M I N I S T R A T I O N

BPA/Lower Valley Transmission Project

"I'd Like to Tell You"

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-005  
RECEIPT DATE: JUL 24 1997

1. Of the choices offered in the Draft EIS, I prefer: \_\_\_\_\_
2. Of the choices offered, I do not like: \_\_\_\_\_
3. You can improve the choices by: \_\_\_\_\_
4. I think the analysis would be better if you: \_\_\_\_\_
5. I didn't understand: \_\_\_\_\_
6. I have these other comments: SEE ON OTHER SIDE

Continue on back if you need more room.

Your comments will be addressed in the Final EIS, scheduled for January, 1998

Please put my name on the mailing list (You are already on the mail list if you received this in the mail.)

Name  THREE RIVERS CONSTRUCTION, INC.

Address \_\_\_\_\_ P.O. Box 258  
Alpine, Wyoming 83128

1997 to:

Bonneville Power Administration  
Public Involvement Office - CKP  
P.O. Box 12999  
Portland, OR 97212



# Comment Letters

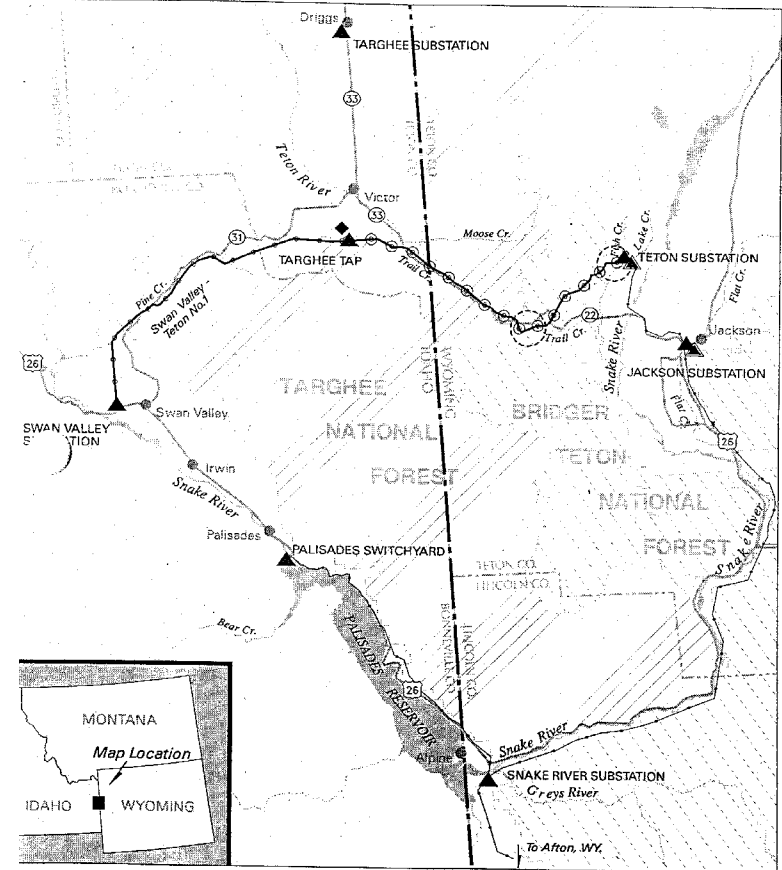
5-1

We would like to know why the lines (new) are not going to be built from the Palisade Switchyard to Alpine and then branched so that lines could be upgraded both to Star Valley and To Jackson Substation. It would seem that the growth from both of these areas would already be there instead of lines going to where there would be less demand immediately. This is a tremendous investment and I would think that the areas generating the demand and the payment for such costs should be first served. Existing easements could be used.

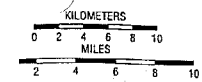
I would like to see the costs of this alternative before I would come aboard approving this particular venture.

*Dorothy Reinhart*  
Dorothy Reinhart

## BPA / LOWER VALLEY TRANSMISSION PROJECT LOCATION MAP



Source: BPA Regional GIS Database, Lower Valley Power and Light.



- ▲ Facility
- ▲ SVC Alternative
- ◆ Switching Station Location
- ~ LVPL Transmission Line
- ~ Agency Proposed Action and Single-Circuit Line Alternative
- Short Line Alternative
- ~ County Boundary
- ~ State Boundary
- ~ Highway
- Double-Circuit Structures



# Comment Letters

PHELPS H. SWIFT, JR.  
 P.O. Box 715  
 Wilson, Wyoming 83014  
 (307) 733-8036

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LW RVAL-02-006
RECEIPT DATE: AUG 01 1997

July 28, 1997

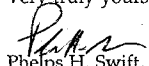
Bonneville Power Administration  
 Public Involvement Office - CKP  
 PO Box 12999  
 Portland, OR 97212

Re: *New Power Line to Teton Substation*

To Whom It May Concern:

Thanks for the opportunity to comment on your proposed project. We have written several letters in the last year as owners in the Raintree Subdivision located adjacent to your right-of-way west of the Teton Substation.

We would urge you to consider all efforts to mitigate the impact on our property. In particular, we urge you to consider burying as much of the line underground as possible; locating poles in places which will reduce the visual impact on our property; using non-reflective and natural colors on both the poles and the lines and doing a minimum amount of damage to the right-of-way land surface. I know you have agreed to plant trees near the substation. If you could provide a landscaping allowance for each of the homeowners, or plant trees to screen each pole, it would show a great deal of good faith and sensitivity to our concerns. Thanks for your consideration. I look forward to your response.

Very truly yours,  
  
 Phelps H. Swift, Jr.

PHS/mem



RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LW RVAL-02-007
RECEIPT DATE: AUG 01 1997

3497 N. Ammon Rd. • Idaho Falls, Idaho 83401 • (208) 525-4400 • FAX (208) 529-0104

July 28, 1997

Bonneville Power Administration  
 Public Affairs Office - AC  
 P. O. Box 12999  
 Portland, OR 97212

Re: *Lower Valley Transmission Project*

Gentlemen:

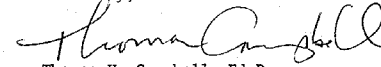
Bonneville Joint School District No. 93 owns a lodge and cabin near Pine Creek. We use the lodge and area for instruction of students in the School District, and lease it to family groups for leisure activities.

7-1 [ We object to a power line being built in the area. It alters the view and would have a negative impact on the overall beauty of the area. We are trying to teach the students to respect the environment. It will be difficult to explain why our environment needs to be disturbed to transmit power outside our State.

7-2 [ I don't think the line should be built in this particular canyon at all. However, if it must be built, it should be located so that it cannot be seen from the Pine Basin lodge where our programs are conducted.

Bonneville Joint School District No. 93 was not invited to the recent open house held to discuss the project.

Sincerely,



Thomas V. Campbell, Ed.D.  
 Superintendent of Schools

TVC:ms

cc: Rick Knori, Project Manager

# Comment Letters

**Snake River Associates**  
 4445 Moose Wilson Road  
 Wilson, Wyoming 83014  
 (307) 733-3989  
 Fax (307) 733-5019

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-008
RECEIPT DATE: AUG 01 1997

July 14, 1997

Mike Johns, Project Manager  
 Bonneville Power Administration  
 Public Affairs Office - AC  
 P.O. Box 12999  
 Portland, OR 97212

Re: BPA/LVPL Transmission Project

Dear Mr. Johns,

Bonneville Power Administration's transmission line and easement cross Snake River Associates' property for the last mile before entering the Teton Substation. In addition to owning the fee land under your transmission line, Snake River Associates also owns substantial land to the north of the line. Below are our comments and suggestions on your draft EIS on the BPA/LVP&L transmission project.

- 8-1 [ We strongly support the alternative of placing the transmission lines across our property on single, double-loaded steel poles, similar to those used by Lower Valley Power and Light along the Moose Wilson Road. As you point out, if these poles are used, BPA will not need to purchase additional power line right-of-way from us.
- 8-2 [ We oppose the alternative for undergrounding the line where it enters the substation. The structure necessary to go from an overhead line to an underground one would have significant negative visual and other impacts.
- 8-3 [ We believe that placing such a structure on the edge of our property near the substation would do more visual harm than good. (If the line were placed underground from the Fish Creek Road east, that might be a worthwhile alternative.)
- 8-4 [ I understand that the steel poles can be placed farther apart than the existing wooden ones. Since the poles are the most obtrusive part of the line, we strongly support minimizing the number of poles where the line crosses our property. We realize that this will shift the location of the poles.
- 8-5 [ We prefer that the color of the steel poles be a dull, neutral gray in order to blend with the aspens and pines in the vicinity. However, we would be willing to consider whatever other colors that your consultants might propose.

Mr. Mike Johns  
 July 14, 1997  
 Page 2

- 8-6 [ Due to increasing problems with trespass, we request that BPA install a steel gate with steel braces that can be locked at the boundary between its substation property and the easement across our property.
- 8-7 [ The most appropriate time for construction of this section of the line would be in the fall of the year after September 10. At this time of year, our irrigation is shut off and construction would do less damage to the fields and wetlands, and would be substantially less expensive. I would be glad to meet with you when convenient to discuss other issues relating to construction access.
- 8-8 [ Thank you for preparing such a thorough and clear draft EIS. I found the visual simulations particularly helpful in evaluating the different alternatives.

Sincerely,



William B. Resor, general and managing partner  
 Snake River Associates



# Comment Letters

These are comments for the BPA Lower Valley Transmission Project: (ECN)

7-22-97

9-1 I am opposed to this project for these reasons: The cost, effect on wildlife, the effect on human health, the effect on floodplains, vegetation, cultural resources, and on the scenic nature of the area.

9-2 While I am sympathetic to the disruptions that brownouts and blackouts cause, it makes no sense to continue increasing a system of energy that has such detrimental effects on human health, safety, wildlife, etc.

9-3 I suggest solar energy as an alternative energy source. It's time for the DOE/BPA to get with it and start developing this energy source.

Natalie Shapiro  
Idaho Sporting Congress  
and  
Northern Rockies Preservation Project  
POB 625  
Boise, ID 83701

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-009 RECEIPT DATE: AUG 01 1997
--

## Pennington, Jean - ACS

From: Wittpenn, Nancy A. - ECN  
To: Pennington, Jean - ACS  
Cc: Krugel, Linda J. - ECN  
Subject: FW: Increase cost for burying lines  
Date: Monday, August 04, 1997 9:43AM

Jean, please log in as a public comment on the BPA/Lower Valley Transmission Project. Thank you.

From: Barbara Gray  
To: Nancy Wittpenn  
Subject: Increase cost for burying lines  
Date: Friday, August 01, 1997 2:14PM

I have been involved in planning issues in Jackson's Hole for many years. There are many times that people favor "preservation" of scenery and wildlife when it is not going to cost them, personally, anything. I think this controversy regarding power lines is a perfect opportunity to give the public a chance to vote when it will effect their pocket-books.

10-1 I, for one, would be totally happy to pay \$5 or \$10 more per year for our power if we could have more lines buried and visually screen sub-stations and equipment. It would be great to know that the fee increase is going to something—not just a fee increase!

I would urge you to proceed with a mailing where people can vote. Make the choices clear and easy—and I'll bet you'll be surprised at the outcome.

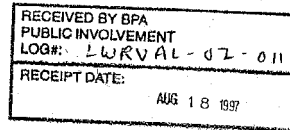
RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-010 RECEIPT DATE: AUG 05 1997
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# Comment Letters



## Greater Yellowstone Coalition

August 4, 1997



Bonneville Power Administration  
Public Involvement Office - ACS  
P.O. Box 12999  
Portland, OR 97208  
Attn: Mike Johns

Subject: ECN (Lower Valley Transmission Project)

Dear Mr Johns:

The following are the Greater Yellowstone Coalition's (GYC) comments on the Lower Valley Transmission project. GYC is a regional non-profit conservation organization based in Bozeman, MT, with field offices in Cody and Dubois, WY and Idaho Falls, ID. We have a membership of approximately 7,500 individuals, 125 member organizations and 100 business/corporate sponsors. GYC's mission is to preserve and protect the Greater Yellowstone Ecosystem and the unique quality of life it sustains.

### Swans

One of our Idaho Board members is Ruth Shea and president of the Trumpeter Swan Society. The following comment has to do with the vulnerability of swans to power line collisions based on a copy of a letter from the Trumpeter Swan Society which I received earlier this summer. GYC believes that the document should be strengthened by committing to the proposed mitigations rather than stating mitigation could or should be accomplished. An independent expert should be consulted as discussed on page 4-60, and their recommendations should be implemented. Burying the power lines for the short distances where significant valley bottoms are crossed (T2N, R44E, S6 and T3N, R46E, S30) would reduce avian collisions at the highest-risk locations.

### Big Game Winter Range

All construction and other disturbance-causing activities should be prohibited between December 15 and April 15 in delineated crucial deer/elk winter range to avoid stressing those species at an extremely vulnerable time. This would comply with the management goals of the Targhee Forest Plan Revision. The Targhee National Forest and Idaho Department of Fish and Game should be consulted in order for BPA to determine which areas in the power line corridor should have these timing restrictions.

GYC also recommends that all roads construct for the project be obliterated after project completion. If those roads are needed for maintenance access, then closures should be effective

11-2  
cont.

and BPA should set up a road closure enforcement plan with the TNF. Furthermore access and maintenance activities should be precluded during the fall big game hunts, beginning August 30. According to IDFG Routing Option "B" would cause the least potential impact to big game, due to minimizing new road construction. We believe that should be the option selected.

11-3

### Fisheries and Water Quality

For construction standards, consider all perennial and intermittent streams to have fish present at least a portion of the year, unless site-specific research indicates otherwise. Maintaining fish passage is required under Idaho Code, therefore the discussion on the potential impacts of blocking or impeding fish passage (page 4-63) should be replaced with a discussion of how BPA will prevent blocking or impeding fish passage.

Sincerely,

Marv Hoyt  
Idaho Field Representative

# Comment Letters

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-0-12  
RECEIPT DATE: AUG 18 1997

Public Involvement Office  
Bonneville Power Administration  
PO Box 12999  
Portland, OR, 97212

Aug. 5, 1997

I have reviewed the Draft Environmental Impact Statement, DOS/EIS -0267, covering the proposed new BPA/ Lower Valley Transmission Project. I am a condominium owner in the Jackson Hole Racquet Club and my condo is located against the northern fence of the Racquet Club alongside the existing ROW of your transmission line into the Teton Substation and thus also the new transmission line which you propose to locate just north of the existing line.

12-1

Your EIS considers the visual impact as high (Section 4.2.1) where the new line would pass our condominiums in the Racquet Club. Section 4.2.2.2 (Recommended Mitigation) indicates no mitigation at all for Visual Assessment Area 7 that would in any way deal with this problem. The fact is that the new wires will be in place right in our foreground direct line of vision of the mountains. Nothing that you propose will do anything to avoid that, nor even minimize the problem to any significant degree.

12-2

I strongly object to your proposal and I believe every other condo and Lake Creek owner above does also. I paid a premium for this condo for its location with an unobstructed view. The existing wires are well above our line of vision to the mountains. The new line would not be, it will be right in our line of vision. Your proposed action will significantly diminish the value of my condo as well as all the others above.

12-3

There are at least 2 alternatives you apparently have not considered to deal with this local problem.

1. After the line has come down into the flat from the Phillips Ridge, run the line essentially north for about 1 mile, then cross the sage brush flat directly east to a point north of the Teton substation, then run the line south to that substation. Such a routing mitigates the visual problem for all of these above owners. Since the existing line goes across grazing lands, I doubt that this alternative creates any problems for the ranch.

2. Run the line underground from a point just west of the Fish Creek crossing underground to the Teton Substation. The Fish Creek crossing can be drilled, not excavated, thus not disturbing the creek itself. Further, I can live with a season of construction work, as the impact is only temporary.

12-4

Again, I wish to state my strong objections to your proposal for this small part of the system. I would like to receive your specific response to these comments and suggestions.

Yours very truly,

*John H. Lyle*  
John H. Lyle

cc. Rick Anderson, US Forest Service Planner  
Nancy Wittpen, BPA Environmental Project Lead ✓

J. H. Lyle  
Jackson Hole Racquet Club  
Star Route Box 3647  
Jackson, WY 83001



RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-013  
RECEIPT DATE:  
AUG 18 1997

STATE OF WYOMING  
OFFICE OF THE GOVERNOR

JIM GERINGER  
GOVERNOR

August 5, 1997

STATE CAPITOL BUILDING  
CHEYENNE, WY 82002

Michael C. Johns, Project Manager  
Bonneville Power Administration  
Public Involvement Office  
P.O. Box 12999  
Portland, OR 97212

Re: Lower Valley Transmission Project Draft Environmental Impact Statement

Dear Mr. Johns:

On behalf of the State of Wyoming, please be advised that we have reviewed the referenced document. We continue to support sensible development including the infrastructure similar to the Lower Valley Transmission Project which will support these projects. I urge that you be sensitive to the attached comments from the Game and Fish Department and the Public Service Commission and that this project be developed in a manner consistent with those recommendations.

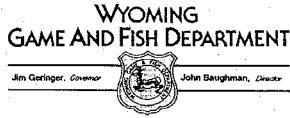
Thank you for the opportunity to comment.

Sincerely,

*Paul R. Kruse*  
Paul R. Kruse  
Assistant Director  
Office of Federal Land Policy

PRK:jh  
Enclosures

# Comment Letters



July 8, 1997

WER 8306  
 Bonneville Power Administration  
 Lower Valley Transmission Project  
 Draft Environmental Impact Statement  
 DOE/EIS-0267  
 SIN: 96-043  
 Teton County

WYOMING STATE CLEARINGHOUSE  
 OFFICE OF FEDERAL LAND POLICY  
 ATTN: JULIE HAMILTON  
 HERSCHLER BUILDING, 3W  
 CHEYENNE, WY 82002

Dear Ms. Hamilton:

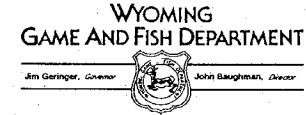
The staff of the Wyoming Game and Fish Department has reviewed the Draft Environmental Impact Statement for the Bonneville Power Administration/Lower Valley Transmission Project. We have no additional comments beyond those provided in our May 24, 1996 letter to the Clearinghouse for the Notice of Intent to Prepare an Environmental Impact Statement.

Thank you for the opportunity to comment.

Sincerely,

BILL WICHERS  
 DEPUTY DIRECTOR

BW:TC:as  
 cc: USFWS



May 24, 1996

WER 8306  
 Department of Energy  
 Bonneville Power Administration  
 Notice of Intent to Prepare an EIS  
 Lower Valley Power and Light  
 Transmission System Reinforcement Project  
 SIN: 96-043  
 Teton County

WYOMING STATE CLEARINGHOUSE  
 OFFICE OF FEDERAL LAND POLICY  
 ATTN: JULIE HAMILTON  
 HERSCHLER BUILDING, 3W  
 CHEYENNE, WY 82002

Dear Ms. Hamilton:

The staff of the Wyoming Game and Fish Department has reviewed the notice of intent to prepare an Environmental Impact Statement for the Lower Valley Power and Light Transmission System Reinforcement Project. We offer the following comments.

- 13-1 1. Impacts to Terrestrial Wildlife. We do not anticipate any significant adverse impacts to terrestrial wildlife from this project if the existing power line corridor is followed. Expanding existing substations should not result in the loss of any significant crucial winter range. However, we do recommend construction of the powerline from the Idaho state line to Mail Cabin Creek be completed prior to November 15 or after April 30 to protect big game animals on winter range from disturbance and displacement from construction activity.
- 13-2 2. Bald Eagles. The proposed transmission line should be designed to minimize avian electrocution. The new line should be marked with balls and/or sleeves at all known bald eagle foraging habitats to prevent powerline strikes.
- 13-3 3. Trumpeter Swans. Since 1991, 54 dead trumpeter swans have been found in the Jackson area. Powerline and fence line collisions were the direct cause of death in over one third of all swan carcasses recovered. Placement of sleeves and/or balls on transmission lines which cross trumpeter swan flight corridors would greatly reduce mortalities due to powerline strikes.

# Comment Letters

Julie Hamilton  
May 28, 1996  
Page #2 - WER8306

13-4

4. Accipiters, Buteos, Harriers, and Owls. The proposed additional 75 feet right-of-way width should be surveyed during late May or June to identify all raptor nest site locations. Timing constraints should be considered for the construction phase of the project if nest(s) are located.

Thank you for the opportunity to comment.

Sincerely,



JOHN BAUGHMAN  
DIRECTOR

JB:TC:vb  
cc: Wildlife, Fish Divisions  
USFWS



THE STATE OF WYOMING

JIM GERINGER  
GOVERNOR

## Public Service Commission

700 W. 21ST STREET

(307) 777-7427  
FAX (307) 777-5700  
TTY (307) 777-7427

CHEYENNE, WYOMING 82002

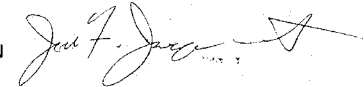
STEVE ELLENBECKER  
CHAIRMAN  
DOUG DOUGHTY  
DEPUTY CHAIRMAN  
KRISTIN H. LEE  
COMMISSIONER

STEPHEN G. OXLEY  
ADMINISTRATOR  
ALEX J. ELIOPULOS  
CHIEF COUNSEL AND  
COMMISSION SECRETARY

### MEMORANDUM

TO: MS JULIE L. HAMILTON  
POLICY ANALYST  
GOVERNOR'S OFFICE

FROM: JON F. JACQUOT  
ENGINEERING SUPERVISOR  
PUBLIC SERVICE COMMISSION



DATE: JUNE 10, 1996

RE: LOWER VALLEY POWER AND LIGHT TRANSMISSION SYSTEM  
REINFORCEMENT PROJECT OF THE BONNEVILLE POWER  
ADMINISTRATION, STATE IDENTIFIER NO. 96-043

13-5

This is in response to a request by the Governor's Office that the Public Service Commission comment on the referenced matter. The Commission requests that no unreasonable restrictions be placed on the provision of utility service or on the construction of utility and pipeline facilities as a result of the referenced project.

13-6

Where construction is undertaken, the Forest Service or those managing the construction should contact and coordinate with the utilities serving and otherwise present in the area to prevent contact with and damage to utility facilities. If it becomes necessary for utility facilities to be modified or relocated, the cost of modifying or relocating any utility facilities to accommodate construction, should be borne by the Forest Service or those benefiting from the construction. If these costs are not borne by the Forest Service or those benefiting from the construction, those costs would fall unfairly on the rate payers of the affected utility.

# Comment Letters

13-7

The Public Service Commission supports this project. The electrical utility load of Lower Valley Power and Light continues to grow and additional transmission into the utilities service are must be increased to enable to serve the additional load expected.

If you should have any questions regarding this matter, please let me know.

FROM :

PHONE NO. :

May. 21 1996 11:42AM P2

OFFICES:

307-682-6268  
307-772-2477  
Casper 307-261-6572  
Cody 307-527-9444  
Jackson 307-739-9507  
D.C. 202-224-3424

United States Senate  
WASHINGTON, DC 20510-5004

MICHAEL ENZI  
WYOMING

COMMITTEES:  
Banking, Housing, and Urban Affairs  
Labor and Human Resources  
Small Business  
Special Committee on Aging

August 6, 1997

Mike Johns  
Project Manager  
Department of Energy  
Bonneville Power Administration  
P.O. Box 3621  
Portland, Oregon 97208-3621

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-014  
RECEIPT DATE: AUG 18 1997

Dear Mr. Johns:

14-1

After assessing the situation, I believe that there is sufficient reason to request a thirty-day extension of the public comment period on the Environmental Impact Statement for the proposed BPA Lower Valley Transmission Project. This project stands to have a large impact on the communities of Wyoming. It is in everyone's interest that our citizenry properly assimilate the 400 page Environmental Impact Statement (EIS). I believe the statutory minimum time is insufficient for the layperson to do so, especially in light of the fact that much of that time was consumed in assessing an EIS summary which many ultimately concluded to be inadequate to the task of evaluation.

Our proximity to national park lands and wetlands makes it vital that our officials have enough time to properly review the EIS and comment on the impact of this extensive project. It would be a great benefit for us to have thirty additional days to review the material. Thank you for your attention to my request. I look forward to hearing from you.

Sincerely,

Michael B. Enzi  
United States Senator

# Comment Letters

United States Senate

WASHINGTON, DC 20510-5003

August 1, 1997

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-015
RECEIPT DATE: AUG 18 1997

Mike Johns  
Project Manager  
United States Department of Energy  
Bonneville Power Administration  
Post Office Box 3621  
Portland, Oregon 97208-3621

Good morning Mike...

I'm writing on behalf of many of my constituents, who reside in the Lake Creek II Acres housing area in Jackson, Wyoming. They have requested an extension of thirty (30) days for comments on the draft Environmental Impact Statement for the additional power line to Jackson.

I'm aware that a member of my staff spoke with you about this request. It's my understanding you have allowed an additional two (2) weeks extension. I would appreciate your reconsideration of their original request for the full thirty-day (30) extension.

15-1

Enclosed is a copy of the Lake Creek Acres II Homeowner's Association's comments. Please consider this request carefully and let me know what options are available to these folks and how you intend to address their concerns.

Thank you for your assistance in this matter. A reply to me at 325 West Main, Suite F, Riverton, Wyoming 82501, will be appreciated.

Best regards,

*Craig Thomas*

Craig Thomas  
United States Senator  
Wyoming

August 1, 1997 132  
C. T. M.

CT:cl

Enclosure

Response Due: ARC  
cc: A-2, TN

RECEIVED BY BPA ADMINISTRATOR'S OFC-LOG #: 97-0599
RECEIPT DATE: 8-5-97
DUE DATE: 8-19-97

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-016
RECEIPT DATE: AUG 18 1997

DATE *7/29/97*

MIKE JOHNS, PROJECT MANAGER  
DEPARTMENT OF ENERGY  
BONNEVILLE POWER ADMINISTRATION  
PO BOX 3621  
PORTLAND, OR 97208-3621

RE: ECN BPA/LOWER VALLEY TRANSMISSION PROJECT DOE/EIS 0267

~~I WISH TO SUBMIT A PUBLIC COMMENT ON THE DRAFT EIS ON THE ABOVE PROJECT. PLEASE SEND ME A COPY OF THE DEIS AND APPENDICES. I REQUIRE ADDITIONAL TIME TO RECEIVE THE DEIS AND PREPARE MY COMMENT.~~

16-1

I UNDERSTAND THAT LAKE CREEK ACRES II HOMEOWNER'S ASSOCIATION, MY CONSTITUENT, HAS FORMALLY REQUESTED A TIME EXTENSION FOR THEIR COMMENT AND RELATED COMMENTS. PLEASE EXTEND THIS ADDITIONAL 30 DAYS FOR COMMENT TO ME ALSO.

THANK YOU.

*Grant Larson*  
SIGNATURE

NAME \_\_\_\_\_  
ADDRESS SENATOR GRANT LARSON  
BOX 3490  
JACKSON, WY 83001

# Comment Letters

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-017 RECEIPT DATE: AUG 18 1997
--

DATE Aug 7, 1997

MIKE JOHNS, PROJECT MANAGER  
 DEPARTMENT OF ENERGY  
 BONNEVILLE POWER ADMINISTRATION  
 PO BOX 3621  
 PORTLAND, OR 97208-3621

RE: ECN BPA/LOWER VALLEY TRANSMISSION PROJECT DOE/EIS 0287

I WISH TO SUBMIT A PUBLIC COMMENT ON THE DRAFT EIS ON THE ABOVE PROJECT. PLEASE SEND ME A COPY OF THE DEIS AND APPENDICES. I REQUIRE ADDITIONAL TIME TO RECEIVE THE DEIS AND PREPARE MY COMMENT.

17-1

I UNDERSTAND THAT LAKE CREEK ACRES II HOMEOWNER'S ASSOCIATION, MY CONSTITUENT, HAS FORMALLY REQUESTED A TIME EXTENSION FOR THEIR COMMENT AND RELATED COMMENTS. PLEASE EXTEND THIS ADDITIONAL 30 DAYS FOR COMMENT TO ME ALSO.

THANK YOU.

Budd Betts  
 SIGNATURE

NAME Budd Betts State House Rep. District 22  
 ADDRESS P.O. Box 929  
Dubois, Wyo 82513

United States Department of Agriculture	Forest Service	Targhee National Forest	P.O. Box 208 St. Anthony, ID 83445
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File Code: 1950

Date: August 11, 1997

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-018 RECEIPT DATE: AUG 20 1997
--

Nancy Wittpenn  
 BPA Environmental Project Lead  
 P.O. Box 3621 - ECN-4  
 Portland, OR 97208-3621

Dear Nancy:

Enclosed are the comments for both Bridger-Teton and Targhee National Forest employees related to the DEIS for the BPA/Lower Valley Transmission Project. I have included the individuals name and phone number before their comments so the appropriate person can contact them directly.

Looking forward to hearing from you.

Sincerely,

Carol Cushing  
 CAROL CUSHING  
 Forest Planner

Enclosure



# Comment Letters

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG# 2024-02-01  
RECEIPT DATE: 02/01/24

Susan Marsh - Bridger-Teton National Forest, 307-739-5516

## Palisades Wilderness Study Area (WSA) issues

The existing powerline goes through approximately one-half mile of Palisades WSA. The Bridger-Teton (BT) Forest Plan (FP) direction for the WSA quotes from the Wyoming Wilderness Act: "WSA will be managed to protect long-term wilderness attributes. No activities will be allowed that will jeopardize the eligibility of the WSAs for future Congressional designation as Wilderness. Existing uses of the WSAs, such as snowmobiling and mountain biking, will be allowed to continue."

18-1 If additional tower height will not significantly reduce the scenic quality of the area surrounding the existing powerline, then we can say the impact on scenic quality will not jeopardize the eligibility of the WSA for future Congressional designation as Wilderness. If additional tower height will result in towers now being visible from new locations or visual impact will be increased with no opportunity for mitigation, the impact may constitute an "impairment of long-term wilderness attributes" and we should explore alternatives with BPA to reduce height.

18-2 Map 11 displaying VQOs is incorrect. The adopted VQO in the FP for the Palisades WSA is Preservation, not Partial Retention. The forest intends to manage the WSA to meet Preservation.

18-3 Pages 4-15 through 4-20 discusses recreation impacts. Map 9 displays ROS and has errors (area south of highway should not be mapped as SPM and RN). The Palisades WSA should be mapped SPM or P.

## Access issues

18-4 An MOU exists between the Forest Service (FS) and BPA regarding maintenance of the powerline. There does not appear to be any easement document giving BPA "reserved rights" for the line.

18-5 Direction for addressing powerline through WSA should be the same for BT and Targhee. DEIS seems to imply that each forest will be dealt with differently.

18-6 Where there are no existing access roads, no new road construction should be approved for towers 29/1-29/3 within Palisades WSA.

18-7 If any existing access roads occur within WSA (which doesn't seem to be the case on field review of towers relative to WSA boundary), only temporary use during construction phase will be approved - not permanent access for maintenance. Rehab and revegetation will be conducted in consultation with the FS.

18-8 Access to towers should use existing Old Pass Road and Phillips Bench roads wherever possible. If real roads are determined necessary we need to work together to create a system that can be used by the public for firewood

18-8 cont. gathering, dispersed camping and trailhead access, or else build roads to the minimum possible standard and use as trails.

18-9 Currently the powerline does not interfere with winter and summer recreation use. We would not approve additional restriction on use of the powerline ROW, which, because it is cleared, is popular with skiers and snowmobilers.

## Scenic Quality

18-10 Wyoming Highway 22 is managed under the BT FP to meet a visual quality objective of Retention (which means the average viewer should not notice the powerline). The current situation does not meet the VQO; the proposal has the potential to be even more visible, and would further detract from scenic quality. Using the existing line clearing (without widening) and installing one line of towers, even if higher, is a better scenic alternative than widening ROW and installing two rows of towers, as originally proposed.

18-11 Instead of placing new towers to match the existing ones that are reflective metal, let's use a flat matte surface (anodized or painted) for the new towers and paint the old ones to match. In other words, don't increase the number of highly visible towers just for the sake of consistency.

## General recreation issues:

18-12 Where existing roads will be used to access towers, we should encourage cooperative work with BPA to improve those roads needed for public access and close the ones that are not. Issues that we could resolve together include use of the Phillips Ridge area and public access to the Fish Creek Road at the base of the mountains. FS objectives are to make the area available to mountain bikers and other users to divert some use away from Black Canyon (would reduce conflicts with horse riders and make more intermediate terrain available).

## Other resource issues:

18-13 I don't have a lot of details because I have not had a chance to talk with all the resource specialists about this. But some issues that have come up, mostly having to do with new roads and construction for towers: . . .

Cultural resources, impact on historic road and trails, prehistoric quarry sites. Location and degree of ground disturbance will be issues.

Protection of mountainside wetland areas during construction.

## Issues of consistency with BT FP:

18-14 The powerline is not compatible with DFC 9A (developed recreation sites, for which forest plan requires that utilities be underground), nor is it particularly compatible with DFC 12 (backcountry areas managed for big game habitat and recreation). Though incompatible, the line exists and we are not

# Comment Letters

18-14  
CONT. suggesting it should be removed. However, it is important to recognize that we have a use that is inconsistent with adjacent land uses or DFCs in the plan, so future design changes can be made as compatible as possible with forest plan objectives.

Ed Fischer - Targhee National Forest, 208-624-3151

## GENERAL COMMENTS

As noted a number of times at the BPA-FS meeting in Jackson, WY on July 23, the agencies are making different levels of decisions. The BPA decision to be made is more conceptual, the FS decisions are more specific with respect to sites and locations. Different levels of information are needed for these decisions. Some progress was made on July 23 toward meeting the FS needs.

18-15 I am also concerned about the timetable for the project, specifically regarding the clearing of corridor right-of-way (ROW) where it is accessed by new roads (roads currently not in place). I think that clearing new road ROW and construction, and using it to clear corridor ROW in the same year is pretty ambitious. If access is in place to allow clearing of new corridor ROW (that is, if no new access roads are needed for this), then it may be feasibly done in one year. Nonetheless, it will be ambitious even then if more than one type of logging method is needed (if we need to bring in a cable show, or even helicopter). We may need to consider bringing in a logging systems specialist for consultation.

## CHAPTER 1

18-16 Decision to be Made. The decisions to be made by the FS, shown on pages 1-6 and 1-7 of the DEIS, need to be expanded. As clarified at the meeting with BPA personnel in Jackson, WY on July 23, we need to be able to implement clearing of timber and access road construction directly from this decision without engaging in further NEPA. BPA personnel also apparently do not anticipate conducting further NEPA analysis to implement vegetation management after line and road construction. I suggest the following elements are what the FS needs to decide from this document.

1) whether or not to grant an easement to BPA for occupancy and use of the existing facilities and any needed new facilities, and if so, under what terms and conditions. The easement would accommodate towers, lines, and other pertinent features, as well as trunk and access roads; the width would account for factors such as line sag and sway. Please give information on the authority under which the current and proposed easements are/would be granted, either here or in Chapter 3

2) whether or not to authorize clearing of additional ROW for additional BPA facilities, and if so, in what manner

3) whether or not to authorize additional access roads for construction and maintenance of BPA facilities, and if so, in what manner

4) how to manage existing and additional access routes

5) whether or not to authorize vegetation management (corridor maintenance activities) after line and road construction, and if so, in what manner and under what conditions

6) consistency of the proposal and specific actions with the FPs for the Targhee and BT, and what if any amendments may be needed

18-16  
CONT. Issues The issues on pages 1-5 through 1-6 of the DEIS are too broad for the FS decisions to be made. The following issues (from the list in Appendix B) seem to be the most important for ROW clearing, access road construction and the granting of an easement. These are taken pretty much verbatim from the larger list of issues in Appendix B to the DEIS (FYI of July 10, 1996). Analysis of consequences should focus on these.

### Wildlife

- 1) Noise from construction (and substation equipment) could cause wildlife to avoid areas or vacate them altogether.
- 2) Increased road densities in the area may cause wildlife to avoid or vacate habitat.
- 3) Teton Pass is a migration corridor for animals moving between the Teton Range and the Snake River Range. Road densities and construction activities could interrupt these migrations.
- 4) Tree felling and road building could destroy nests or nesting habitat.

18-17

5) Construction and maintenance at certain times could disrupt nesting activities. (Is disruption of fledging included here? If not, it should be.)

### Vegetation

- 1) Describe how much clearing will be needed and where this will be, both for ROW and access roads.
- 2) How will the logging slash be treated? If burned, maintain air quality within acceptable limits.
- 3) Will forest products be made available to the public?
- 4) The existing and new lines will increase the fire hazard in the area.

### Scenic/Visuals

# Comment Letters

1) The corridor location and wider width could affect the visual quality of the area, particularly in the Teton Pass and Pine Creek Pass areas.

### Soil and Water

1) Water and mud from the access road near Moose Creek wash down the old highway into the creek. (Rehab needs of existing facilities)

2) Soil washing into Pine Creek from poor road construction methods or maintenance could affect the habitat quality for cutthroat trout.

3) Numerous landslide and some avalanche areas exist along the ROW.

4) The entire route is extremely sensitive with respect to soils.

5) Road construction and poorly-placed or poorly-maintained roads could contribute excess sediment to area waters.

6) The structures and route should be able to withstand potential damage from seismic activities.

### Recreation

1) How will maintenance roads along the power line in the Teton Basin area impact summer and winter recreation access?

2) How will construction and new clearing and roads affect the backcountry skiing on Teton Pass, which is one of the best areas in the country for this type of use?

3) The ROW is popular with skiers and snowmobilers in the winter. Will new controls affect this use?

### CHAPTER 2 -- PROPOSED ACTION AND ALTERNATIVES

The proposed action is basically described for the FS decision to be made with the notable exception of the road locations. We understand more or less where the ROW clearing would take place (north or south of existing ROW sections). The hazard tree removal actions need to be explained more in the EIS.

The information on maintenance and vegetation management after construction (DEIS, page 2-12) led us to believe additional NEPA would take place after this decision (I got this impression also from reading BPAs FYI on their pending EIS for concept of veg management, received by the Forest in July). BPA personnel seemed to indicate at the recent meeting in Jackson that that may not be the case. This needs to be better explained in the EIS. If a decision on veg management is to be made here we need to state it and show the consequences.

### CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

18-19b It seems like the level of consequences shown would be all right to support the BPA decision on concept. I don't think it's enough to support the FS decisions on clearing and road construction. Maybe we have enough information on which side of the existing ROW the clearing would take place. The descriptions and analysis of effects on the Pine Creek routing options is good. We just need to know more on locations of roads. Other sections that

18-20 need to be beefed up include mitigations and consequences for soil and water, and wildlife concerns.

18-21 To support the FS decision on easement and address the recreation issues I think we need some statement about how the easement would operate, that is, who would have control over the access to the ROW (FS or BPA). That might also address some of the wildlife issues which relate to access.

18-22 If the existing ROW and proposed addition do go thru the WSA, or some other roadless area, there should be some discussion of how this would affect roadless characteristics and potential future designation of the area as wilderness.

18-23 Page 4-3, for timber and range -- the consequences of harvesting up to 181 acres of timber (for ROW only) will depend on where the clearing locations are. The existing statement is correct that clearing of this timber will not reduce the suitable timber on the Forest since there are no lands in 5-series prescriptions there. Any timber harvested in the ROW will contribute toward the 20 million board foot per decade standard for non-ASQ lands.

18-24 Some of the clearing for access roads may take place in prescription areas (Rx) other than 8.1. We need to know where this will occur to show consistency with our Revised PP.

18-25 The statement that rangelands would not be impacted by adding new ROW needs to be checked by district rangeland management specialists.

18-26 Page 4-52 (begin), for wildlife -- consequences seem to focus mostly on disturbance from construction noise, habitat loss, and avian collisions with powerline facilities. There are some timing mitigations for nesting birds; surveys are mentioned, though those for birds would apparently only be conducted "if required" (page 4-60).

18-27 Make sure the timing mitigations address fledging birds, not just early nesting periods. Also, will the timing for wildlife mitigations conflict with that for ungulates or for soil and water quality?

Carol Cushing - Targhee, 208-624-3151

18-28 1.6 - Decision to be made: FS decision is whether or not to issue a special use permit (SUP) & if so, under what terms & conditions; whether to build new roads; remove vegetation etc.

18-17  
Cont.

18-18

18-19a

# Comment Letters

18-29 [ Figure 2-1 should try to estimate the total area disturbed & illustrate it (include area needed for hazard trees)

18-30 [ 2.1.3 - access roads: are the existing roads open in the Revised FP? How many spurs will be built - need an estimate to adequately address the impacts; do adjacent Rx areas meet or exceed the OROMTRD standard in the Revised FP?

18-31 [ 2.7.1.1 - Table 2-4 is good however, I don't think it addresses the issues that are listed on page 1-6. 1502.1 talks about focusing on significant environmental issues & I don't see this happening.

18-32 [ 4.1.2.1 - Acres disturbed needs to change to account for the amount of area that is estimated to be needed to cover the hazard trees; think the impact statement for timber is incorrect & not in compliance with the Revised FP because there would be an impact on the lands where timber is removed as these are considered lands that are not suitable BUT do contribute to the harvest that is outlined on pg. ROD-19.

18-33 [ 4.2.2.1 - appears that visual impacts to new access roads & spur roads has been omitted in this section. In the Visual Assessment Area 3, the specific location of the facilities that are to be developed around Targhee Tap needs to be determined so the visual impacts can be addressed. Also, it seems we should be able to determine if indeed the transmission lines will be viewed from the foreground (site specificity again).

18-34 [ 4.2.2.2 - Visual Assessment Area 2 - how many additional trees & in what locations beyond the ROW will be cleared? Seems like past impacts from the existing line should be mitigated & site specific proposed improvements need to be addressed throughout the EIS.

18-35 [ 4.5.2.1 - site specific draft designs for access roads must be completed before the FEIS & issuance of a SUP to adequately determine impacts to soils, wetlands, floodplains, fine spotted cutthroat trout etc. In a good faith effort to comply w/ the objective on pg. III-107 of the Revised FP, existing roads need to be inventoried & evaluated along the powerline since its likely this is the only project in this corridor w/in 5 years of the signing of the ROD. What impacts will access road construction have on the fine spotted cutthroat trout? I think some additional site specificity is needed in this section related to our Rx 2.8.3.

18-36 [ 4.7.2.1 - Is the clearing in the riparian zone in compliance w/ Rx 2.8.3 in the Revised FP?

18-37 [ Lastly, at a minimum, a alternative should be explored that puts the ROW outside of the WSA.

Dan Delany, Targhee, 208-624-3151

18-38 [ Overall, the document is very programmatic. It does not specify the locations of access or spur roads (p. S-3) and does not state that the environmental impacts of these new roads will be assessed at a later date. It also does not state if the FS will have any later input as to new road locations,

18-38 [ construction specifications, or maintenance standards. Without site specific information, it is not possible to accurately describe the impacts to native cutthroat trout.

18-39 [ p.4-62 to 4-64 Fisheries: I believe the proposed action would produce "moderate" rather than "low" impacts. I agree that road construction within floodplains is a temporary impact and that impacts are localized. However, for the life of the constructed road, stream hydrologic function will be reduced through the physical alteration of the floodplain and stream channel; sediment delivery to the stream will be increased through increased run-off, road use, and road maintenance; and large woody material recruited to the stream will be reduced through clearing of the road ROW and the presence of the road.

18-40 [ I believe that the proposed action will reduce native cutthroat trout habitat quality. Not enough information is provided to determine if the proposed action will meet Revised FP goals, standards, and guidelines for fisheries. Whether the reduction in habitat quality is sufficient to reduce native cutthroat trout population health can not be determined without site specific information on road locations, construction specifications, and maintenance schedules. The proposed action will not significantly impact fine-spotted cutthroat trout on a regional basis.

Ric Rine - Targhee, 208-624-3151

18-41 [ The value of the timber being removed for the expansion needs to be recovered and removed, at fair market value, through a timber sale or similar contractual arrangement, the receipts returned to the Treasury of appropriate fund, and the volume credited to the Forest's MAR accomplishment.

Ronna Simon, - Targhee 208-624-3151

Page Comment

18-42 [ S9 I'd eliminate "supplemental" in the sentence "Groundwater is a supplemental source...".

18-43 [ I don't know that "[m]uch of the landscape reflects the impact of past glaciation." I think most of it reflects stream incision (except in the Tetons, where glaciers sometimes flowed down pre-existing stream courses),.

18-44 [ What are you referring to as the "Snake River Range"? Show on a map.

18-45 [ S-14 Impacts from ROW (road) maintenance? Impacts from logging to clear ROW? Relative amounts of soil disturbance, number of stream crossings, amount of land taken out of production? There isn't much information here that is useful in comparing alternatives.

18-46 [ S-17 SVC alternative may have the lowest impacts, but what are they? Are they within acceptable limits? No mention of impacts to soil quality, stream channels, or water quality.

# Comment Letters

18-47  S-18 No Action would still involve maintenance and repair of existing line, so there would be impacts. Need to address this.

18-48  3-16 Again, delete "supplemental" for groundwater use for irrigation.

18-49  3-17 Again, extent of impact from glaciation (at least on the Targhee side).

18-50  4-25 and 4-26 What is a "normal erosion rate/level"?

18-51  Table 4-1 Hard to tell if impacts will be within legal limits, and if water quality will still meet State standards. Sediment to wetlands implies the need for a 404 permit-- how much are we talking about, and is mitigation possible? No mention of impacts from timber cutting, and potential for changes to water temperature. Nor of impacts from log skidding, decking, etc. to soil and water resources. Impacts to soil from roads aren't just lowered productivity, but irreversible/irretrievable losses, too. They will be lands taken out of production, at least to some to some degree.

18-52  4-29 "Any soil loss would be low compared to losses from neighboring agricultural lands"-- but is it within soil loss tolerance limits?

18-53  Pine Creek Drainage: Will we still meet State water quality standards? Are these consistent with our Revised FP? (this for pages 4-29 and onward) It's really hard to tell what the magnitude of impacts will be on the resources-- the "significance" to the beneficial uses of water and to soil productivity.

18-54  4-35 Mitigation: Should say that riparian plantings may be used to mitigate, if needed. Also need to mention the Revised FP standards and guidelines, as well as State BMP's for road construction and Forest Practices (Idaho and Wyoming). Restrict road construction to the minimum needed for the project, and obliterate roads that are not needed for maintenance. Minimize construction and road use in the spring, when rutting is a concern, as well as runoff. Use more effective erosion control measures in water quality limited (WQL) stream drainages (Teton headwaters).

18-55  4-39 Are the impacts mentioned in the first part of paragraph 4.6.1.2 meant to be direct impacts? Indirect?

18-56  4-43 Putting concrete in the wetland could be a significant impact, and would definitely have to be evaluated. Would also require a 404 permit.

18-57  4-44 Again, make sure to mention the Revised FP, and State BMP's. Also need to ensure mitigation is effective via periodic monitoring.

Bart Andreasen - Targhee, 208-624-3151

18-58  BPA need to use the "ranges" of ROS & VQO as outlined in the Revised FP Rx's, and we would not want to draw lines for probable areas of each. There would probably be little change in ROS except where new access roads might be added, but since they were deleting some, net effect is probably negligible. Also, they could do their effects discussion in narrative terms rather than acres of change in classification, since the only real potential for effects is with VQO on the area south of Motor or on east side of Teton Pass. Suggest BPA follow our narrative approach on p. IV-47 and 50-51 of the FEIS for Revised FP for way to address--just adjust to actual conditions for the project rather than those of the Revised FP.

Mark Orme - Targhee National Forest, 208-624-3151

18-59  1) Surveys for TES Species need to be conducted along the entire ROW before ground/vegetation disturbing activities are done. These surveys need to follow approved protocols; 2) If the surveys document the presence of TES species within or immediately adjacent to the ROW, the Revised FP S&G's for these species need to be followed. An example of immediately adjacent is: A boreal owl nest site is found outside the ROW, but close enough that the owl would use the ROW as part of its nesting stand or foraging area; 3) If for some reason S&G's for TES species cannot be followed, then mitigation for lost habitat will be required; 4) Since removal of timber in some places along the ROW will be permanent, this will result in the eventual loss of large woody debris habitat. I recommend that twice the amount of large woody debris as required in the Revised FP be retained where timber is removed; 5) Unless needed by the FS, all access roads should be effectively restricted from public motorized use; 6) The DEIS adequately covers concerns about electrocution and collisions; 7) For wildlife species other than TES species, the DEIS probably does a minimal adequate job discussion.

Ron Dickemore - Palisades District, Targhee 208-523-1412

18-60  1. The purpose and need for the FS needs to go into more detail and they should be together. We talked about this in Jackson.

18-61  2. All of the access roads to the ROW and within the ROW needs to be identified to see where they cross Pine Creek and drainages coming into Pine Creek to see what kind of crossing they are proposing. Also need to know what bridges are being proposed to upgrade.

18-62  3. We were informed in the Jackson meeting that we would issue BPA a SUP for BPA to use National Forest land. There was some discussion on what involvement the FS would have in harvesting the timber and other activities within the ROW of the special use permit. When we issue a SUP, the permittee is responsible to accomplish all activities to the standard we specify. We should not be taking on that extra work.

# Comment Letters

- 18-63  4. The motorized use discussion throughout the document is confusing.
- 18-64  5. We need to include the direction for all Rx areas from our Revised FP.
- 18-65  6. We need to agree on what will happen to the roads during construction and after. The road density issue.
- 18-66  7. There is one area on the Palisades District where the proposed line may not be next to the old line and there may be more than one alternative to evaluate in the document. The specific area is where the line crosses the road, Pine Creek and Pine Creek Basin ski area. In this location, two or more routes or construction methods could be discussed and evaluated.
- 18-67  8. The document needs to show what Rx area the proposed action is in.

Bud Alford - Palisades Ranger District, Targhee, 208-523-1412

It appears the BPA has covered a lot of the issues and concerns for wildlife and fish, but I think a few they discussed have been glossed over in the EIS. I refer the reader mostly to appendix D - Wildlife Report, particularly pages 6 - 35 of that appendix and related material in the EIS in the environmental consequences to wildlife. I refer specifically to species which depend on the estimated 181 plus acres of mixed conifer habitat that will be "type - converted" to open rangeland or brushy habitats. Additionally, other large trees adjacent to the clearcut corridor will be removed.

The documents say there will only be a "low to moderate" impact on forest dependent species. I say the impact will be "high" for many of these. In my mind this 181 acres of conifer habitat is an irreversibly and irretrievably loss as far into the future as one could possibly imagine (maybe 300 plus years, who knows?). Specifically, these species include cavity nesting birds and mammals, American marten, many raptorial birds including the goshawk, the FS sensitive boreal, flammulated and great gray owls and the three-toed woodpecker among others.

18-68

Mitigation listed in the EIS does not address how this irreversible and irretrievable loss will be mitigated.

The species discussed which are being directly impacted the most are strongly dependent on "forested types" and are the species most in trouble in the Western U.S. today. That's why so many are listed as FS sensitive species, are rare or have been petitioned for Federal listing (eg. Lynx). This project is not helping their situation and adds to impacts occurring on private lands. Mitigation could help prevent similar forests from being impacted on private lands.

Fisheries: I looked quickly at the fisheries section on affected environment and environmental consequences since our Fish Biologist is gone now.

- 18-69  Some of the information did not seem to ring true to me such as that Pine Creek was rated to be poor to fair fish habitat. I had always thought of Pine Creek as one of our most productive wild cutthroat spawning tributaries on the Snake River system.

- 18-70  It also gave the impression that beaver activity was contributing to sedimentation and poor bank stability in Pine Creek. If anything the beaver dams and work we have done with beaver there has helped improve bank stability and provided check dams for sediment coming off the existing BPA powerline road (eg. as in Tie Canyon; this has been one of our continuing problem areas for sediment). If anything I suspect the increase in roading for this project will degrade Pine Creek fisheries further. I'm not sure by reading the EIS if this has been displayed fully, especially if a road is desired to access every power pole.

Patty Bates - Teton Basin District, Targhee, 208-354-2312

- 18-71  5.2.1.3 Access Roads & Gates  
- Need to define action better, or at least display worse case scenario. Better still, we should be discussing which roads are needed with an objective of minimizing roaded area.

- 18-72  5.3.3 Recreation Resources  
- Should consider a quick summary of Greater Yellowstone Winter Recreation Plan, or at least BPA should have a review study to understand the rec. issues along Teton Pass. Will the added roads have potential impact on yo-yo skiing/snowboards.

- 18-73  1.6 Decision to be made  
- Need to clarify (i.e., whether or not to issue special use authorization, and if so with what conditions and requirements). Seems like it should also display other decisions to be made (timber sale, vegetation mgt. plan, wildlife mitigation plan, gating plan).

- 18-74  2.1.3 Roads - again!  
- Define better - how many and what size spur roads. Will there be closure/rehab of any existing roads and spurs. Tie to travel plan decision to assure open roads won't be gated. I think there ought to be some options with roads - Proposed Action seems like all roads are needed. So far BPA's been fine with no access to some towers, so I think a lot of the construction roads should be temp. roads - rehabed once construction is complete.

- 18-75  2.6.3 Burying the Transmission Line  
- Seems like the option meets the purpose and needs and issues and cost wasn't. It needs a bit more discussion to dismiss (maybe have cost concerns up front).

# Comment Letters

18-76 [ 3.1/2.1 Population  
- They're missing discussion of Teton County, Idaho. I assume some of the issues/public comments revolve around the Victor end of the county and should be displayed.

18-77 [ 4.7/2.1 Construction Impacts  
- Need to define/estimate tree removal off ROW - or any other impacts anticipated off ROW.

18-78 [ 4.8.2.2 Mitigation Strategy  
- Needs to be strengthened, should be a plan developed, within a specific time, assurances, etc.

18-79 [ 5.1.9 Cleanup wording throughout that FS would issue S.U.P. authorization (to include both new and existing) and delete reference to easement.

18-80 [ 3.1 There's no discussion of rangelands need to quickly discuss FS grazing allotments - and then track through to consequences - with veg. change through timber barings or increased roads affect grazing ops, livestock movement, use, etc.

Liz Davy - Teton Basin District, Targhee, 208-354-2312

18-81 [ As a mitigation for the timber, have a timber sale so local people can remove the products. Most of the timber is mature and would work well for house logs etc. Mitigation for slash removal, open the area for firewood gathering after the timber sale. Removes slash without burning, provides a product to local folks, and helps our public relations. Allow commercial tree digging along right of way and new roads. There are tree spades around that can handle any size tree. Soil removal may not be an issue since it will be disturbed with the roads and installation of poles. Page 3-10 5th paragraph, there is no such thing as Coal Cr. campground. I believe they mean Trail Cr. campground. Page 3-11. Skiers, mtn bikers and ATV's use the ROW from Mike Harris to Pine Cr. Pass.

18-82 [ Marynell Oeschner, Teton Basin District, Targhee, 208-354-2312

WILDLIFE SURVEYS AND TIMEFRAMES:

18-83 [ BPA plans to begin clearing and road building in 1999. For some species, surveying at the appropriate time for the specie just prior to tree removal in 1999 would be adequate. Others should have two appropriate seasons of surveying.

18-84 [ Survey appropriate habitat for each specie in and adjacent that portion of the ROW where it is likely to occur.

Western boreal toads--any ponds or backwater areas--Mid May-thru June 1999

Spotted frogs--any ponds or backwater areas--Mid-May-thru June 1999

Bats--surveys over creeks and rivers under power lines--July/Aug 1998

Lynx/fisher/wolverine--snowtracking---Jan - March 1998/1999

18-84 [ Harlequin duck--Trail Creek, Pine Creek, Moose Creek--1998/1999

Three-toed woodpeckers---Mid-May thru June 1999

Boreal owl----Feb thru March 1999

Flammulated owl---Mid-May thru June 1998/1999

Great gray owl---end of May thru first half of July 1998/1999

Goshawk----June and July 1998/1999

18-84 CONT.

REQUIREMENTS:

A Team of Targhee wildlife biologists will review and approve the survey protocol and timing requirements to be used for each sensitive specie prior to BPA letting the wildlife survey contract.

A team of Targhee biologists will review the biological evaluation on sensitive species for adequacy.

18-85 [ A. Villaruz (Jackson Ranger District, BT), B. Alford and M. Oechsner agree to modify the date before which no tree removal should take place, from August 1 to July 15th. BPA should begin work in the lower elevations on or after this date and then move to the higher elevations later. If BPA wishes to start removing trees before July 15th, every tree to be removed must be searched for active cavities and nests prior to cutting. Nest and cavity searches must be performed in addition to the surveys specified by the FS and submitted to BPA on July 9, 1997.

Should an active nest or cavity of a sensitive specie be found, the Revised Targhee FP or the BT FP (which ever is appropriate per location) standards and guidelines will be followed.

GPS locations of all survey sightings and nest locations will be given to the USFS prior to ground disturbing activities.

A team of Forest biologists will determine appropriate site specific mitigation measures for wildlife.

Jack Bogle - Teton Basin District, Targhee 208-354-2312

18-86 [ 5.2.1.2 - Additional ROW - Need to address clearing limits as well as ROW width

18-87 [ 5.2.1.3 - Roads - We should state that some of the roads will be used for tree removal.

# Comment Letters

- 18-88  3.3 - Recreation Resources - Refer to the skiers as backcountry skiers not alpine and nordic. Also mention snowmobiling.
- 18-89  2.1.4 - Gates - where possible build gates that will allow for horses, mountain bikes, etc. to access around the gates.
- 18-90  3.2.5 - Need to make an effort to coordinate w/ the BT on color requirements for towers etc.
- 18-91  General comment - I didn't see any discussion of any potential benefits of better service to Teton Valley Idaho which I understand to be the case.

LAKE CREEK ACRES II HOMEOWNER'S  
ASSOCIATION PO BOX 6296  
JACKSON, WY 83002

7/15/97

TO: MIKE JOHNS, PROJECT MANAGER  
DEPARTMENT OF ENERGY, BONNEVILLE POWER ADMINISTRATION  
PO BOX 3621  
PORTLAND, OR 97208-3621

AND EIS FILING BRANCH, OFFICE OF FEDERAL ACTIVITIES (A104)  
ENVIRONMENTAL PROTECTION AGENCY  
ROOM, 2119 MALL 20460  
401 M STREET SOUTH WEST  
WASHINGTON, DC 20460

RE: PROPOSED BPA/LOWER VALLEY TRANSMISSION PROJECT DOE/EIS 0267  
TIME EXTENSION REQUEST PUBLIC COMMENT PERIOD

*Rec'd  
7/21/97  
@Kroon*

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG# LWB V/L - 02-019	RECEIPT DATE: AUG 20 1997
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The Board of Directors of Lakecreek II Acres respectfully requests an extension in the time period for public comment on the Draft EIS currently being circulated by BPA. We request an extension of 30 days, extending the comment period to September 11, 1997 for the following reasons:

1. Several members of our association and our advocates, who did comment during the Scoping process, who are directly impacted by the proposed project, did not receive the complete Draft EIS. Others who, for practical purposes only asked for the Summary, are finding the Summary is not adequately detailed and they must now request the complete draft. In studying the DEIS, in conjunction with NEPA and the CEQ, we have serious concerns that our rights under these laws have been violated both in the past (by Categorical Exclusions, and wetlands issues) as well as currently with the treatment of "significant" impacts to "human environment" and "cumulative impacts," all addressed in specific sections of NEPA and CEQ. To absorb a 400 page EIS, apply NEPA and CEQ and have informed and accurate comments by our property owners and advocates, we require additional time. We believe that under NEPA regulations 1502.19 and 1506.10 (d), our property owners and advocates, are entitled to the extension.

Additionally, as we attempt to discuss the Draft EIS with our elected officials at Teton County, Wyoming and the State of Wyoming, we are finding that many of these folks are not in possession of the Draft EIS, and that all need more time to review this exhaustive document and cross reference NEPA and CEQ before they can prepare an informed public comment. Under NEPA 1506.10 (d) we find this to be compelling reason to extend the comment period. Please consider that in the past, Teton County regulations and permit process have been entirely ignored. This, along with our proximity to national park lands and wetlands (CEQ 1508.27 b3), makes it critical that our County, State and Federal officials have adequate time to comment on the Draft EIS.



# Comment Letters

MIKE JOHNS, PROJECT MANAGER/EIS FILING BRANCH  
BPA/LOWER VALLEY TRANSMISSION PROJECT DOE EIS 0267

2. As lay people, we are at a severe disadvantage, trying to digest an enormous amount of technical information relating to NEPA, Council of Environmental Quality, the Code of Federal Regulations, Noise Control Act, Pollution Control at Federal Facilities and EIS regulations, County and State regulations among many other large bodies of information. BPA has opted for the statutory minimum for Public Comment (45 days), when in fact the Draft EIS itself took 90 days longer to complete than projected.

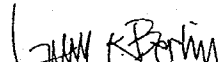
We have participated in a spirit of goodwill with the Scoping Process and made our comments during the Draft preparation. This EIS document required two years and 23 BPA employees to complete. The EIS preparers are immersed and educated in the components and understanding required. Certainly, citizens and public officials should be given adequate time to review, digest and comment on this huge project that drastically impacts our human and natural environment, our property values, our health, safety, visual and noise quality.

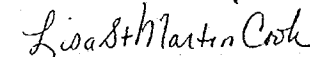
In keeping with the intent of NEPA 1501.1 (b), Lakecreek II residents have tried to be an integral part of the EIS process to date, and to avoid adversarial action at a later date. In keeping, please grant the requested extension for our and related public comment to September 11, 1997.

Sincerely,

LAKE CREEK ACRES II HOMEOWNERS ASSOCIATION  
BOARD OF DIRECTORS

  
Michael Sellett

  
Larry K. Berlin AIA

  
Lisa St. Martin Cook

PUTNAM, HAYES & BARTLETT, INC.  
ECONOMIC AND MANAGEMENT COUNSEL

VIA FACSIMILE MACHINE

25 July 1997


Mr. Michael C. Johns  
General Engineer  
Bonneville Power Administration  
905 NE-11th Avenue  
Portland, OR 97232

Dear Mike:

As a follow up to our conversation today, I would like to be put on the mailing list for information related to the construction of the new transmission line into the sub-station in the area located north of *The Aspen's* residential neighborhood in Jackson, Wyoming. As we discussed, I am considering purchasing a house that is located immediately south of the existing transmission line. In addition, I would like to receive a copy of the draft EIS.

Please send the above information to me at my office address in Washington, D.C. Thank you very much for your assistance in this matter.

Very truly yours,

  
James M. Speyer

James M. Speyer  
Managing Director

1776 Eye Street, NW  
Washington, DC 20006  
(202) 785-4052 fax

(202) 775-7277 direct dial

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-021
RECEIPT DATE: AUG 20 1997

19-1  
cont.

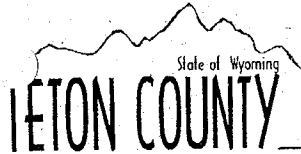
21-1

# Comment Letters

08/11/1997 13:42 3877334451 3877334451

TETON COUNTY COMMISS

PAGE 01



Michael F. Gierau, Chair  
Robert L. Shervin, Vice Chair  
Ann Stephenson, Commissioner  
Sandy Shuprine, Commissioner  
Bill Paddleford, Commissioner  
Gary Debus, Director of Administrative Services

VIA FACSIMILE AND POST

August 11, 1997

Mr. Mike Johns  
BONNEVILLE POWER ADMINISTRATION  
Public Involvement Office - ACS  
P. O. Box 12999  
Portland, OR 97208

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-022  
RECEIPT DATE: AUG 20 1997

FAX: 503/230.4605

Dear Mr. Johns:

The Board of County Commissioners would like to respectfully request an extension to the comment period for the Draft Environmental Impact Statement for the Teton Substation. It is our desire to see the comment period ending August 12, 1997 for the EIS extended to September 17, 1997.

22-1 Due to the extensive, complex nature of the document, we feel that additional time is necessary for both public officials and citizens to be able to fully contemplate its content.

We look forward to your response and thank you very much for your consideration.

Sincerely,

BOARD OF COUNTY COMMISSIONERS

Mike Gierau



IDAHO FISH & GAME  
UPPER SNAKE REGION  
1515 Lincoln Road  
Idaho Falls, Idaho 83401-2198

August 11, 1997

Phillip E. Batt / Governor  
Stephen P. Mealey / Director

Bonneville Power Administration  
Public Involvement Office - ACS  
P.O. Box 12999  
Portland, OR 97208  
Attn: Mike Johns

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-022  
RECEIPT DATE: AUG 22 1997

Subject: Lower Valley Transmission Project, Idaho-Wyoming

Dear Mr. Johns:

Idaho Department of Fish and Game personnel have reviewed the referenced document and offer the following comments.

### Avian Collisions

23-1 **Mitigation:** The document should be strengthened by committing to proposed actions, rather than only proposing mitigation that could or should be accomplished. An independent expert should be consulted as discussed on page 4-60. Burying the power lines where the line crosses flight paths would reduce avian collisions at the highest-risk locations. These sites are noted in Appendix D.

**Trumpeter swan:** Please see attached letter from the Trumpeter Swan Society. The comments are hereby incorporated by reference.

### Big Game

23-2 **Winter range**  
We recommend construction and other project-caused disturbances be prohibited between December 15 (or sooner if adverse weather conditions occur) and April 15 in delineated deer/elk winter range. Delineations are published in the Targhee Forest Plan Revision (1997) and the State of Idaho's Comprehensive State Water Plan, South Fork Snake River Basin (1996). This would complement the goals of those two plans. In Idaho, the restricted area would be from Poison Creek southwest to the Swan Valley substation. If unusually adverse weather conditions occur, we recommend the restrictions occur prior to December 15, as needed to protect wintering big game.

# Comment Letters

23-3 [ The statement that "most of the right-of-way is outside of big game winter range" is incorrect (Appendix D:34).

23-4 [ Appendix D (page 7) should note that significant, avoidable, adverse impacts to wintering big game will result if project-related disturbances occur during the December to mid-April period on big game winter range. This impact should be avoided by prohibiting project-related disturbances, as recommended above.

23-5 [ Habitat effectiveness and vulnerability  
We recommend the access plan for existing and new roads and spurs include: 1) motorized vehicle closures are effective, and 2) motorized access and project-related maintenance activities are prohibited during the fall big game hunts, beginning August 30.

23-6 [ It appears that Routing Option B would cause less impacts to big game than Options A or C, due to minimizing new road construction.

#### Fisheries and Water Quality

23-7 [ For construction standards, consider all perennial and intermittent streams to have fish present at least a portion of the year, unless acceptable site-specific research indicates otherwise. Note that maintaining fish passage is legally required under Idaho Code Section 36-906; there should be no discussion of the potential impacts of blocking or impeding fish passage (page 4-63).

23-8 [ We recommend willows be planted at erosive riparian impact sites, including bridges and fords.

23-9 [ Throughout the text, "fine-spotted" (cutthroat) should be replaced with "Yellowstone". Also, Pine Creek is very valuable trout spawning and rearing habitat.

#### Mitigation

23-10 [ The document indicates that as many as 181 acres of timberland would be lost, and converted to other vegetation types (page 4-3). It is unclear if additional acreage of non-timber types would be disturbed or lost. There also would be between 5 and 10 miles of new roads constructed, plus an unstated length of spur roads (page S-3). It is unclear whether the acreage of vegetation to be lost through construction of new roads and spur roads is part of the reported 181 acres, or if it should be added to that acreage number.

23-11 [ It appears there would be 1) five to 10 or more miles of roads and spur roads

constructed, 2) potentially 181 or more acres of wildlife habitat permanently lost and/or maintained in early seral stages to prevent vegetation impacts on the transmission line, and 3) an unstated amount of wetlands impacted by installation of bridges, fords, roads, and culverts.

These are irreversible and/or irretrievable losses of forest resources and negative impacts for fish and wildlife, for which compensation should be provided. The 1980 Northwest Power Act (Public Law 96-501) indicates that Bonneville Power Administration is responsible to mitigate for fish and wildlife impacts resulting from transmission line expansion.

23-11  
cont.

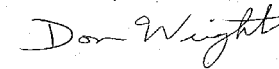
The Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program (1995) reports that mitigation is needed for transmission line impacts, noting that construction and maintenance of power transmission corridors alters vegetation, increases access to and harassment of wildlife, and increases erosion and sedimentation. The proposed transmission line would cause those impacts in an area delineated as big game winter range and crossing and paralleling important Yellowstone cutthroat spawning and rearing streams.

23-12

We recommend that partial mitigation be implemented, including prohibiting project-related disturbance during winter in big game winter range, reducing avian collision risks, minimizing road construction, effectively closing roads to motorized vehicles during deer and elk hunting seasons, and other mitigation actions proposed in the draft document. We also recommend full mitigation be implemented to the extent necessary to compensate for the permanent impacts of habitat losses and impacts to fish and wildlife.

Thank you for the opportunity to provide comments.

Sincerely,

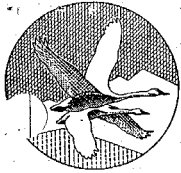


Don Wright  
Regional Supervisor

DW:RM:rm

cc: Natural Resources Policy Bureau, IDFG  
USFWS, Pocatello  
Terry Thomas, IDFG  
Lynn Merrill, IDFG  
Mark Gamblin, IDFG  
Ted Chu, IDFG

# Comment Letters



## THE TRUMPETER SWAN SOCIETY

3800 County Road 24 • Maple Plain, MN 55359 • 612/476-4663 • FAX 612/476-1514

ROCKY MOUNTAIN WORKING GROUP • 3346 E 200th N • Rigby, Idaho 83442 • 208/754-8756

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MOOSE, WYOMING

MOOSE, WYOMING

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CLIFTON E.

C. R. GUTER  
H. ALBERT

ROSBLEY W.  
FRED E. KIN

PETER WAR

July 6, 1997

Bob Martin  
Idaho Department of Fish and Game  
1515 Lincoln Road  
Idaho Falls, ID 83401

RECEIVED BY GFA PUBLIC INVOLVEMENT LOG# LWRVAL-02-024 RECEIPT DATE: AUG 22 1997
---

Dear Bob:

As you requested, I've reviewed the attached section 3.7.12 from the 12/03/96 draft of the EPA/B3 Resource Report which pertains to trumpeter swans. Unfortunately, there are a number of inaccuracies in this section. I've numbered the paragraphs on the attached sheets. My comments correspond to the numbered paragraphs:

1. The project area is within the summer range of the primarily non-migratory (resident) segment of the Rocky Mountain Population (RMP), which managers refer to as the Tri-state flocks. The project is also within the wintering range of the vast majority of RMP trumpeters. While the total RMP numbers over 3,000 and has been increasing for approximately 20 years, the resident Tri-state (Idaho, Montana and Wyoming) flocks have decreased over the last decade and numbered 379 in September 1996.

2. Trumpeter swan nest sites are located north and south of the project area, at Grays Lake NWR and Jackson Hole. There is potential for future nesting in Swan Valley although none has been documented this century to my knowledge. There was one unconfirmed nest attempt in Teton Basin within the past 30 years, but Teton Basin doesn't offer good potential nesting lakes or ponds. Most nesting is further north on the Ashton Ranger District of the TNF.

3. Scattered trumpeters are now wintering from Star Valley WY, all the way down the South Fork of the Snake to Heise.

4. 176 trumpeters wintered on the South Fork during the February 1997 USFWS survey. Most (148) were in Swan Valley, 28 were in the canyon. Wintering trumpeters regularly use a variety of spring-fed sloughs in the Palisades and Rainey Creek vicinities as well as the river.

24-5 [ 5. In Teton Basin, hundreds of trumpeters regularly winter along the river with the vast majority in the vicinity of Teton Valley Lodge. As I mentioned in #2, the record of nesting in Teton Basin is poorly documented, but at best represents an atypical occurrence.

24-6 [ 6. There are a number of nesting territories in Jackson Hole, Christian Pond is just one of them.

24-7 [ 7. Pine Creek drainage is a very likely travel corridor from Teton Basin to Swan Valley for trumpeters.

24-8 [ 8. As of 1997, attempts to rebuild migrations and disperse the RMP are showing good prospects for success. Over 800 RMP trumpeters wintered outside the Tri-state region during winter 1996-97.

24-9 [ I'm not familiar with the proposed project but would like to emphasize that trumpeter swans are highly vulnerable to powerline collisions. There are a number of design measures and types of markers that can be used to reduce the potential for collisions by swans and other birds. My husband, Dr. Rod Drewien, conducted considerable research on this subject for the Edison Electric Institute. If that information would be helpful in planning for this project, Rod can be reached at 208-754-8756.

I hope this information is helpful. Please keep The Trumpeter Swan Society informed regarding the status and details of this proposal so that we can help avoid potential impacts on trumpeters and other species.

Sincerely,

*Ruth Shea*

Ruth E. Shea

# Comment Letters



RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-025  
RECEIPT DATE:  
SEP 03 1997

Michael F. Gierau, Chair  
Robert L. Shervin, Vice Chair  
Ann Stephenson, Commissioner  
Sandy Shuptrine, Commissioner  
Bill Paddelford, Commissioner  
Gary Debus, Director of Administrative Services

August 21, 1997

Mr. Lew Dreisen  
**BONNEVILLE POWER ADMINISTRATION**  
Public Involvement Office ACS  
P. O. Box 12999  
Portland, OR 97208

FAX: 503/230.4605

Dear Mr. Dreisen:

The Lake Creek II homeowners association approached the Board of County Commissioners regarding the BPA/Lower Valley Transmission Project and the various options being considered at the Teton Substation. The HOA expressed a strong desire to understand the technical characteristics of each of the substation options as well as the SVC alternative.

The HOA has contracted a specialized engineer to assist in their evaluation of the Draft EIS. During the July 24 meeting held at the LVP&L offices, BPA agreed to provide the homeowners with photos, models, specifications, and cost estimates for three options at the Teton Substation. These included the overhead option, the 400-foot undergrounding option, and undergrounding from the Fish Creek area.

The Lake Creek homeowners can make informed reply within the comment period if this previously requested information is provided to them as soon as possible. We believe that these visualizations and specifications will assist them in their understanding of the various alternatives proposed in your DEIS. We are also interested in this information and trust that it will be forthcoming soon.

We appreciate the extension of the comment period and hope to provide you with meaningful input.

Sincerely,

**BOARD OF COUNTY COMMISSIONERS**

Mike Gierau

Cc: Lake Creek II HOA  
FAX 307/733.1593 #8

25-1



## United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
500 NE Multnomah Street, Suite 600  
Portland, Oregon 97232-2036

IN REPLY REFER TO:

August 26, 1997

ER 97/0373

Nancy A. Wittpen  
Environmental Project Leader  
Department of Energy  
Bonneville Power Administration  
P.O. Box 3621  
Portland, OR 97308-3621

RECEIVED BY BPA  
PUBLIC INVOLVEMENT  
LOG#: LWRVAL-02-026  
RECEIPT DATE:  
SEP 05 1997

Dear Ms. Wittpen:

The Department of Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for the Bonneville Power Administration (BPA)/Lower Valley Transmission Project. The following comments are provided for your use and information when preparing the Final Environmental Impact Statement (FEIS).

The DEIS states on summary page S-4 under 5.2.1.4: "All new equipment would be placed on BPA property." The FEIS should note that the new equipment would be placed on Bureau of Land Management administered land which the BPA has been granted a right-of-way for the operation of the Swan Valley Substation.

Thank you for the opportunity to comment.

Sincerely,

Preston A. Sleeper  
Acting Regional Environmental Officer

26-1

# Comment Letters

## Memorandum

To: Governor Jim Geringer  
 U.S. Representative Barbara Cubin  
 U.S. Senator Mike Enzi  
 U.S. Senator Craig Thomas  
 Senator Grant Larson  
 Senator Clarene Law  
 Representative Bud Betts  
 Bill Collins, Teton County Planning Director  
 Kurt Moore, Teton County Planning Department  
 Mike Gierau, Chairman, Teton County Commissioners  
 Bob Shervin, Teton County Commissioner  
 Sandy Shuptrine, Teton County Commissioner  
 Ann Stephenson, Teton County Commissioner  
 Bill Paddelford, Teton County Commissioner  
 James R. Little, MD, President B.O.D. LVPL, Inc  
 Thelma Crook, Vice-President B.O.D. LVPL, Inc  
 Dean S. Lewis, Secretary-Treasurer B.O.D. LVPL, Inc  
 Peter L. Cook, B.O.D. LVPL, Inc  
 Fred Brog, B.O.D. LVPL, Inc  
 Rod R. Jensen, B.O.D. LVPL, Inc  
 Warren Potash, B.O.D. LVPL, Inc  
 Steve Duerr, Attorney at Law  
 Bill Resor, Snake River Associates

Cc: Diane M. Connolly, Attorney at Law  
 Leonard R. Carlman, Attorney at Law  
 Phelps H. Swift, Jr., Attorney at Law  
 Kenneth Cohen, Attorney at Law  
 Henry C. Phibbs, Attorney at Law

From: Lake Creek II Homeowner's Association / LVPL  
 Date: 09/04/97  
 Re: Comments to DOE/EIS-0267 BPA/Lower Valley Transmission Project

Thank you for your past interest and involvement in this project, especially in obtaining the extension of the comment period. BPA will accept comments until September 11, 1997.

As promised, we have enclosed both an executive summary and a copy of the Lake Creek II Comment. We ask that along with comment generated by your own review of the EIS that you would also endorse and support our comments in writing to BPA. Please feel free to contact us if we can assist you in any way.

RECEIVED  
 SEP 8 1997  
 Holland & Hart

SEP 08 '97 04:36PM HOLLAND&HART

P.3/17

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: <i>LWRVAL-02-027</i> RECEIPT DATE: SEP 10 1997
---

September 4, 1997

### Executive Summary of Lake Creek II Comment - BPA/Lower Valley Transmission Project

After thorough review of the EIS and consultation with our legal counsel and technical experts, and despite our sincere and laborious efforts to be fully included in the process, we believe that our rights under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and certain other laws are being violated. Below are our continuing concerns:

- I. The EIS Fails to Comply with NEPA
  - A. The EIS Fails to Respond to Scoping Comments  
 27-1 [ Despite NEPA requirements that federal agencies either respond directly to scoping comments or cite reasons for eliminating comments from consideration, BPA blatantly ignored the following: Consideration of relocation of Teton Substation; Disclosure of impacts specific to properties surrounding Teton Substation (Property Values, Visual, EMF and Noise); Provision of mitigation for cumulative impacts specific to properties surrounding Teton Substation; Consideration for the Verdons Landscape Architects' plan.
  - B. The EIS Fails to Consider a Reasonable Range of Alternatives  
 27-2 [ The alternative most detrimental to areas surrounding the Teton Substation is under serious consideration, yet no such consideration is given to the alternatives identified by Lake Creek II residents as least detrimental: relocation and underground termination. We ask for the inclusion of these alternatives and that underground termination be included in the body of all line alternatives under consideration.
  - C. The EIS Fails to Disclose Cumulative Impacts  
 27-3 [ The EIS does not contain site-specific evaluation of the impacts of alternatives within this project. The EIS neglects to disclose how the noise and EMF levels will change the tranquil and pleasant environments at our individual homes (near Teton Substation). Technical studies cited in the appendices relate only to lines, not substations.
  - D. The EIS Fails to Supply Mitigation for Cumulative Negative Impacts  
 27-4 [ The EIS does not include any mitigation for visual impacts or perceived risks, two factors which will degrade our property values; nor does it mention the landscaping plan submitted by Lake Creek II as part of our scoping comments.
- II. What Lake Creek II Wants  
 27-5 [ The residents of Lake Creek II would like full compliance with the above-referenced NEPA and CEQ regulations. We desire full implementation of the Teton Substation Mitigation Action Plan to include the full Verdons Landscape Architect's Plan as well as all provisions cited in EIS 4.2.2.2 (Recommended Mitigation for Visual Assessment Area 7). We also would like a complete and detailed analysis of all underground termination options, thereby eliminating the need for the 54-ft. towers at the Teton Substation. We would like the \$250,000 budget relating to the underground termination option to be unconditionally committed for use at the Teton Substation.
- III. Conclusion  
 27-6 [ We believe the shortcomings of the Draft Environmental Impact Statement both violate existing regulations and significantly hamper our capacity for "meaningful participation" in the NEPA process.

# Comment Letters

SEP 08 1997 04:36PM HOLLANDSHART

P. 4/17

Lake Creek Acres II Board of Directors  
P.O. Box 6296  
Jackson, WY 83002

September 4, 1997

Lou Driessen, Project Manager  
BPA Public Involvement Office  
ACS P.O. Box 12999  
Portland, OR 97208

Re: Comments of the Lake Creek Acres II Homeowner's Association on the Environmental Impact Statement for the BPA/Lower Valley Transmission Project.

Dear Mr. Driessen:

After thorough review of the EIS and consultation with our legal counsel and technical experts, and despite our sincere and laborious efforts to be fully included in the process, we believe that our rights under NEPA, the CEQ, and certain other laws are being violated. Below are our continuing concerns:

## I. Legal Background

The National Environmental Policy Act (NEPA) requires each federal agency to prepare and circulate for public review and comment a detailed environmental impact statement (EIS) prior to any major federal action that may have a significant effect on the environment. 42 U.S.C. 4332 (2)(C); 40 C.F.R. 1502.5, 1508.3 Robertson v. Methow Valley Citizen's Council, 490 U.S. 332, 336, 109 S. Ct. 1835, 1839 (1989); Foundation for North American Wild Sheep v. United States Dept. of Agriculture, 681 F. 2d 1172, 1177-78 (9<sup>th</sup> Cir. 1982).

In addition, Counsel on Environmental Quality (CEQ) regulations recognize the criticality of information quality to intelligent decision making. Information in NEPA documents "must be of high quality. Accurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. 1500.1(b) EISs must analyze the effects of actions "which when viewed with other proposed actions have cumulatively significant impacts." 40 C.F.R. 1508.25(a)(2)

## II. The EIS Fails to Comply with NEPA

27-7 The EIS fails to meet NEPA's requirements, failing to include some of the most basic information required in an EIS. Primarily, the EIS fails to respond to scoping comments, fails

• Page 2

September 4, 1997

27-7 cont. to consider a range of reasonable alternatives, fails to disclose in adequate detail the cumulative impacts of the project, and fails to provide for mitigation of cumulative negative impacts.

### A. The EIS Fails to Respond to Scoping Comments

NEPA and regulations implementing it require agencies to consider comments both individually and collectively. When the agency determines a comment does not warrant further response, the agency must at least "explain why the comments do not warrant further agency response, citing sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. 40 C.F.R. 1503.4

27-8 In our scoping comment dated 5/22/96, we asked that the EIS consider relocation of the Teton Substation. No where in the Draft EIS is this considered, nor are reasons cited for its elimination. During scoping, we also asked that the EIS provide for mitigation of cumulative negative impacts from the Teton Substation to the neighboring properties. These impacts include Property Values, Visual, EMF and Noise. The EIS neglects to disclose both the impacts and plans for mitigation. Scoping comments published in the 7/10/96 *FYI* pointedly identify our request that BPA evaluate the cost of achieving a balance in the distribution of costs and benefits of this project, yet the EIS gives no evidence of such evaluation or that such balance was sought. The EIS also neglects to mention the landscaping plan submitted by Lake Creek II as part of our scoping comments.

### B. The EIS Fails to Consider a Range of Reasonable Alternatives

NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. 4332 (2)(E). Federal Courts and CEQ regulations implementing NEPA identify the discussion of alternatives as "the heart" of the NEPA process. This discussion must be one of sufficient detail, giving no more evidence for the agency proposed plan than for the alternatives. In fact, Federal Court decisions reflect the conclusion that, "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Limited v. Robertson, 35 F.3d 1300, 1307 (9<sup>th</sup> Cir. 1993) (quoting Idaho Conservation League v. Mumma, 956 F. 2d 1508, 1519 (9<sup>th</sup> Cir. 1992)). The EIS prepared by BPA, however, gives little to no consideration to two viable alternatives: relocation of the Teton Substation and underground technology.

27-12 The alternative most detrimental to Lake Creek II is being examined, yet no evidence indicates serious consideration of the alternative deemed least destructive by Lake Creek II. Such imbalance violates the requirement set by 40 CFR 1502.14 that the EIS, "rigorously explore and objectively evaluate all reasonable alternatives", devoting "substantial treatment to each alternative." In order that a reasonable range of alternatives be included in the EIS, we believe that relocation of the Teton Substation must also be considered as an alternative. NEPA makes clear that agencies must examine reasonable alternatives, even where the agency is without authority to implement them. 40 C.F.R. 1502.14(c). Federal courts conclude, "the evaluation of 'alternatives' mandated by NEPA is to be an evaluation of the

# Comment Letters

• Page 3

September 4, 1997

alternative means to accomplish the general goal of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals." Van Abbema v. Fornell, 807 F2d 633, 638 (7<sup>th</sup> Cir. 1986). Agencies cannot use as justification the fact that they do not own land necessary for the alternative. Federal courts have held that such lack of ownership alternative sites "is only marginally relevant (if it is relevant at all) to whether feasible alternatives exist." Thus BPA must provide evidence as to the unreasonable nature of site relocation before summarily dismissing the alternative and must fully consider site relocation, regardless of its authority over land upon which the site would be built.

27-13

In our comments during Scoping and Draft preparation, we asked BPA to consider underground technology to reduce the height of equipment at Teton Substation. The EIS includes Option to the Proposed Agency Action, which suggests undergrounding the last 400 feet into Teton Substation. This Option, as it is written, may create as many problems as it solves, due to the need to increase the height of equipment at the Substation and additional large equipment outside of the Substation yard. The EIS fails to consider the full range of underground options, including that suggested by Lake Creek II of burying the last mile of line into the Teton Substation. Instead, the EIS focuses discussion on the environmental impact and high cost of burying thirty-six miles of the line. We request disclosure by BPA of the precise equipment, exact location and accurate cost estimates for the four termination options at Teton Substation. We do so in under the protection of 40 C.F.R. 1502.14, which requires the agency present the environmental impacts of the proposed action and alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. Models, renderings and specifications would be most useful in our analysis. Termination options include:

27-14

27-15

- A) Overhead termination of line; B) Undergrounding of last 400 feet into Teton Substation; C) Undergrounding line from Fish Creek into Teton Substation; D) Underground termination of all existing and proposed lines into Teton Substation.

We ask the Underground Termination Option, and its associated expenses, be included in the body of all line alternatives being considered. We also ask that the cost of the underground option be unconditionally committed for use at the Teton Substation. If it is determined by Lake Creek II that undergrounding is not the best way to mitigate visual impacts, these funds would supplement the Teton Substation Mitigation Action Plan.

27-16

### C. The EIS Fails to Disclose Cumulative Impacts

The EIS does not disclose how the various alternatives will affect our specific environment despite CEQ requirements that EISs identify "environmental effects and values in adequate detail" and "succinctly describe the environment of the areas to be affected or created by the alternatives under consideration" 40 C.F.R. 1502.2, 1502.15. The EIS fails to divulge how EMF and noise levels will increase at our individual properties, to discuss visual impacts specific to our individual properties, and to identify the effect on property values in Lake Creek II. Such negligence violates 40 C.F.R. 1508.25 and 1508.27, which mandate that scope include, "cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact

27-17

• Page 4

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statement." The term "significant" is here defined in terms of both context and intensity, demanding a site-specific analysis unlike the analysis contained in this EIS.

27-18

The EIS neglects to disclose exactly how the noise and EMF levels will change the tranquil and pleasant environment at our individual homes. What are the noise levels from Teton Substation at the substation fence and our homes now? How will they change with the different alternatives, in particular the SVC? Studies included in Appendix C as evidence of the low risk of EMF exposure deal only with power lines, not exposure near substations like the one located in Lake Creek II. BPA states that magnetic field levels near the Teton Substation will decrease with the agency proposed action *relative* to "all other alternatives." Those only include the alternatives actively under consideration by BPA as opposed to *all* alternatives. BPA fails to provide adequate information as to the current levels of EMF and how they are expected to change.

27-19

While both the National Research Council and the EPA's Science Advisory Board concluded that a causal link between EMF and cancer was not established, both committees cautioned that "the lack of evidence surrounding EMF does not necessarily mean that the issue/question can be ignored" (EIS C-4). BPA acknowledges the lack of information: "Because no hazardous effects of electric or magnetic fields have been confirmed, it is not possible to identify 'unsafe' field levels" (EIS C-6).

27-20

If BPA recognizes the potential (even if small and unlikely) health risks associated with EMF levels from exposure to power lines, why would they think that citizens would not make the same mental association? Isn't it possible that both current residents and potential residents of the affected communities worry about EMF exposure and that the addition of new equipment to the Teton substation along with new lines running overhead would increase their perceived risks, significantly affecting the property values in the region? While logically inescapable, this factor is not addressed by the EIS. The Property Values analysis uses studies of urban areas, not the scenic residential of the proposed project; all relating to lines, not substations. These studies are not relevant to this project and do not accurately show the decrease in property values as a result of BPA's operation of Teton Substation, which is an identified category of impact.

### D. The EIS Fails to Supply Mitigation for Cumulative Negative Impacts

"Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented' 42 U.S.C. 4332(C)(ii), is an understanding that NEPA documents will discuss the extent to which adverse effects can be avoided." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52 (1989). CEQ regulations implementing NEPA require the agency to discuss possible mitigation measures: in defining the scope of the EIS, 40 C.F.R. 1508.25 (b); in discussing alternatives to the proposed action, 40 C.F.R. 1502.14(f); in discussing consequences of that action, 40 C.F.R. 1502.16(h); and in explaining its ultimate decision, 40 C.F.R. 1505.2(c).

27-21

The EIS does not include any mitigation of visual impacts or perceived risk, two factors which will degrade property values. In Table 2-4 of the EIS, BPA plainly states that



# Comment Letters

27-21  
CONT.

the visual impacts range from low to high with the agency proposed action, more specifically that "high impacts would occur at Teton Pass and near Teton Substation." In the same chart, BPA claims, "Property values are not expected to be adversely impacted over the long-term." How can BPA make these statements simultaneously? Perhaps they conclude that property values generally will not be significantly impacted, but it is unreasonable to think the high visual impact near Teton Substation will not affect property values in that area. In accordance with regulations requiring site-specific analysis and mitigation for negative cumulative impacts, we demand both information regarding the impacts in the area near Teton Substation and a mitigation plan to avoid, lessen, or compensate for these impacts.

27-22

BPA fails also to consider perceived risk in its assessment of visual impacts. While BPA promises not to ignore the issue of EMF/health hazards and refers to their course of action as "reasonable and prudent," BPA commits only to taking "low cost" steps to minimize exposure (EIS C-6).

27-23

No where does the EIS mention the landscaping plan submitted by Lake Creek II as part of our scoping comments. Consistent with our rights under NEPA and the CEQ and our Scoping Comments, we request that the EIS adopt visual mitigation per the Verdone Landscape Architects plan (dated 11/13/96, revised 7/29/97). This plan would screen the significant cumulative visual impacts at Teton Substation and satisfy the requirement set forth in 40 C.F.R. 1500.2 that the agency use "all practicable means . . . to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects."

27-24

In response to this plan, BPA made only a token offer, which has not been accepted by Lake Creek II. Throughout the EIS, this offer is being misinterpreted as "landscaping achieved." The EIS states that "BPA and surrounding neighbors are putting in landscaping that helps screen new substation equipment added in 1993-94" as a mitigation measure. EIS at 4-4, 4-13. This statement is completely inaccurate. BPA has done nothing to mitigate the negative visual impacts which resulted from these additions, nor does the EIS mention expansions which took place in 1995 without regard to NEPA compliance regulations. Even if this mitigation had occurred, such mitigation would not mitigate the effects of the proposed new action. Clearly, BPA cannot be allowed to rely on non-evidenced mitigation of past actions to meet NEPA requirements to provide a detailed plan for mitigation for the actions proposed in the EIS. The Verdone Landscape plan is reasonable and the token offer by BPA is simply inadequate to mitigate the significant cumulative impacts of Teton Substation.

27-25

At page 3-8 of the EIS appears an attempted justification to eliminate need for further evaluation of mitigating impacts of the proposed action on the Lake Creek II residents. The EIS tries to deflate the impact of the Teton substation expansion by mounting the following defense: "In years of high snowfall, some resident views would be blocked by snow piles from the clearing of snow from the streets." At 3-15, however, the EIS reports that precipitation at Jackson annually is about 15 inches, not all of which is snow. One could not logically conclude that snow piles could effectively conceal the visual contamination that would result from several fifty-foot transmission towers.

27-26

When discussing the alternative of the Static Var Compensator (SVC), the EIS mentions design options available to minimize the noise and EMF of the SVC. The

27-26  
CONT.

technologies should be used, even at extra expense, to protect the human inhabitants, property values and natural environment as mandated in 40 C.F.R. 1500.2. Pursuant to 40 C.F.R. 1502.14(f), adequate mitigation should be an inherent part of this alternative and all other alternatives.

27-27

The SVC is the most expensive (long term), the least reliable, noisiest and most EMF intensive of the alternatives. It is a short-term solution and is highly destructive to our human environment. Since the new line will be needed in seven years, it is also duplicative. Collectively, these reasons make the SVC the worst alternative for the community, for Lake Creek II residents, and for the natural environment surrounding us. If the SVC alternative is chosen, we ask that it be sited at another location, not the Teton Substation. If the SVC and Teton Substation are selected as the preferred alternative, property values compensation will be sought.

### III. Conclusion

27-28

We believe failures to respond to scoping comments, to consider a reasonable range of alternatives, to identify cumulative impacts, and to provide for mitigation of negative cumulative impacts constitute violations of NEPA regulations and impede public participation in the NEPA process. DOE/EIS-0267's lack of information critical to such meaningful participation threatens the intended operation of the NEPA process in the BPA/Lower Valley Transmission Project.

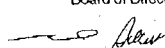
27-29

We feel the effectiveness of the comment period was hampered by lack of available information and failure to respond to our scoping comments. We asked for consideration of the big picture, meaning past, present and future impacts, but information was inadequate regarding all three. Having made this request in the Scoping phase, we fully expected the analysis to reflect the cumulative impacts of past, present and future actions of BPA's operations in the study area. When this request was ignored, we submitted a request for documents under the Freedom of Information Act. We feel the comment period should be extended pending receipt and review of these documents.

Thank you for this opportunity to comment.

Sincerely,

Lake Creek Acres II Homeowner's Association  
Board of Directors

  
Michael Sellert

  
Larry K. Berlin AIA

  
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# Comment Letters

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September 10, 1997

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RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-028 RECEIPT DATE: SEP 15 1997
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Re: Comments on the BPA/Lower Valley Transmission Project Draft Environmental Impact Statement ("DEIS")

Dear Sir or Madam:

I am writing these comments on behalf of my client, the Lake Creek Acres II Homeowners' Association, which is comprised of nearly fifty individuals who reside on eighteen residential lots adjacent to the Teton Substation. The Substation will be expanded if the proposed alternative in the DEIS is implemented. We appreciate this opportunity to comment and explain how the DEIS does not meet the statutory requirements established in National Environmental Protection Act ("NEPA"), 42 U.S.C. §§ 4321-4370d, the mandates established in the implementing regulations promulgated by the Council on Environmental Quality, 40 C.F.R. §§ 1500-1517, and applicable case law.

Specifically, the DEIS is deficient because it omits discussion of certain significant impacts of the project, fails to provide sufficient information about and analysis of cumulative impacts, and does not address mitigation of the visual impacts on the residents of Lake Creek Acres II ("Lake Creek II").

## I. INTRODUCTION: LEGAL BACKGROUND

NEPA begins with a broad declaration of Congressional intent to protect and promote environmental quality. 42 U.S.C. § 4331. The Act requires all agencies that propose a major federal action that will significantly affect the quality of the human environment to prepare a detailed statement of-

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources.

42 U.S.C. § 4332.

Courts have interpreted NEPA to require agencies to take a hard look at the environmental impacts of proposed projects, Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989), Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976), including direct, indirect and cumulative impacts. See 40 C.F.R. § 1508.9(b). "Indirect effects" include effects "caused by the action that are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b).

The United States Supreme Court has clarified that the purpose behind NEPA is to ensure that federal agency decision-making is based on "detailed information concerning significant environmental impacts; [NEPA] also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision." Robertson at 349. "NEPA ensures that important effects will not be overlooked or underestimated. . . . ∴ Id. "Publication of an EIS, both in draft and final form, also serves a larger informational role. It gives the public the assurance that the agency 'has indeed considered environmental concerns in its decisionmaking process.'" Id. (citations omitted).

The Tenth Circuit recently stated: "NEPA ensures that a federal agency makes informed, carefully calculated decisions when acting in such a way as to affect the environment." Catron County Board of Commissioners v. U.S. Fish and Wildlife Service, 75 F.3d 1429, 1437 (10th Cir. 1996). The court went on to say that "NEPA documentation notifies the public and relevant government officials of the proposed action and its environmental consequences and informs the public that the acting agency has considered those consequences." Id.

NEPA, thus, is a statute that mandates collection, analysis and dissemination of information. Federal agencies that shirk their duty to examine information about, evaluate impacts of and review alternatives to proposed actions face litigation that halts implementation of proposed actions until full NEPA compliance occurs. See, e.g. Catron County supra.

## II. THE DEIS DOES NOT DISCLOSE OR EVALUATE ALL DIRECT IMPACTS OF THE PROPOSED PROJECT

NEPA requires Environmental Impact Statements to include a "detailed statement" of "the environmental impact of the proposed action." 42 U.S.C. § 4332(C). The implementing regulations further clarify that "[t]he environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration." 40 C.F.R. § 1502. The examination of effects or

# Comment Letters

impacts<sup>1</sup> must include an evaluation of both direct effects and indirect effects that are caused by the action and are reasonably foreseeable. 40 C.F.R. § 1508.8. If an agency determines that potential effects are insignificant, it must provide a "convincing" statement of reasons to support that conclusion. Save the Yaak Committee v. Block, 840 F.2d 714, 717 (9th Cir. 1988), quoting Steamboaters v. FERC, 759 F.2d 1382, 1393 (9th Cir. 1985).

The DEIS does not contain a correct or sufficient discussion of the impact the action will have on property values and salability in the Lake Creek II community. This issue is discussed in the section that covers Socioeconomic impacts. In that section, the DEIS summarily states that "[t]he new line is not expected to cause overall long-term adverse effects on property values along the existing ROW." DEIS at 4-70. To support that assertion, the section refers to Appendix G, which contains a brief discussion of a few studies on the impact of electrical transmission lines on property values.

Significantly, the cited studies addressed property values of homes adjacent to transmission lines, not transmission stations. It is common sense that the impact of living near an entire transmission station is greater than the impact of living near a transmission line. Thus, the studies cited in the DEIS provide no support for the conclusion that there will be no long-term adverse impact on property values within Lake Creek II. The DEIS's failure to consider the impact of an enlarged transmission station on neighboring property owners is a significant omission.

Furthermore, none of the studies referred to was conducted in Wyoming or in an area renowned for its scenic beauty as is Jackson Hole. Certainly, the impact of enlarging a transmission station depends in large part on the location of that station. Accordingly, even if the cited studies had examined the effect of transmission stations on property values, they would still be irrelevant because they do not examine impacts on areas that have Jackson's unique attributes.

Another significant impact that is considered then summarily dismissed is the health hazard associated with EMF. See DEIS Appendix C. BPA reviewed some EMF exposure studies, but as with the review of property value issues, BPA only examined studies that pertained to EMF exposure by those who reside near transmission lines, not transmission stations. Of course, then, the cited studies do not support a casual dismissal of the impacts of EMF exposure on Lake Creek II residents. Moreover, the EIS acknowledges that the research on EMF exposure is "suggestive" of harm, yet it shows a unwillingness to do anything about that hazard when it states that "BPA will take reasonable low-cost steps to minimize EMF exposure while taking into account operation and maintenance considerations." Appendix C at C-6.

<sup>1</sup> The terms "effects" and "impacts" are synonymous for NEPA purposes. 40 C.F.R. § 1508.8.

### III. THE DEIS DOES NOT ADDRESS ALL CUMULATIVE IMPACTS AND INDIRECT EFFECTS

NEPA requires federal agencies to look at a broad range of impacts of proposed actions. NEPA documentation must examine cumulative impacts associated with a proposed agency action. "The EIS is, by its very nature, a cumulative impacts document." Resources Limited, Inc. v. Robertson, 35 F.3d 1300, 1305 (9th Cir. 1994). See also City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990); NRDC v. Callaway, 524 F.2d 79, 87-88 (2d Cir. 1975). NEPA regulations define "cumulative impacts" as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7 (emphasis added).

The CEQ regulations and federal case law also require agencies to disclose the direct and indirect environmental effects that a federal action will have on non-federal lands. 40 C.F.R. § 1508.8; See City of Davis v. Coleman, 521 F.2d 631, 677-81 (9th Cir. 1975)(agency must analyze development impacts in EIS when federal approval of a highway project is likely to have impacts on development of surrounding area, ); Coalition for Canyon Preservation v. Bowers, 632 F.2d 774, 783 (9th Cir. 1980); Sierra Club v. Marsh, 769 F.2d 868, 877-89 (1st Cir. 1985)(agency failure to consider private development impacts that were likely to result from its approval of causeway and port facility rendered NEPA documentation inadequate.)

Similarly, related proposals must be considered for decision together in a single EIS. Thomas v. Peterson, 753 F.2d 754, 758 (9th Cir. 1985); 40 C.F.R. § 1508.25(a). This NEPA requirement prevents the division of a project into multiple "actions," each of which individually might have a lesser environmental impact but which collectively have a substantial impact. Thomas, 753 F.2d at 758.

Actions are "connected" and, therefore, must be evaluated in a single EIS if one action:

- (i) Automatically triggers other actions which may require environmental impact statements;
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously;

# Comment Letters

(iii) Is an interdependent parts of a larger action and depends on the larger action for its justification.

40 C.F.R. § 1508.25.<sup>2</sup>

28-3

Whether viewed as a failure to examine all cumulative impacts, indirect effects or connected actions, the DEIS fails to meet NEPA's mandate to take a broad view of the impacts of a proposed action. The DEIS neither looks forward nor back in time to review the effects of the proposed action in the context of past and future associated actions. There is a terse statement that "[t]here would be cumulative impacts to neighbors of Teton Substation from adding equipment to the substation. . . . As utility infrastructure continues to be needed, this conflict can continue." DEIS at 4-5. This brief statement does not rise to the required level of analysis, and the fact that past expansion was performed without any NEPA analysis underscores the need for an examination of the impact of the proposed expansion coupled with the past expansion. BPA cannot satisfy its duty to provide cumulative impact analysis by simply stating that there will be cumulative impacts from the proposed expansion. Rather, those cumulative impacts must be listed and evaluated.

28-4

While the DEIS at least mentions that there are cumulative impacts associated with past expansion, the DEIS is entirely devoid of any reference to the cumulative impacts associated with reasonably foreseeable additional expansion of the Teton Substation in the future. The DEIS also omits any mention or discussion of the cumulative impacts of the residential and commercial development that is a reasonably foreseeable result of the increased provision of electricity that would be made possible by the proposed agency action. That development is the motivating factor behind the project, and its impacts must be addressed in the EIS in order for that document to fulfill the mandates of NEPA.

#### IV. THE DISCUSSION OF MITIGATION IN THE DEIS IS INADEQUATE

NEPA regulations require that an EIS:

- (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. § 1502.14(f); and
- (2) "include discussions of: Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))" 40 C.F.R. § 1502.16(h).

<sup>2</sup> Only one of the three elements need be present to find a connected action. E.g., Town of Huntington v. Marsh, 859 F.2d 1134, 1142 (2d Cir. 1988) (connected action based solely on subsection (iii)), cert. denied, 494 U.S. 1004 (1990); Alpine Lakes, 838 F. Supp. at 482 (same).

The Council on Environmental Quality has also stated that "[a]ll relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperation agencies." Forty Most Asked Questions Concerning CEO's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18031 (March 23, 1981).

In addition, the agency proposing a major federal action is required to "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation." 40 C.F.R. § 1505.2(c)(emphasis added).

NEPA requires that mitigation measures be reviewed during the NEPA process -- not in some future decision shielded from public scrutiny. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson at 353.

Appellate Courts have invalidated NEPA documents that rely on unspecified future actions to mitigate or avoid environmental impacts. Oregon Nat. Resources Council v. Marsh, 52 F.3d 1485 (9th Cir. 1995) (Elk Creek Dam III); Oregon Nat. Resources Council v. Marsh, 832 F.2d 1489, 1493 (9th Cir. 1987) (Elk Creek Dam I), rev'd on other grounds, 490 U.S. 360 (1989), California v. Block, 690 F.2d 753 (9th Cir. 1982).

The United States Supreme Court has reaffirmed the statutory and regulatory requirements that mitigation measures be included in an EIS:

To be sure, one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences. . . . Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. . . . Without such a discussion [of mitigation measures] neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.

Robertson at 352 (citations omitted). As Robertson makes clear, mitigation must be "discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." Id.

28-5

The DEIS states that "BPA and surrounding neighbors are putting in landscaping that

# Comment Letters

28-5  
cont.

helps screen new substation equipment added in 1993-94" as a mitigation measure. DEIS at 4-4, 4-13. First, and most importantly, this statement is not correct. No landscaping plan has been agreed upon or implemented. BPA has done nothing to mitigate the negative environmental impacts of the 1993-94 expansion, which, incidentally, was done without compliance with NEPA. Second, even if some mitigation of past expansion had been done, that mitigation of past effects does not mitigate the effects of the new proposed action that is the subject of the DEIS. It should be obvious that BPA cannot rely on non-existent mitigation of past agency actions to meet its duty to provide a detailed plan for mitigation of its new proposed action. Third, even if the mitigation referred to were implemented and did somehow relate to the proposed new expansion, the discussion of mitigation still fails to meet the statutory requirement that it be "reasonably complete." See Robertson at 352. Simple reference to landscaping without more detail about that landscaping cannot be considered "reasonably complete," and, thus, does not comply with NEPA.

28-6

The DEIS also states that mitigation of the effects of the proposed action will occur via coordination of "design and placement of new structures and equipment" with Teton Substation neighbors. DEIS at 4-4, 4-13. Design and placement of structures and equipment cannot do much to mitigate visual impacts because of the significant height required for the structures that are required for the project. This discussion of mitigation without even considering mitigation such as the detailed landscaping plan prepared by Lake Creek II fails to meet the requirements of NEPA.

28-7

In another section, the DEIS appears to use the "snow pile defense" to any need for a serious examination of mitigating the impacts of the proposed project on the Lake Creek II residents. The DEIS attempts to diminish the impact of the Teton Substation expansion by stating that "in years of high snowfall, some resident views would be blocked by snow piles from the clearing of snow from the streets." DEIS at 3-8. At the same time, the DEIS states that Jackson receives fifteen inches of precipitation annually (and not all of that is from snow). DEIS at 3-15. It is absurd to think that snow piles could effectively hide the visual contamination caused by several fifty-foot transmission towers.

28-8

Finally, because the DEIS denies the socioeconomic impact of decreased property values and salability on Lake Creek II or the increased health risks associated with EMF exposure, it is also inadequate because it fails to address mitigation of those adverse impacts.

## V. THE DEIS DOES NOT ADEQUATELY CONSIDER ALTERNATIVES TO THE AGENCY PROPOSED ACTION

The consideration of a range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. It is "absolutely essential to the NEPA process that the decisionmaker be provided with a detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives, a requirement that we have characterized as 'the linchpin of the entire impact statement.'" NRDC v. Callaway,

524 F.2d 79, 92 (2d. Cir. 1975). "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Limited v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1993) (quoting Idaho Conservation League v. Mumma, 956 F.2d 1508, 1519 (9th Cir. 1992).

Both NEPA and the Administrative Procedure Act, 5 U.S.C. §§ 551-559, require that an agency's determinations be supported by factual information in the decision documents. "The agency must explicate fully its course of inquiry, its analysis and its reasoning." Dubois v. U.S. Department of Agriculture, 102 F.3d 1273, 1287 (1st Cir. 1996). An agency decision must always have a rational basis that is both stated in the written decision and demonstrated in the administrative record accompanying the decision. Kanawha v. Hocking Coal & Coke Co., 112 IBLA 365, 368 (1990).

28-9

BPA provided the most thorough analysis to its preferred alternative, but the other alternatives received only cursory summaries. For example, conservation as an alternative was summarily dismissed because previous conservation efforts did not reduce energy demand as much as BPA believes is needed. DEIS at 2-15. The DEIS contains no discussion, however, of how past conservation efforts could be improved upon so that conservation provides a more effective method of reducing the demand for electricity and thus perhaps obviating the need for increased electrical supply.

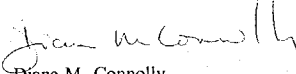
28-10

Another alternative that would significantly reduce impacts to adjacent landowners but that is not included at all in the DEIS is a partially buried line. This alternative would bury the portion of the new line as well as the existing line from Forest Service land to the Teton Substation. The trees at the perimeter of the Forest Service land would hide the ninety foot tower required at the point immediately before the line went underground, and would minimize the impacts on the Snake River Ranch and Lake Creek II residents.

## V. CONCLUSION

Thank you for this opportunity to comment on the Draft Environmental Impact Statement. The residents of Lake Creek II look forward to working with you to improve the document and satisfy their concerns about the significant impact that the proposed expansion will have on their neighborhood.

Sincerely,

  
Diane M. Connolly  
Attorney for Lake Creek Acres II  
Homeowners' Association

# Comment Letters



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September 11, 1997

Lake Creek II Homeowner's Assn.  
Attn: Lisa St. Martin Cook  
P.O. Box 3335  
Jackson, WY 83001

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-029
RECEIPT DATE: SEP 15 1997

Ms. Cook:

Peak Power Engineering, Inc. has been commissioned by Lake Creek II Homeowner's Association to review the draft EIS developed to examine various options to increase power availability and reliability into the Jackson Hole area. Peak Power Engineering has extensive experience in the design and construction of both substations and transmission lines and as a technical expert for Lake Creek II Homeowner's Association would like to offer the following comments regarding the Draft DOE/EIS 0267.

- 29-1 A. The following scoping comments were submitted and not addressed or not fully addressed in the Draft EIS:
  1. Relocation of the Teton Substation
  2. Converting the existing as well as the new transmission lines entering/leaving Teton Substation to underground
  3. Utilization of low profile equipment at the substations
  4. Reduction of height and girth of Teton Substation
  5. Include impacts of noise, especially to residential areas. (SVC alternative)
- 29-2 B. Part of the scoping comments of direct concern to Lake Creek II have been included. However, not all scoping comments have been addressed nor have some of the scoping comments been addressed sufficiently. Relocation of the Teton Substation was not addressed in any form in the Draft EIS. It is believed that relocating the Teton Substation would eliminate any existing cumulative effects of the substation on the homeowners and also prevent any future impacts. Discussions of this alternative and cost estimates have not been included in the Draft EIS.
- 29-3 C. Converting transmission lines to underground installations into and out of Teton Substation was addressed only in the Agencies Proposed Action and as to only the last 400 ft into the substation. Lake Creek II requested consideration and cost

C.C. BUILDERS

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P. 03

29-3  
cont.

estimates be given for burying the new incoming line and the three existing incoming/outgoing lines and to remove the existing 54 ft overhead dead-end structures at Teton Substation, replacing them with much lower underground termination structures. Underground entrance of all lines would require the installation of new foundations and steel termination structures in the substation and repairs to the existing ground grid/conduit where the new cable trench is routed. Replacing the existing lines or reducing the height of the existing structures at Teton Substation was not addressed in the Draft EIS.

29-4

- D. Lake Creek II also requested options be examined that reduce the girth and do not increase noise levels at Teton Substation. The SVC alternative would both increase the size of the substation and provide another noise source in the area. While the SVC would comply with the Teton County noise regulations, it is believed that the addition of an SVC at Teton Substation would not comply with the intent of Section 2390 (A) of Teton County's review standards that require, "utilities to be located and designed to minimize impacts on nature, scenic, agricultural and residential objectives." To minimize the impacts of the installation of an SVC the equipment required by the SVC could be placed in an enclosed structure which would minimize visual and effectively eliminate noise impacts to the surrounding areas. The cost of installation of the SVC with the intent of minimizing its impact would be much more expensive than that estimated in the Draft EIS.

29-5

- E. Throughout Section 2 of the Draft EIS, particularly Table 2-4 Visuals and Recreation, impact to the areas surrounding Teton Substation are considered high impact areas. It is also outlined in the discussion of all alternatives, except the No Action Alternative, that impacts around the Teton Substation would increase. These negative impact statements are then followed with the Property Impact Studies section in Appendix G that property values are expected to decrease/increase in the range of -1.05% to +1.46%. It is believed by Lake Creek II residents that property values will be significantly impacted by any additions to Teton Substation and that the studies that were performed in Seattle, Vancouver are substantially different in location and nature to accurately reflect what would happen in the Jackson Hole area.

29-6

29-7

In conclusion, our opinions are summarized below:

- A. Scoping comments should be thoroughly analyzed with regard to: Noise level, Mitigation of visual impacts and Use of underground technologies.
- B. The SVC alternative has the highest impact on Lake Creek II, is the least reliable and most expensive alternative in the long run and is a short term corrective action for the voltage problem. While it may be a viable alternative, it appears to be the least attractive alternative in terms of human impact and technical effectiveness.

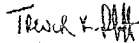
# Comment Letters

29-8 C. The use of underground technologies should be fully explored in the effort to minimize visual impacts to property owners and other parties that could be affected by the new installations.

29-9 D. Cumulative impacts of previous equipment placed at Teton Substation should be examined. Devaluation of property and commensurate mitigation should be seriously analyzed.

We appreciate the opportunity to comment on the Draft EIS. If you have any questions or comments, please give me a call at (303) 279-7607.

Sincerely,



Trevor K. Pfaff  
Project Engineer - Principal

For: Lou DRIESSEN  
BPA Public Involvement  
ACS P.O. Box 12999  
Portland, OR 97208

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-030
RECEIPT DATE: SEP 15 1997

September 8, 1997

## Executive Summary of Lake Creek II Comment - BPA/Lower Valley Transmission Project

After thorough review of the EIS and consultation with our legal counsel and technical experts, and despite our sincere and laborious efforts to be fully included in the process, we believe that our rights under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and certain other laws are being violated. Below are our continuing concerns:

### I. The EIS Fails to Comply with NEPA

#### A. The EIS Fails to Respond to Scoping Comments

Despite NEPA requirements that federal agencies either respond directly to scoping comments or cite reasons for eliminating comments from consideration, BPA blatantly ignored the following: Consideration of relocation of Teton Substation; Disclosure of impacts specific to properties surrounding Teton Substation (Property Values, Visual, EMF and Noise); Provision of mitigation for cumulative impacts specific to properties surrounding Teton Substation; Consideration for the Verdore Landscape Architects' plan; Consideration for the equitable distribution of negative cumulative impacts.

#### B. The EIS Fails to Consider a Reasonable Range of Alternatives

The alternative most detrimental to areas surrounding the Teton Substation is under serious consideration, yet no such consideration is given to the alternatives identified by Lake Creek II residents as least detrimental: relocation and underground termination. We ask for the inclusion of these alternatives and that underground termination be included in the body of all line alternatives under consideration. We request also the inclusion of conservation as a component in each alternative instead of as a single and separate alternative (one which was dismissed by BPA).

#### C. The EIS Fails to Disclose Cumulative Impacts

The EIS does not contain site-specific evaluation of the impacts of alternatives within this project. The EIS neglects to disclose how the noise and EMF levels will change the tranquil and pleasant environments at our individual homes (near Teton Substation). Technical studies cited in the appendices relate only to lines, not substations. The EIS fails to address population and related growth that may result from the expansion of power resources.

#### D. The EIS Fails to Supply Mitigation for Cumulative Negative Impacts

The EIS does not include any mitigation for visual impacts or perceived risks, two factors which will degrade our property values; nor does it mention the landscaping plan submitted by Lake Creek II as part of our scoping comments. The failures of the EIS to identify the cumulative impacts listed in (C.) lead to weaknesses and gaps in proposed mitigations regarding those categories of impacts. No information is currently available regarding the impacts of substation expansion on property value, leaving residents at a disadvantage when assessing the fairness of proposed mitigation. We request that BPA provide such information (if in possession) or propose the commission of a local study to acquire information specific to the eco-sensitive area surrounding the Teton Substation.

### II. What Lake Creek II Wants

The residents of Lake Creek II would like full compliance with the above-referenced NEPA and CEQ regulations. We desire full implementation of the Teton Substation Mitigation Action Plan to include the full Verdore Landscape Architect's Plan as well as all provisions cited in EIS 4.2.2.2 (Recommended

30-1







# Comment Letters



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue  
Seattle, Washington 98101

September 11, 1997

Reply To  
Attn Of: ECO-088

Ref: 97-036-BPA

Public Involvement Office - ACS  
Bonneville Power Administration  
P.O. Box 12999  
Portland, Oregon 97212

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: <i>LWRVAL-02-033</i> RECEIPT DATE: <i>SEP 15 1997</i>
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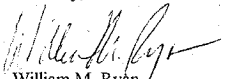
Dear Sir/Madam:

We have reviewed the Draft Environmental Impact Statement (draft EIS) for the proposed **BPA/Lower Valley Transmission Project** in accordance with our responsibilities under the National Environmental Policy Act and §309 of the Clean Air Act. The draft EIS analyzes alternatives related to the potential construction and operation of a 115-kV electrical transmission line through the Targhee and Bridger-Teton National Forests linking BPA substations located in Bonneville County, Idaho and Teton County, Wyoming.

Based on our review, we have assigned a rating of LO (Lack of Objections) to the Agency Proposed Action. This rating and a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in our review of the EIS is enclosed for your reference.

Thank you for the opportunity to review this draft EIS. Should you have any questions, please feel free to contact me at (206) 553-8561.

Sincerely,

  
William M. Ryan  
Environmental Review Team

Enclosure

U.S. Environmental Protection Agency Rating System for  
Draft Environmental Impact Statements  
Definitions and Follow-Up Action\*

Environmental Impact of the Action

LO - - Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate

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

Category 2 - - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

# Comment Letters

RECEIVED BY BPA PUBLIC INVOLVEMENT LOG#: LWRVAL-02-034
RECEIPT DATE: SEP 16 1997

**FILE**

Leonard R. Carlman  
Attorney at Law  
Law Offices of Frank Hess and Leonard R. Carlman  
30 East Simpson Street  
Post Office Box 3394  
Jackson Hole, Wyoming 83001-3394

(307) 733-7881

Fax (307) 733-7882

September 10, 1997

Lou Driessen, Project Manager  
BPA Public Involvement  
Office  
P.O. Box 12999  
Portland, OR 97208

via fax to 503-230-5699

RE: Comment in reply to  
BPA/Lower Valley Power and Light  
Transmission Project Draft  
Environmental Impact Statement;  
DOE/EIS-0267

Dear Mr. Driessen,

I write in my capacity as an attorney on retainer to the Lake Creek Acres II Homeowner's Association (Lake Creek II). I am also a resident of Teton County, Wyoming, and am familiar with environmental concerns here.

Broad context:

Virtually since the first settlers arrived in Jackson Hole, modern people have recognized a duty of stewardship toward this unusually striking physical landscape. Not all, but many local residents, including those at Lake Creek II, appreciate the role of private property owners in using their property in a manner which permits the broader public interest in the sheer landscape beauty of Teton County, Wyoming, to be respected and preserved.

In its capacity as public entity leaders and experts in power transmission, we ask BPA to please join the now time-honored and broadly based effort to respect the scenic beauty of Jackson Hole.

My clients and I are electric power consumers; we seek to be respectful of the public fisc; we also strive to find the proper balance between the "progress" of more electric power, our duties as protectors of our own property values, and the tremendous public commitment made by so many people over the last one hundred years to maintain the profound visual splendor of Jackson Hole. Power lines and substations are among the various intrusions into that beauty; they are among the most severe.

Post-It™ brand fax transmittal memo 7671 (# of pages) 4

To: <u>Jan Pennington</u>	From: <u>Len Carlman</u>
Co.:	Co.:
Phone #: <u>307-733-7881</u>	

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PAGE 02

Lou Driessen, Project Manager  
BPA Public Involvement Office  
Comment in reply to BPA/LVP&L  
Transmission Project Draft Environmental Impact Statement; DOE/EIS-0267  
September 10, 1997  
Page 2

34-1 Depending on their location, the lines and substations affect some people more, others less. The proposed action has the potential to benefit many electric power users, but falls hard with impacts on the comparatively few people who live and own property near the facilities. Where there is such an obvious and capable cost sharing and burden distributing mechanism -- the kilowatt hour price -- the benefit to all of a new power line should come at the equal expense of all, and not at the disproportionate expense of a few.

Lake Creek II, Connolly comments; revised DEIS:

34-2 I have read the separate and independent DEIS comments of the Lake Creek II Board of Directors of P.O. Box 6296, Jackson, Wyoming, and those of attorney Diane Connolly of 2260 Baseline Road, Suite 100A, Boulder, Colorado; my letter presumes those comments are in your possession and that you have read them. I endorse those comments. On the basis of those comments alone it is apparent that the DEIS as presented is sufficiently flawed as to merit publication of a revised Draft EIS, and not a Final EIS and Record of Decision. Please proceed to a revised DEIS, and not a Final EIS.

EIS level analysis; information supply:

Thank you for recognizing that the proposed action of importing more electrical power into Jackson Hole, Wyoming, is a major federal action with significant consequences for the human environment. EIS level treatment is proper; the Bonneville Power Association's (BPA) and Lower Valley Power & Light Cooperative's (LVP&L) decision to proceed on that level of public notification and involvement, informational disclosure, alternative action development, and accountable decision-making should provide all of us with the chance to have meaningful participation in this proposed action.

34-3 However, and despite their substantial and impressive efforts to date, the Lake Creek II homeowners have not been able to participate in this proposed action and its EIS process to the extent envisioned in the National Environmental Policy Act. As directly indicated in their comment letter to you, they have sought relevant and reasonable information with which to educate themselves and better participate in the process. Their efforts have received an inadequate response from BPA.

Would you please review all correspondence you have received from Lake Creek II regarding this NEPA process and proposed action, including

# Comment Letters

Lou Driessen, Project Manager  
BPA Public Involvement Office  
Comment in reply to BPA/LVP&L  
Transmission Project Draft Environmental Impact Statement; DOE/EIS-0267  
September 10, 1997  
Page 3

34-3 cont. their scoping statement reply and all other letters, and, in a timely manner, provide them with the information they have requested? If you determine that you cannot supply them with the information they seek, would you please state specifically each item for which you cannot be responsive, and state your reason for doing so?

NEPA alternative array:

34-4 The DEIS includes an array of alternatives to the proposed action. However, the array as presented does not include two potentially successful options. First, there is no presentation of an alternative which would place the transmission lines underground from the Bridger-Teton National Forest boundary, west of the Fish Creek waterway and west of Fish Creek road, to the Teton substation. The EIS suggestions of either a four hundred foot effort or a thirty-six mile effort are, respectively, too little and too much; neither serves the public. Please include an option of placing the line, from the National Forest boundary to the Teton substation, beneath the ground.

Please also indicate how the line's passage from below ground to above ground may be kept as visually imperceptible as possible.

34-5 Second, there is no alternative which applies state of the art engineering, technology and landscaping capabilities to mitigating the past and foreseeable visual impacts of the Teton substation. For example, the current 54 foot towers at the substation may be almost two times higher than is technologically necessary. Please state if 28 foot towers, or towers of any height less than 54 feet, may be substituted for the present 54 foot devices. If lower towers are possible, please incorporate their use with an alternative which also establishes maximum landscaping screening near and around the Teton substation. Please include in this alternative the lowest profile, least noisy equipment, in addition to the towers, available for use at Teton substation.

34-6 From the economically and technically inefficient "SVC" option to the possible "full underground" option, and all between those, there will remain a need to mitigate the visual effects of the Teton substation. A maximum landscaping at Teton substation analysis should be incorporated in *all* alternatives. Please do so.

34-7 Please reject the "SVC alternative." The tables at pages 2-23 and 2-28 of the DEIS, and other data present elsewhere in the document, indicates this.

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PAGE 04

Lou Driessen, Project Manager  
BPA Public Involvement Office  
Comment in reply to BPA/LVP&L  
Transmission Project Draft Environmental Impact Statement; DOE/EIS-0267  
September 10, 1997  
Page 4

34-7 cont. alternative is the worst possible choice. It should have been "eliminated from further consideration" per Chapter 2.6.

Cumulative impacts:

34-8 Please include in a revised Draft EIS a site specific evaluation of the cumulative effects of this project as it relates to the Teton substation; please propose effective mitigation for those cumulative effects.

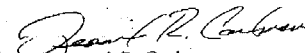
Conclusion:

34-9 BPA is on the right track with its use of the EIS process, but significant improvements are both possible and necessary. Citizen interest as expressed through Lake Creek II correspondence warrants greater and more considered attention than heretofore provided. Compliance with NEPA's hard-wrought technical requirements must be improved. The range of alternatives presented in the DEIS is inadequate; new alternatives should be developed and presented in a revised DEIS. Mitigation of past and future cumulative impacts should receive far more attention than it has in the DEIS.

34-10 Finally, BPA has an opportunity to join in the common effort of so many private citizens, Wyoming governmental units, and United States land and wildlife management agencies in recognizing and protecting the rare and diminishing virtue of scenic beauty. Rather than avoid letting any "extra" effort in Jackson Hole set some kind of precedent for its facilities elsewhere, BPA can and should recognize its role as a leader and expert in power transmission; on behalf of the Lake Creek II Homeowners Association, I ask BPA to use its expertise to develop a project of which both BPA and the general public might justifiably be proud.

Thank you.

Sincerely,

  
Leonard R. Carlman  
Attorney at Law

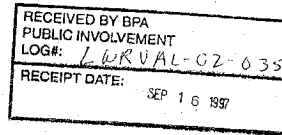
# Comment Letters

United States Senate

WASHINGTON, DC 20510-5003

September 9, 1997

Mike Johns  
Project Manager  
United States Department of Energy  
Bonneville Power Administration  
Post Office Box 3621  
Portland, Oregon 97208-3621



Good morning Mike...

I'm writing on behalf of many constituents, who reside in the Lake Creek II Acres housing area in Jackson, Wyoming. Thank you for extending the comment period an additional thirty (30) days.

35-1 Enclosed is a copy of the Lake Creek Acres II Homeowners' Association's comments. I would appreciate hearing from you regarding the concerns they have expressed.

Thank you for your assistance in this matter. A reply to me at 325 West Main, Suite F, Riverton, Wyoming 82501, will be appreciated.

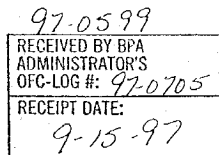
Best regards,

*Craig*  
Craig Thomas  
United States Senator

CT:pb

Enclosures

Response Due: ARC  
cc: A-2, TN



## Memorandum

To: Governor Jim Geringer  
U.S. Representative Barbara Cubin  
U.S. Senator Mike Enzi  
U.S. Senator Craig Thomas  
Senator Grant Larson  
Senator Clarene Law  
Representative Bud Betts  
Bill Collins, Teton County Planning Director  
Kurt Moore, Teton County Planning Department  
Mike Gierau, Chairman, Teton County Commissioners  
Bob Shervin, Teton County Commissioner  
Sandy Shupbine, Teton County Commissioner  
Ann Stephenson, Teton County Commissioner  
Bill Paddleford, Teton County Commissioner  
James R. Little, MD, President B.O.D. LVPL, Inc  
Thelma Crook, Vice-President B.O.D. LVPL, Inc  
Dean S. Lewis, Secretary-Treasurer B.O.D. LVPL, Inc  
Peter L. Cook, B.O.D. LVPL, Inc  
Fred Brog, B.O.D. LVPL, Inc  
Rod R. Jensen, B.O.D. LVPL, Inc  
Warren Potash, B.O.D. LVPL, Inc  
Steve Duerr, Attorney at Law  
Bill Resor, Snake River Associates

Cc: Diane M. Connolly, Attorney at Law  
Leonard R. Carman, Attorney at Law  
Phelps H. Swift, Jr., Attorney at Law  
Kenneth Cohen, Attorney at Law  
Henry C. Phibbs, Attorney at Law

From: Lake Creek II Homeowner's Association

Date: 09/04/97

Re: Comments to DOE/EIS-0267 BPA/Lower Valley Transmission Project

Thank you for your past interest and involvement in this project, especially in obtaining the extension of the comment period. BPA will accept comments until September 11, 1997.

As promised, we have enclosed both an executive summary and a copy of the Lake Creek II Comment. We ask that along with comment generated by your own review of the EIS that you would also endorse and support our comments in writing to BPA. Please feel free to contact us if we can assist you in any way.

# Comment Letters

September 4, 1997

## Executive Summary of Lake Creek II Comment - BPA/Lower Valley Transmission Project

After thorough review of the EIS and consultation with our legal counsel and technical experts, and despite our sincere and laborious efforts to be fully included in the process, we believe that our rights under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and certain other laws are being violated. Below are our continuing concerns:

### I. The EIS Fails to Comply with NEPA

#### A. The EIS Fails to Respond to Scoping Comments

Despite NEPA requirements that federal agencies either respond directly to scoping comments or cite reasons for eliminating comments from consideration, BPA blatantly ignored the following: Consideration of relocation of Teton Substation; Disclosure of impacts specific to properties surrounding Teton Substation (Property Values, Visual, EMF and Noise); Provision of mitigation for cumulative impacts specific to properties surrounding Teton Substation; Consideration for the Verdone Landscape Architects' plan.

#### B. The EIS Fails to Consider a Reasonable Range of Alternatives

The alternative most detrimental to areas surrounding the Teton Substation is under serious consideration, yet no such consideration is given to the alternatives identified by Lake Creek II residents as least detrimental: relocation and underground termination. We ask for the inclusion of these alternatives and that underground termination be included in the body of all line alternatives under consideration.

#### C. The EIS Fails to Disclose Cumulative Impacts

The EIS does not contain site-specific evaluation of the impacts of alternatives within this project. The EIS neglects to disclose how the noise and EMF levels will change the tranquil and pleasant environments at our individual homes (near Teton Substation). Technical studies cited in the appendices relate only to lines, not substations.

#### D. The EIS Fails to Supply Mitigation for Cumulative Negative Impacts

The EIS does not include any mitigation for visual impacts or perceived risks, two factors which will degrade our property values; nor does it mention the landscaping plan submitted by Lake Creek II as part of our scoping comments.

### II. What Lake Creek II Wants

The residents of Lake Creek II would like full compliance with the above-referenced NEPA and CEQ regulations. We desire full implementation of the Teton Substation Mitigation Action Plan to include the full Verdone Landscape Architect's Plan as well as all provisions cited in EIS 4.2.2.2 (Recommended Mitigation for Visual Assessment Area 7). We also would like a complete and detailed analysis of all underground termination options, thereby eliminating the need for the 54-ft. towers at the Teton Substation. We would like the \$250,000 budget relating to the underground termination option to be unconditionally committed for use at the Teton Substation.

### III. Conclusion

We believe the shortcomings of the Draft Environmental Impact Statement both violate existing regulations and significantly hamper our capacity for "meaningful participation" in the NEPA process.

Lake Creek Acres II Board of Directors  
P.O. Box 6296  
Jackson, WY 83002

September 4, 1997

Lou Driessen, Project Manager  
BPA Public Involvement Office  
ACS P.O. Box 12999  
Portland, OR 97208

Re: Comments of the Lake Creek Acres II Homeowner's Association on the Environmental Impact Statement for the BPA/Lower Valley Transmission Project.

Dear Mr. Driessen:

After thorough review of the EIS and consultation with our legal counsel and technical experts, and despite our sincere and laborious efforts to be fully included in the process, we believe that our rights under NEPA, the CEQ, and certain other laws are being violated. Below are our continuing concerns:

### I. Legal Background

The National Environmental Policy Act (NEPA) requires each federal agency to prepare and circulate for public review and comment a detailed environmental impact statement (EIS) prior to any major federal action that may have a significant effect on the environment. 42 U.S.C. 4332 (2)(C); 40 C.F.R. 1502.5, 1508.3 Robertson v. Methow Valley Citizens' Council, 490 U.S. 332, 336, 109 S. Ct. 1835, 1839 (1989); Foundation for North American Wild Sheep v. United States Dept. of Agriculture, 681 F.2d 1172, 1177-78 (9<sup>th</sup> Cir. 1982).

In addition, Council on Environmental Quality (CEQ) regulations recognize the criticality of information quality to intelligent decision making. Information in NEPA documents "must be of high quality. Accurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. 1500.1(b) EISs must analyze the effects of actions "which when viewed with other proposed actions have cumulatively significant impacts." 40 C.F.R. 1508.25(a)(2)

### II. The EIS Fails to Comply with NEPA

The EIS fails to meet NEPA's requirements, failing to include some of the most basic information required in an EIS. Primarily, the EIS fails to respond to scoping comments, fails

# Comment Letters

• Page 2

September 4, 1997

to consider a range of reasonable alternatives, fails to disclose in adequate detail the cumulative impacts of the project, and fails to provide for mitigation of cumulative negative impacts.

## A. The EIS Fails to Respond to Scoping Comments

NEPA and regulations implementing it require agencies to consider comments both individually and collectively. When the agency determines a comment does not warrant further response, the agency must at least "explain why the comments do not warrant further agency response, citing sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. 40 C.F.R. 1503.4

In our scoping comment dated 5/22/96, we asked that the EIS consider relocation of the Teton Substation. No where in the Draft EIS is this considered, nor are reasons cited for its elimination. During scoping, we also asked that the EIS provide for mitigation of cumulative negative impacts from the Teton Substation to the neighboring properties. These impacts include Property Values, Visual, EMF and Noise. The EIS neglects to disclose both the impacts and plans for mitigation. Scoping comments published in the 7/10/96 *FYI* pointedly identify our request that BPA evaluate the cost of achieving a balance in the distribution of costs and benefits of this project, yet the EIS gives no evidence of such evaluation or that such balance was sought. The EIS also neglects to mention the landscaping plan submitted by Lake Creek II as part of our scoping comments.

## B. The EIS Fails to Consider a Range of Reasonable Alternatives

NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. 4332 (2)(E) Federal Courts and CEQ regulations implementing NEPA identify the discussion of alternatives as "the heart" of the NEPA process. This discussion must be one of sufficient detail, giving no more evidence for the agency proposed plan than for the alternatives. In fact, Federal Court decisions reflect the conclusion that, "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Resources Limited v. Robertson*, 35 F.3d 1300, 1307 (9<sup>th</sup> Cir. 1993) (quoting *Idaho Conservation League v. Mumma*, 936 F. 2d 1508, 1519 (9<sup>th</sup> Cir. 1992)). The EIS prepared by BPA, however, gives little to no consideration to two viable alternatives: relocation of the Teton Substation and underground technology.

The alternative most detrimental to Lake Creek II is being examined, yet no evidence indicates serious consideration of the alternative deemed least destructive by Lake Creek II. Such imbalance violates the requirement set by 40 CFR 1502.14 that the EIS, "rigorously explore and objectively evaluate all reasonable alternatives", devoting "substantial treatment to each alternative." In order that a reasonable range of alternatives be included in the EIS, we believe that relocation of the Teton Substation must also be considered as an alternative. NEPA makes clear that agencies must examine reasonable alternatives, even where the agency is without authority to implement them. 40 C.F.R. 1502.14(c). Federal courts conclude, "the evaluation of 'alternatives' mandated by NEPA is to be an evaluation of the

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alternative means to accomplish the general goal of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals." *Van Abbema v. Fomell*, 807 F2d 633, 638 (7<sup>th</sup> Cir. 1986). Agencies cannot use as justification the fact that they do not own land necessary for the alternative. Federal courts have held that such lack of ownership alternative sites "is only marginally relevant (if it is relevant at all) to whether feasible alternatives exist." Thus BPA must provide evidence as to the unreasonable nature of site relocation before summarily dismissing the alternative and must fully consider site relocation, regardless of its authority over land upon which the site would be built.

In our comments during Scoping and Draft preparation, we asked BPA to consider underground technology to reduce the height of equipment at Teton Substation. The EIS includes Option to the Proposed Agency Action, which suggests undergrounding the last 400 feet into Teton Substation. This Option, as it is written, may create as many problems as it solves, due to the need to increase the height of equipment at the Substation and additional large equipment outside of the Substation yard. The EIS fails to consider the full range of underground options, including that suggested by Lake Creek II of burying the last mile of line into the Teton Substation. Instead, the EIS focuses discussion on the environmental impact and high cost of burying thirty-six miles of the line. We request disclosure by BPA of the precise equipment, exact location and accurate cost estimates for the four termination options at Teton Substation. We do so in under the protection of 40 C.F.R. 1502.14, which requires the agency present the environmental impacts of the proposed action and alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. Models, renderings and specifications would be most useful in our analysis. Termination options include:

- A) Overhead termination of line;
- B) Undergrounding of last 400 feet into Teton Substation;
- C) Undergrounding line from Fish Creek into Teton Substation;
- D) Underground termination of all existing and proposed lines into Teton Substation.

We ask the Underground Termination Option, and its associated expenses, be included in the body of all line alternatives being considered. We also ask that the cost of the underground option be unconditionally committed for use at the Teton Substation. If it is determined by Lake Creek II that undergrounding is not the best way to mitigate visual impacts, these funds would supplement the Teton Substation Mitigation Action Plan.

## C. The EIS Fails to Disclose Cumulative Impacts

The EIS does not disclose how the various alternatives will affect our specific environment despite CEQ requirements that EISs identify "environmental effects and values in adequate detail" and "succinctly describe the environment of the areas to be affected or created by the alternatives under consideration" 40 C.F.R. 1502.2, 1502.15. The EIS fails to divulge how EMF and noise levels will increase at our individual properties, to discuss visual impacts specific to our individual properties, and to identify the effect on property values in Lake Creek II. Such negligence violates 40 C.F.R. 1508.25 and 1508.27, which mandate that scope include, "cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact

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statement." The term "significant" is here defined in terms of both context and intensity, demanding a site-specific analysis unlike the analysis contained in this EIS.

The EIS neglects to disclose exactly how the noise and EMF levels will change the tranquil and pleasant environment at our individual homes. What are the noise levels from Teton Substation at the substation fence and our homes now? How will they change with the different alternatives, in particular the SVC? Studies included in Appendix C as evidence of the low risk of EMF exposure deal only with power lines, not exposure near substations like the one located in Lake Creek II. BPA states that magnetic field levels near the Teton Substation will decrease with the agency proposed action *relative* to "all other alternatives." Those only include the alternatives actively under consideration by BPA as opposed to all alternatives. BPA fails to provide adequate information as to the current levels of EMF and how they are expected to change.

While both the National Research Council and the EPA's Science Advisory Board concluded that a causal link between EMF and cancer was not established, both committees cautioned that "the lack of evidence surrounding EMF does not necessarily mean that the issue/question can be ignored" (EIS C-4). BPA acknowledges the lack of information: "Because no hazardous effects of electric or magnetic fields have been confirmed, it is not possible to identify 'unsafe' field levels" (EIS C-6).

If BPA recognizes the potential (even if small and unlikely) health risks associated with EMF levels from exposure to power lines, why would they think that citizens would not make the same mental association? Isn't it possible that both current residents and potential residents of the affected communities worry about EMF exposure and that the addition of new equipment to the Teton substation along with new lines running overhead would increase their perceived risks, significantly affecting the property values in the region? While logically inescapable, this factor is not addressed by the EIS. The Property Values analysis uses studies of urban areas, not the scenic residential of the proposed project; all relating to lines, not substations. These studies are not relevant to this project and do not accurately show the decrease in property values as a result of BPA's operation of Teton Substation, which is an identified category of impact.

#### D. The EIS Fails to Supply Mitigation for Cumulative Negative Impacts

"Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented' 42 U.S.C. 4332(C)(ii), is an understanding that NEPA documents will discuss the extent to which adverse effects can be avoided." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52 (1989). CEQ regulations implementing NEPA require the agency to discuss possible mitigation measures: in defining the scope of the EIS, 40 C.F.R. 1508.25 (b); in discussing alternatives to the proposed action, 40 C.F.R. 1502.14(f); in discussing consequences of that action, 40 C.F.R. 1502.16(h); and in explaining its ultimate decision, 40 C.F.R. 1505.2(c).

The EIS does not include any mitigation of visual impacts or perceived risk, two factors which will degrade property values. In Table 2-4 of the EIS, BPA plainly states that

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the visual impacts range from low to high with the agency proposed action, more specifically that "high impacts would occur at Teton Pass and near Teton Substation." In the same chart, BPA claims, "Property values are not expected to be adversely impacted over the long-term." How can BPA make these statements simultaneously? Perhaps they conclude that property values generally will not be significantly impacted, but it is unreasonable to think the high visual impact near Teton Substation will not affect property values in that area. In accordance with regulations requiring site-specific analysis and mitigation for negative cumulative impacts, we demand both information regarding the impacts in the area near Teton Substation and a mitigation plan to avoid, lessen, or compensate for these impacts.

BPA fails also to consider perceived risk in its assessment of visual impacts. While BPA promises not to ignore the issue of EMF/health hazards and refers to their course of action as "*reasonable and prudent*," BPA commits only to taking "*low cost*" steps to minimize exposure (EIS C-6).

No where does the EIS mention the landscaping plan submitted by Lake Creek II as part of our scoping comments. Consistent with our rights under NEPA and the CEQ and our Scoping Comments, we request that the EIS adopt visual mitigation per the Verdone Landscape Architects plan (dated 11/13/96, revised 7/29/97). This plan would screen the significant cumulative visual impacts at Teton Substation and satisfy the requirement set forth in 40 C.F.R. 1500.2 that the agency use "all practicable means . . . to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects."

In response to this plan, BPA made only a token offer, which has not been accepted by Lake Creek II. Throughout the EIS, this offer is being misinterpreted as "landscaping achieved." The EIS states that "BPA and surrounding neighbors are putting in landscaping that helps screen new substation equipment added in 1993-94" as a mitigation measure. EIS at 4-4, 4-13. This statement is completely inaccurate. BPA has done nothing to mitigate the negative visual impacts which resulted from these additions, nor does the EIS mention expansions which took place in 1995 without regard to NEPA compliance regulations. Even if this mitigation had occurred, such mitigation would not mitigate the effects of the proposed new action. Clearly, BPA cannot be allowed to rely on non-evidenced mitigation of past actions to meet NEPA requirements to provide a detailed plan for mitigation for the actions proposed in the EIS. The Verdone Landscape plan is reasonable and the token offer by BPA is simply inadequate to mitigate the significant cumulative impacts of Teton Substation.

At page 3-8 of the EIS appears an attempted justification to eliminate need for further evaluation of mitigating impacts of the proposed action on the Lake Creek II residents. The EIS tries to deflate the impact of the Teton substation expansion by mounting the following defense: "In years of high snowfall, some resident views would be blocked by snow piles from the clearing of snow from the streets." At 3-15, however, the EIS reports that precipitation at Jackson annually is about 15 inches, not all of which is snow. One could not logically conclude that snow piles could effectively conceal the visual contamination that would result from several fifty-four foot transmission towers.

When discussing the alternative of the Static Var Compensator (SVC), the EIS mentions design options available to minimize the noise and EMF of the SVC. The



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technologies should be used, even at extra expense, to protect the human inhabitants, property values and natural environment as mandated in 40 C.F.R. 1500.2. Pursuant to 40 C.F.R. 1502.14(f), adequate mitigation should be an inherent part of this alternative and all other alternatives.

The SVC is the most expensive (long term), the least reliable, noisiest and most EMF intensive of the alternatives. It is a short-term solution and is highly destructive to our human environment. Since the new line will be needed in seven years, it is also duplicative. Collectively, these reasons make the SVC the worst alternative for the community, for Lake Creek II residents, and for the natural environment surrounding us. If the SVC alternative is chosen, we ask that it be sited at another location, not the Teton Substation. If the SVC and Teton Substation are selected as the preferred alternative, property values compensation will be sought.

### III. Conclusion

We believe failures to respond to scoping comments, to consider a reasonable range of alternatives, to identify cumulative impacts, and to provide for mitigation of negative cumulative impacts constitute violations of NEPA regulations and impede public participation in the NEPA process. DOE/EIS-0267's lack of information critical to such meaningful participation threatens the intended operation of the NEPA process in the BPA/Lower Valley Transmission Project.

We feel the effectiveness of the comment period was hampered by lack of available information and failure to respond to our scoping comments. We asked for consideration of the big picture, meaning past, present and future impacts, but information was inadequate regarding all three. Having made this request in the Scoping phase, we fully expected the analysis to reflect the cumulative impacts of past, present and future actions of BPA's operations in the study area. When this request was ignored, we submitted a request for documents under the Freedom of Information Act. We feel the comment period should be extended pending receipt and review of these documents.

Thank you for this opportunity to comment.

Sincerely,

Lake Creek Acres II Homeowner's Association  
Board of Directors

  
Michael Sellert

  
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September 3, 1997

Public Involvement Office  
Bonneville Power Administration  
P.O. Box 12999  
Portland, Oregon 97212

Re: Comments on the BPA/Lower Valley Transmission Project Draft Environmental Impact Statement ("DEIS")

Dear Sir or Madam:

I am writing these comments on behalf of my client, the Lake Creek Acres II Homeowners' Association, which is comprised of nearly fifty individuals who reside on eighteen residential lots adjacent to the Teton Substation. The Substation will be expanded if the proposed alternative in the DEIS is implemented. We appreciate this opportunity to comment and explain how the DEIS does not meet the statutory requirements established in National Environmental Protection Act ("NEPA"), 42 U.S.C. §§ 4321-4370d, the mandates established in the implementing regulations promulgated by the Council on Environmental Quality, 40 C.F.R. §§ 1500-1517, and applicable case law.

Specifically, the DEIS is deficient because it omits discussion of certain significant impacts of the project, fails to provide sufficient information about and analysis of cumulative impacts, and does not address mitigation of the visual impacts on the residents of Lake Creek Acres II ("Lake Creek II").

### I. INTRODUCTION: LEGAL BACKGROUND

NEPA begins with a broad declaration of Congressional intent to protect and promote environmental quality. 42 U.S.C. § 4331. The Act requires all agencies that propose a major federal action that will significantly affect the quality of the human environment to prepare a detailed statement of--

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man's environment and the

## Comment Letters

maintenance and enhancement of long-term productivity, and  
(v) any irreversible and irretrievable commitments of resources.

42 U.S.C. § 4332.

Courts have interpreted NEPA to require agencies to take a hard look at the environmental impacts of proposed projects, Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989), Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976), including direct, indirect and cumulative impacts. See 40 C.F.R. § 1508.9(b). "Indirect effects" include effects "caused by the action that are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b).

The United States Supreme Court has clarified that the purpose behind NEPA is to ensure that federal agency decision-making is based on "detailed information concerning significant environmental impacts; [NEPA] also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision." Robertson at 349. "NEPA ensures that important effects will not be overlooked or underestimated. . . . Id. "Publication of an EIS, both in draft and final form, also serves a larger informational role. It gives the public the assurance that the agency 'has indeed considered environmental concerns in its decisionmaking process.'" Id. (citations omitted).

The Tenth Circuit recently stated: "NEPA ensures that a federal agency makes informed, carefully calculated decisions when acting in such a way as to affect the environment." Catron County Board of Commissioners v. U.S. Fish and Wildlife Service, 75 F.3d 1429, 1437 (10th Cir. 1996). The court went on to say that "NEPA documentation notifies the public and relevant government officials of the proposed action and its environmental consequences and informs the public that the acting agency has considered those consequences." Id.

NEPA, thus, is a statute that mandates collection, analysis and dissemination of information. Federal agencies that shirk their duty to examine information about, evaluate impacts of and review alternatives to proposed actions face litigation that halts implementation of proposed actions until full NEPA compliance occurs. See, e.g., Catron County supra.

### II. THE DEIS DOES NOT DISCLOSE OR EVALUATE ALL DIRECT IMPACTS OF THE PROPOSED PROJECT

NEPA requires Environmental Impact Statements to include a "detailed statement" of "the environmental impact of the proposed action." 42 U.S.C. § 4332(C). The implementing regulations further clarify that "[t]he environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives

under consideration." 40 C.F.R. § 1502. The examination of effects or impacts<sup>1</sup> must include an evaluation of both direct effects and indirect effects that are caused by the action and are reasonably foreseeable. 40 C.F.R. § 1508.8. If an agency determines that potential effects are insignificant, it must provide a "convincing" statement of reasons to support that conclusion. Save the Yaak Committee v. Block, 840 F.2d 714, 717 (9th Cir. 1988), quoting Steamboaters v. FERC, 759 F.2d 1382, 1393 (9th Cir. 1985).

The DEIS does not contain a correct or sufficient discussion of the impact the action will have on property values and salability in the Lake Creek II community. This issue is discussed in the section that covers Socioeconomic impacts. In that section, the DEIS summarily states that "[t]he new line is not expected to cause overall long-term adverse effects on property values along the existing ROW." DEIS at 4-70. To support that assertion, the section refers to Appendix G, which contains a brief discussion of a few studies on the impact of electrical transmission lines on property values.

Significantly, the cited studies addressed property values of homes adjacent to transmission lines, not transmission stations. It is common sense that the impact of living near an entire transmission station is greater than the impact of living near a transmission line. Thus, the studies cited in the DEIS provide no support for the conclusion that there will be no long-term adverse impact on property values within Lake Creek II. The DEIS's failure to consider the impact of an enlarged transmission station on neighboring property owners is a significant omission.

Furthermore, none of the studies referred to was conducted in Wyoming or in an area renowned for its scenic beauty as is Jackson Hole. Certainly, the impact of enlarging a transmission station depends in large part on the location of that station. Accordingly, even if the cited studies had examined the effect of transmission stations on property values, they would still be irrelevant because they do not examine impacts on areas that have Jackson's unique attributes.

Another significant impact that is considered, then summarily dismissed is the health hazard associated with EMF. See DEIS Appendix C. BPA reviewed some EMF exposure studies, but as with the review of property value issues, BPA only examined studies that pertained to EMF exposure by those who reside near transmission lines, not transmission stations. Of course, then, the cited studies do not support a casual dismissal of the impacts of EMF exposure on Lake Creek II residents. Moreover, the EIS acknowledges that the research on EMF exposure is "suggestive" of harm, yet it shows an unwillingness to do anything about that hazard when it states that "BPA will take reasonable low-cost steps to minimize EMF exposure while taking into account operation and maintenance considerations." Appendix C at C-6.

<sup>1</sup> The terms "effects" and "impacts" are synonymous for NEPA purposes. 40 C.F.R. § 1508.8.

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## III. THE DEIS DOES NOT ADDRESS ALL CUMULATIVE IMPACTS AND INDIRECT EFFECTS

NEPA requires federal agencies to look at a broad range of impacts of proposed actions. NEPA documentation must examine cumulative impacts associated with a proposed agency action. "The EIS is, by its very nature, a cumulative impacts document. Resources Limited, Inc. v. Robertson, 35 F.3d 1300, 1305 (9th Cir. 1994). See also City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990); NRDC v. Callaway, 524 F.2d 79, 87-88 (2d Cir. 1975). NEPA regulations define "cumulative impacts" as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7 (emphasis added).

The CEQ regulations and federal case law also require agencies to disclose the direct and indirect environmental effects that a federal action will have on non-federal lands. 40 C.F.R. § 1508.8; See City of Davis v. Coleman, 521 F.2d 631, 677-81 (9th Cir. 1975)(agency must analyze development impacts in EIS when federal approval of a highway project is likely to have impacts on development of surrounding area, ); Coalition for Canyon Preservation v. Bowers, 632 F.2d 774, 783 (9th Cir. 1980); Sierra Club v. Marsh, 769 F.2d 868, 877-89 (1st Cir. 1985)(agency failure to consider private development impacts that were likely to result from its approval of causeway and port facility rendered NEPA documentation inadequate.)

Similarly, related proposals must be considered for decision together in a single EIS. Thomas v. Peterson, 753 F.2d 754, 758 (9th Cir. 1985); 40 C.F.R. § 1508.25(a). This NEPA requirement prevents the division of a project into multiple "actions," each of which individually might have a lesser environmental impact but which collectively have a substantial impact. Thomas, 753 F.2d at 758.

Actions are "connected" and, therefore must be evaluated in a single EIS if one action:

- (i) Automatically triggers other actions which may require environmental impact statements;
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously;

- (iii) Is an interdependent parts of a larger action and depends on the larger action for its justification.

40 C.F.R. § 1508.25.<sup>2</sup>

Whether viewed as a failure to examine all cumulative impacts, indirect effects or connected actions, the DEIS fails to meet NEPA's mandate to take a broad view of the impacts of a proposed action. The DEIS neither looks forward nor back in time to review the effects of the proposed action in the context of past and future associated actions. There is a terse statement that "[t]here would be cumulative impacts to neighbors of Teton Substation from adding equipment to the substation. . . . As utility infrastructure continues to be needed, this conflict can continue." DEIS at 4-5. This brief statement does not rise to the required level of analysis, and the fact that past expansion was performed without any NEPA analysis underscores the need for an examination of the impact of the proposed expansion coupled with the past expansion. BPA cannot satisfy its duty to provide cumulative impact analysis by simply stating that there will be cumulative impacts from the proposed expansion. Rather, those cumulative impacts must be listed and evaluated.

While the DEIS at least mentions that there are cumulative impacts associated with past expansion, the DEIS is entirely devoid of any reference to the cumulative impacts associated with reasonably foreseeable additional expansion of the Teton Substation in the future. The DEIS also omits any mention or discussion of the cumulative impacts of the residential and commercial development that is a reasonably foreseeable result of the increased provision of electricity that would be made possible by the proposed agency action. That development is the motivating factor behind the project, and its impacts must be addressed in the EIS in order for that document to fulfill the mandates of NEPA.

## IV. THE DISCUSSION OF MITIGATION IN THE DEIS IS INADEQUATE

NEPA regulations require that an EIS:

- (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. § 1502.14(f); and
- (2) "include discussions of: Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))" 40 C.F.R. § 1502.16(h).

The Council on Environmental Quality has also stated that: "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are

<sup>2</sup> Only one of the three definitions need be present to find a connected action. E.g., Town of Huntington v. Marsh, 859 F.2d 1134, 1142 (2d Cir. 1988) (connected action based solely on subsection (iii)), cert. denied, 494 U.S. 1004 (1990); Alpine Lakes, 838 F. Supp. at 482 (same).

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outside the jurisdiction of the lead agency or the cooperation agencies." Forty Most Asked Questions Concerning CEO's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18031 (March 23, 1981).

In addition, the agency proposing a major federal action is required to "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation." 40 C.F.R. § 1505.2(c)(emphasis added).

NEPA requires that mitigation measures be reviewed during the NEPA process -- not in some future decision shielded from public scrutiny. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson at 353.

Appellate Courts have invalidated NEPA documents that rely on unspecified future actions to mitigate or avoid environmental impacts. Oregon Nat. Resources Council v. Marsh, 52 F.3d 1485 (9th Cir. 1995) (Elk Creek Dam III); Oregon Nat. Resources Council v. Marsh, 832 F.2d 1489, 1493 (9th Cir. 1987)(Elk Creek Dam I), rev'd on other grounds, 490 U.S. 360 (1989); California v. Block, 690 F.2d 753 (9th Cir. 1982).

The United States Supreme Court has reaffirmed the statutory and regulatory requirements that mitigation measures be included in an EIS:

To be sure, one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences. . . . Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. . . . Without such a discussion [of mitigation measures] neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.

Robertson at 352 (citations omitted). As Robertson makes clear, mitigation must be "discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." Id.

The DEIS states that "BPA and surrounding neighbors are putting in landscaping that helps screen new substation equipment added in 1993-94" as a mitigation measure. DEIS at 4-4, 4-13. First, and most importantly, this statement is not correct. No landscaping plan has been agreed upon or implemented. BPA has done nothing to mitigate the negative environmental impacts of the 1993-94 expansion, which, incidentally, was done without compliance with NEPA. Second, even if some mitigation of past expansion had been done,

that mitigation of past effects does not mitigate the effects of the new proposed action that is the subject of the DEIS. It should be obvious that BPA cannot rely on non-existent mitigation of past agency actions to meet its duty to provide a detailed plan for mitigation of its new proposed action. Third, even if the mitigation referred to were implemented and did somehow relate to the proposed new expansion, the discussion of mitigation still fails to meet the statutory requirement that it be "reasonably complete." See Robertson at 352. Simple reference to landscaping without more detail about that landscaping cannot be considered "reasonably complete," and, thus, does not comply with NEPA.

The DEIS also states that mitigation of the effects of the proposed action will occur via coordination of "design and placement of new structures and equipment" with Teton Substation neighbors. DEIS at 4-4, 4-13. Design and placement of structures and equipment cannot do much to mitigate visual impacts because of the significant height required for the structures that are required for the project. This discussion of mitigation without even considering mitigation such as the detailed landscaping plan prepared by Lake Creek II fails to meet the requirements of NEPA.

In another section, the DEIS appears to use the "snow pile defense" to any need for a serious examination of mitigating the impacts of the proposed project on the Lake Creek II residents. The DEIS attempts to diminish the impact of the Teton Substation expansion by stating that "in years of high snowfall, some resident views would be blocked by snow piles from the clearing of snow from the streets." DEIS at 3-8. At the same time, the DEIS states that Jackson receives fifteen inches of precipitation annually (and not all of that is from snow). DEIS at 3-15. It is absurd to think that snow piles could effectively hide the visual contamination caused by several fifty-four foot transmission towers.

Finally, because the DEIS denies the socioeconomic impact of decreased property values and salability on Lake Creek II or the increased health risks associated with EMF exposure, it is also inadequate because it fails to address mitigation of those adverse impacts.

### V. THE DEIS DOES NOT ADEQUATELY CONSIDER ALTERNATIVES TO THE AGENCY PROPOSED ACTION

The consideration of a range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. It is "absolutely essential to the NEPA process that the decisionmaker be provided with a detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives, a requirement that we have characterized as 'the linchpin of the entire impact statement.'" NRDC v. Callaway, 524 F.2d 79, 92 (2d. Cir. 1975). "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Limited v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1993) (quoting Idaho Conservation League v. Mumma, 956 F.2d 1508, 1519 (9th Cir. 1992).

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Both NEPA and the Administrative Procedure Act, 5 U.S.C. §§ 551-559, require that an agency's determinations be supported by factual information in the decision documents. "The agency must explicate fully its course of inquiry, its analysis and its reasoning." Dubois v. U.S. Department of Agriculture, 102 F.3d 1273, 1287 (1st Cir. 1996). An agency decision must always have a rational basis that is both stated in the written decision and demonstrated in the administrative record accompanying the decision. Kanawha v. Hocking Coal & Coke Co., 112 IBLA 365, 368 (1990).

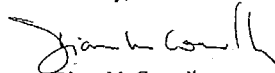
BPA provided the most thorough analysis to its preferred alternative, but the other alternatives received only cursory summaries. For example, conservation as an alternative was summarily dismissed because previous conservation efforts did not reduce energy demand as much as BPA believes is needed. DEIS at 2-15. The DEIS contains no discussion, however, of how past conservation efforts could be improved upon so that conservation provides a more effective method of reducing the demand for electricity and thus perhaps obviating the need for increased electrical supply.

Another alternative that would significantly reduce impacts to adjacent landowners but that is not included at all in the DEIS is a partially buried line. This alternative would bury the portion of the new line as well as the existing line from Forest Service land to the Teton Substation. The trees at the perimeter of the Forest Service land would hide the ninety foot tower required at the point immediately before the line went underground, and would minimize the impacts on the Snake River Ranch and Lake Creek II residents.

## V. CONCLUSION

Thank you for this opportunity to comment on the Draft Environmental Impact Statement. The residents of Lake Creek II look forward to working with you to improve the document and satisfy their concerns about the significant impact that the proposed expansion will have on their neighborhood.

Sincerely,



Diane M. Connolly  
Attorney for Lake Creek Acres II  
Homeowners' Association

Snake River Associates  
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September 10, 1997

Mike Johns, Project Manager  
Bonneville Power Administration  
Public Affairs Office - AC  
P.O. Box 12999  
Portland, OR 97212

Re: BPA/LVPL Transmission Project, additional comments.

Dear Mr. Johns,

After I sent you my letter of July 14, I met with many of our neighbors who live near the Teton Substation or just south of your transmission line. They raised a number of issues and made me aware of certain options that I did not address in my last letter. Therefore, I would like to make these additional comments that should be incorporated in the final EIS on the transmission line project.

- 37-1 [ Since it was originally constructed, the Teton Substation has been expanded and altered a number of times. The cumulative impact of not only the original construction but also the changes and additions should be mitigated as part of this transmission line project. I believe if the substation is
- 37-2 [ thoroughly and thoughtfully landscaped, the trees will eventually result in screening most of it from view from most directions. An analysis of a landscaping plan should be included in the final EIS. The landscaping provided for the Crystal Springs Substation by LVP&L might be used as a comparison.
- 37-3 [ Assuming the transmission line remains as an overhead line, BPA will have to make certain changes in the superstructure of the Teton Substation. The re-design of the superstructure should minimize its height and in general minimize the visual impact as seen from surrounding properties. Careful design of this superstructure in addition to the landscaping mentioned in the previous paragraph should go a long way toward mitigating the negative impacts of the Teton Substation. The cost and the timing of these two improvements should be discussed in the EIS. I believe the cost will be minor when compared to the overall project.
- 37-4 [ In my first letter, I briefly mentioned the possibility of undergrounding both the existing and the new transmission line from the Forest Service land on

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# Comment Letters

Mr. Mike Johns  
September 10, 1997  
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37.4  
cont.

Phillips Ridge all the way to the Teton Substation. In that letter I kept that as a minor comment since I realize this option would be very expensive. However, after speaking with many of my neighbors, I believe that the benefit from undergrounding both the existing line and the new line may well outweigh the cost of doing so. Jackson Hole is an internationally recognized valley that is known for its scenic beauty. This line is visible both from private property and from the Fish Creek Road and other public lands. I believe the EIS should contain engineering and cost analysis for undergrounding both the new line and the existing transmission line from Phillips Ridge to the Teton Substation. Until the public knows the cost of this alternative, it is impossible to make an informed decision as to whether or not it is worthwhile.

Thank you for considering my comments.

Sincerely,



William B. Resor, general and managing partner  
Snake River Associates

## Responses to Comments

DPM-1

A 115-KV single wood or steel pole structure is one pole with steel arms near the top designed to support all the conductors (wires or lines). A “regular” 115-KV wood pole structure is shaped like an H with two poles and a length of steel across the top that supports all the conductors. These structures are shown in Figure 2-1 of the Final Environmental Impact Statement (FEIS).

DPM-2

No new roads would be constructed in the Wilderness Study Area. BPA is proposing to use the footings of the existing structures and replace the body and tops of the existing structures with new double-circuit structures. This would be done using helicopter construction.

DPM-3

BPA would relocate any roads that become blocked.

DPM-4

BPA proposes to place new structures adjacent to existing structures. Based on comments received through scoping, conversations with landowners, environmental considerations, and cost, BPA's current plan is to place the new line east of the existing line through Swan Valley.

DPM-5

Please see response DPM-4.

DPM-6

If the field access road is blocked next to structure 4/7, BPA would relocate the road around the structure.

DPM-7

BPA is considering using a single wood pole structure next to structure 4/4, instead of a two-pole structure, to minimize right-of-way and vegetation clearing.

DPM-8

At 4/7, BPA plans to locate the new structure on the same side of the road, immediately to the east of the existing line. If the field access road is blocked next to structure 4/7, BPA would relocate the road around the structure.

DPM-9

BPA does not consider the threat of fire significant. BPA is proposing to use wood H-frame or single pole structures in the Swan Valley area. BPA has reviewed technical and cost requirements, environmental data, and comments from landowners to develop this proposal.

DPM-10

Yes. The average expansion of right-of-way would be about 12 m (40 feet). In this area, adding to the existing right-of-way makes a total right-of-way of 43 m (140 feet).

DPM-11

To make room for the new transmission line. On average, it cannot be placed on the existing right-of-way because of the limited space.

DPM-12

In Swan Valley, the new line is proposed to be placed on the east side of the existing line. Through Pine Creek and onto Driggs, the new line is proposed to be, for the most part, on the south side of the existing line.

DPM-13

Comment noted.

DPM-14

Many people expressed concerns for visual impacts. Visual resources present in the project area, potential impacts, and mitigation are discussed in Sections 3.2 and 4.2 of the FEIS.

DPM-15

Yes, trees would need to be cut on National Forest land.

DPM-16

No, the only transmission lines proposed are those described in the FEIS.

DPM-17

Lower Valley is participating on a 50/50 basis. If BPA decides to construct one of the transmission line plans, Lower Valley would pay 50% of the costs until their load exceeds 200 MW of annual system peak. At this time, BPA would assume 100% responsibility/ownership of the facilities.

DPM-18

This has been a common sentiment expressed from people who live west of the Teton in the valley.

DPM-19

Please see response DPM-18.

DPM-20

BPA owns an easement for access road PGT-AR-15-4 that mainly crosses National Forest land and a small portion of private land. This road would likely receive only minor improvements including blading and possibly gravel in some areas.

DPM-21

Please see response DPM-20.

DPM-22

BPA is unclear as to what access road you refer to. If the access road is on private land, BPA would not allow use of the road unless exceptions are written into the easement document. If the access road is on National Forest land, public use of the road is restricted to what is allowed in the Forest Plan.

DPM-23

Yes, BPA would get a Special Use Permit from the Forest Service to build a transmission line across National Forest land.



DPM-24

A combination of wood and steel poles and wood H-frame structures would be used. Selection of structure types at specific sites is part of the detailed design process that continues after the environmental process is completed.

DPM-25

Yes, based on planning assumptions, BPA would still need to build the line from Swan Valley Substation to Teton Substation in 2007.

DPM-26

Please see response DPM-24. At this time, BPA does not know the specific structure type proposed at 18/5.

DPM-27

The new line would be located south of the existing line at 18/5 under the current plan. During the full engineering design process, BPA determines the exact placement of most structures. This is not done until after the Record of Decision. BPA has heard your concerns and will continue to coordinate with you on structure placement. As you know, moving the line to the north would add to the cost of the line. BPA appreciates your commitment to work with the project team.

DPM-28

Structure 18/5 could be moved, but only at a substantial additional cost. Please see response DPM-27.

DPM-29

Most roads on the right-of-way would be reseeded and used mainly as two-track roads for maintenance.

DPM-30

Helicopter construction, which is very expensive, would be used where roads cannot be built to structure locations.

DPM-31

It is BPA's understanding that it would install gates on most roads where the Forest Service wishes to limit public access.

DPM-32

Please see response DPM-6.

DPM-33

Please see response DPM-6.

DPM-34

BPA plans to design the line to minimize the amount of land needed for the new line near 4/4 Mile 4. Only the minimum number of trees would be taken in

DPM-35

Please see response DPM-34.

DPM-36

Please see response DPM-34.

DPM-37

BPA will make note of the fact that there is a property stake near 4/7 that should not be disturbed if possible.

DPM-38

Wood poles typically have a smaller footprint and may be easier to farm around. BPA proposes to use steel or wood pole or mostly wood H-frame structures in the Swan Valley area.

DPM-39

The Record of Decision will document BPA's decision. It will reflect the alternative chosen to meet the need for the project. The Forest Service will issue its own Record of Decision that will document its decision.

DPM-40

BPA has had additional on-site meetings with the Forest Service to discuss options at Pine Basin Lodge. Options D and E have been added to the FEIS. The BPA and Forest Service preferred alternative is Option D, which is a double-circuit line in this area. This option also takes into account concerns expressed by the Bonneville School District.

DPM-41

BPA and the Forest Service scheduled several field trips after the Draft Environmental Impact Statement (DEIS) public meetings. Road and bridge locations were identified and new routing alternatives through the Pine Creek area were discussed. New information is reflected throughout the FEIS.

JPM-1

Section 1.1.1 describes the need for the project. Section 1.3 gives additional background on the project. If, during the winter season, one of the BPA or Lower Valley lines that serve the Jackson area goes down for any reason, voltages on the transmission system could dip below acceptable levels. Low voltage levels can cause brownouts, or under certain conditions, a blackout. A description of the socioeconomic impacts that can occur during a blackout is described in Section 4.12.3.1.

JPM-2

Comment noted. Undergrounding transmission lines was suggested during scoping as an option that needed to be analyzed in the DEIS.

JPM-3

According to the current schedule, clearing and road building would occur in 1999. Construction of the line would occur in 2000. These activities may take place sooner pending weather and how quickly information can be gathered from field surveys and review.

JPM-4

Whether the impacts are worse than going overhead with a transmission line depends on the terrain, soils, bedrock, type of transmission line, surrounding land use, and environmental resources present and their sensitivity to disturbance and, in some cases, total removal. The environmental impacts (including visual) of burying the transmission line are briefly discussed in Section 2.6.5.

JPM-5

Comment noted. BPA assumes you are referring to the underground option at Teton Substation described in the DEIS. The underground option is now identified as a mitigation alternative. See Section 4.2.2.2. BPA does not prefer to underground the last 122 m (400 feet) of transmission line into Teton Substation because of its higher cost and limited benefit to minimize visual impacts around Teton Substation.

JPM-6

New land rights needed across private landowners' property for transmission line right-of-way or access roads would be acquired as easements. New land rights needed for the switching station (Short Line Alternative) or the SVC Alternative at Jackson would be acquired in fee. Landowners would be offered fair market value for the easements or fee acquisitions established through the appraisal process.

The appraisal process takes all factors affecting property value into consideration including any impact of the transmission lines on property values. It may also reference studies conducted on similar properties to add support to valuation considerations. The strength of any appraisal is dependent on the individual analysis of the property using neighborhood and specific market data to estimate fair market value.

JPM-7

The National Environmental Policy Act (NEPA), as amended, requires federal government agencies to prepare environmental impact statements (EISs) on all major federal actions (proposed by that agency) which may have a significant impact(s) on the human environment, that is, on the natural and physical environment and the relationship of people with that environment. Section 102 (2)(A) of NEPA requires that agencies use the interdisciplinary approach in the preparation of EISs to ensure the integrated use of the natural and social sciences and the environmental design arts. BPA uses this approach and assembles a team of experts who have training and experience in conducting environmental analysis. If BPA does not have the expertise on staff for a particular specialty, the agency uses the consulting community to address that need. For example, impacts from noise are determined by a specialist with a natural science background with a specialty in public health; visual impacts are determined by someone schooled in landscape architecture with experience in visual analysis; and impacts to property values are determined by someone with an appraisal or real estate development background. Seldom are all of these specialties held by a single individual, and if they were, the topics would still be organized under separate headings so that each could be properly identified and evaluated.

BPA does attempt to perform a holistic analysis, recognizing that the environment is a complex web of connections where impacts to one part can affect the whole. To clearly communicate environmental information, however, BPA segments resource areas so the impacts of the proposed action can be analyzed succinctly. In this EIS, impacts to visual resources and socioeconomics are addressed under their own headings, while impacts from noise are addressed under Public Health and Safety. Therefore, by design, some impacts on the human environment are addressed outside the Socioeconomics Section. To avoid confusion and bulk, they have not been repeated in that section.

JPM-8

The offer of \$60,000 for landscaping around Teton Substation has expired and is no longer available. The \$60,000 was to be used for visual mitigation for additions to the substation prior to this project. The mitigation alternative to underground the last 122 m (400 feet) of transmission line into Teton Substation is not preferred due to its high cost and limited benefit to minimize visual impacts around the substation. The preferred mitigation alternative is to landscape around Teton Substation and screen substation equipment using existing trees and planting additional evergreen and deciduous trees and shrubs. This alternative would minimize visual impacts of existing equipment and new equipment proposed for this project.

JPM-9

The Forest Service and BPA are government agencies cooperating to deliver power to the residents and businesses of Jackson. The Forest Service is making every effort to identify and mitigate any adverse effects on natural resources from the alternatives. BPA is a full partner in this effort and together the two agencies are working to propose, plan and implement this project with full public input.

The NEPA process is being followed and includes public scoping and public meetings to inform residents of both eastern Idaho and western Wyoming about the proposal and identify the consequences of proposed activities.

Lake Creek II Homeowners have been active in this process since the beginning. Letters containing comments have been sent by Lake Creek Homeowners to BPA. These letters have identified concerns the Homeowners have regarding this project. In addition, the Homeowners have attended public meetings and requested additional meetings where they have reiterated their various concerns.

The NEPA process requires that any public concern be considered before a final decision is made. Lake Creek II Homeowner concerns have been received and will be considered before a final decision is made.

The Forest Service has no authority to support mitigation on private land. Any proposed mitigation on private land must be negotiated between the private landowner and BPA. The Forest Service does have a responsibility to ensure the NEPA process is followed and adverse impacts on National Forest lands are disclosed and mitigated where possible.

JPM-10

Please see response JPM-8.

JPM-11

Please see response JPM-8.

JPM-12

Comment noted.

JPM-13

At this time, BPA is proposing double-circuit structures near Pine Basin Lodge (structures 6/2-6/8) and at Teton Pass (26/2-29/3) where visual impact and technical challenges are greatest (see Section 4.2.2.1). In addition, double-circuit structures are proposed from 35/1 on Phillips Ridge to the Teton Substation to mitigate for visual impacts (see Sections 4.2.2.1 and 4.2.2.2). Because double-circuit structures are less reliable and more expensive when compared to two separate single-circuit structures, their use is limited.

JPM-14

At this time there are no plans to paint existing equipment at Teton Substation. BPA prefers to implement a landscaping plan to mitigate for impacts around Teton Substation.

JPM-15

Undergrounding the entire transmission line is described in Section 2.6.5. Undergrounding the last 1.6 km (1 mile) of transmission line into Teton Substation is described in Section 4.2.2.2. Undergrounding the last 122m (400 feet) of transmission line into Teton Substation is also described in this section.

Undergrounding transmission lines is technically feasible. Undergrounding the entire transmission line is not a reasonable alternative because of the high cost. Undergrounding the last 1.6 km (one mile) of transmission line is not preferred as a mitigation alternative because of the high cost. Undergrounding the last portion of transmission line into Teton Substation is also not preferred because of the high cost and limited benefits of minimizing visual impacts around Teton Substation.

JPM-16

Additional right-of-way would still be needed to underground the entire line.

JPM-17

Comment noted. BPA has chosen as its preferred mitigation to develop and implement a landscape plan that would minimize visual impacts around Teton Substation. BPA has also included double-circuit structures near Pine Basin Lodge, (structure 6/2-6/8), at Teton Pass (26/2 to 29/3) and from 35/1 to Teton Substation as part of the Agency Proposed Action to help mitigate visual impacts of a new transmission line.

Throughout the environmental process, BPA has worked with the residents of Teton County to accommodate their concerns where possible. If BPA chooses a construction alternative, BPA would continue to work with county residents.

JPM-18

The currently proposed design at Teton Substation is for locating two single-circuit dead end steel poles one span out from the substation and two single-circuit dead end wood poles at the substation property line. See photos in Appendix M.

JPM-19

Please see response JPM-18.

JPM-20

Visual simulations of the existing condition at Teton Substation, and the Agency Proposed Action with the new line overhead and underground are included in Appendix M.

JPM-21

Please see response JPM-15.

JPM-22

Please see response JPM-15.

JPM-23

Through the NEPA process, BPA determines the environmental impacts of alternatives. To determine whether to mitigate for those impacts, BPA balances the benefits of mitigation actions

(in this case, undergrounding transmission lines) against the cost and feasibility of implementing the mitigation. Because BPA needs to keep its power and transmission costs competitive, it cannot implement all mitigation. For this project BPA has not identified undergrounding transmission lines as preferred mitigation because of the high cost and limited benefits to mitigate visual impacts.

Customers who benefit from the project may elect to raise their electric rates in order to add to the mitigation BPA is willing to implement. Lower Valley just received the results of a survey sent to 300 randomly selected customers to determine if they would be willing to pay \$3 per month for landscaping at Teton Substation. Sixty-seven customers said yes. Two hundred-twelve customers said no. Twenty-one customers said they did not know or had no opinion. Lower Valley also asked whether customers would support paying \$5 per month for landscaping and undergrounding power lines. One hundred-seven customers said yes. One hundred eighty-nine said no. For those customers who said no, Lower Valley asked how much they were willing to pay per month. One hundred twenty-eight customers said \$0. Sixteen customers said \$1. Eight customers said \$2. Eleven customers said \$3.

Lower Valley's Board of Directors have reviewed the results of the survey. No action will be taken at this time. The Board intends to monitor the survey results yearly to see if the ratios change.

JPM-24

Please see response JPM-23.

JPM-25

Please see response JPM-6.

JPM-26

Please see responses JPM-15 and JPM-23.

JPM-27

Please see response JPM-23.

JPM-28

At their request, a 30-day extension of the Draft EIS comment period was given to the Lake Creek II Homeowner's Association and those parties they chose to involve. Close of comments was extended to September 11, 1997.

JPM-29

Appendices were distributed at the Draft EIS meetings and afterwards to those who requested copies.

JPM-30

Comment noted. Please see response JPM-15.

JPM-31

Teton Substation uses modern equipment with a high reliability. Chapter 4 describes mitigation alternative proposed to help mitigate visual impacts around the substation. Landscaping is the preferred mitigation.

JPM-32

Please see response JPM-15.

JPM-33

No, BPA plans to improve the visual aspects of the substation with landscaping. Please see responses JPM-17 and JPM-31.

JPM-34

High voltage substations in populated areas look much the same. Lower voltage distribution substations look similar but are generally smaller.

JPM-35

BPA has included relocating Teton Substation as a mitigation alternative in Chapter 4. It is not a preferred mitigation alternative because of its extremely high cost.

JPM-36

As you state, BPA is a public agency. The public has every right to question BPA's actions. BPA conducts environmental review of its actions under the National Environmental Policy Act. The Act requires BPA and other federal agencies to conduct a public involvement process such as the one for this project. For more details on the project's public involvement process to date, please refer to Chapter 1 and Appendix B of the Final EIS.

JPM-37

Pursuant to section 9(e)(5) of the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. §839f(e)(5), a challenge to the final decision of the Administrator on the BPA/Lower Valley Transmission Project must be filed in the United States Court of Appeals for the Ninth Circuit.

JPM-38

BPA assumes you are referring to mitigation. Please see response JPM-23.

JPM-39

No, BPA is the only power provider to Lower Valley at this time. Lower Valley is starting a pilot Liquefied Natural Gas (LNG) program.

JPM-40

BPA studied upgrading power generation and the switchyard at Palisades Dam, and the Palisades-Snake River 115-KV transmission line. These options would not solve the voltage stability problem in Jackson.

BPA and Lower Valley need to have the two high voltage 115-KV transmission lines operational for Jackson during the winter months. Upgrading the facilities back towards Palisades would do nothing to alleviate problems caused by losing one of the two lines serving Jackson.

JPM-41

Lower Valley is the local utility that provides power to Jackson. Lower Valley has and is continuing to explore various options of providing the least expensive power to its customers while minimizing impacts to the community and maintaining high reliability. For example, Lower Valley has developed a pilot program that uses liquefied natural gas. This could replace the need for additional electricity in the future.

In addition, the utility industry is being deregulated. Like the communications industry, deregulation will most likely allow customers like yourself to choose their own service provider sometime in the future.

JPM-42

Double-circuit structures are proposed near Pine Basin Lodge (structures 6/2-6/8), at Teton Pass (26/2-29/3), and from structure 35/1 on Phillips Ridge to Teton Substation. The new line would enter the substation at the northwest corner. The existing structures and wires/ conductors near Teton Substation would be removed. No new right-of-way would be needed for these segments. Because the new structures would be single steel poles and could be spaced farther apart, fewer poles may be needed. The new poles would be about 6-9 m (20-30 feet) taller, but would be located to minimize visual impacts to adjacent residences.

JPM-43

Please see response JPM-42.

JPM-44

The new poles and conductors (wires) would be a dull/nonreflective color to blend more naturally with the surroundings.

JPM-45

Please see response JPM-8.

JPM-46

Yes, BPA has met with landowners in the area to get input on location of structures. The preference is to replace structures in the same location as the existing line. This also helps minimize the height of the structures.

JPM-47

Yes, double-circuit structures would not require additional right-of-way.

JPM-48

Comment noted. The project as proposed is in response to real needs by a growing community for a stable electrical supply.

JPM-49

Comment noted.

JPM-50

Please see response JPM-44.

JPM-51

BPA would try to schedule construction in high groundwater areas at a time when water levels are lowest.

JPM-52

Single pole double-circuit structures are proposed from structure 35/1 on Phillips Ridge to Teton Substation.

JPM-53

Yes, please see responses JPM-8 and JPM-17.

JPM-54

Because Teton Substation is surrounded by a residential neighborhood and pastureland, the existing site is relatively quiet. Based on a single set of spot audible noise measurements BPA



made around the substation perimeter fence on November 18, 1996, the measured noise levels ranged from 33-42 dBA. At the fence line nearest the residences, the measured levels were in the mid-30s dBA. These are levels typical of a normally quiet office environment. Please note that these levels are associated with one time spot measurements and reflect the noise only at the specific time of measurement. Noise levels can vary greatly as a result of weather conditions (wind, rain, etc.) and other factors such as highway traffic, airplanes, construction activity, etc. Thus, depending on these conditions, the noise on any particular day or at any particular time could be higher or lower than the levels measured. Please refer to Section 3.5.2.2 and Appendix E in the EIS for more information.

JPM-55

None of the transmission line alternatives would cause noise increases along the transmission line right-of-way or at the substation sites. This is because the 115-kV transmission lines do not cause audible noise and the additional substation equipment required for these alternatives would be similar to equipment already in use.

However, if the SVC alternative is selected, the specialized SVC equipment would result in an additional noise source within Teton or Jackson substations. The noise would likely be noticeable to nearby residences as a low frequency hum. The amount of increase in noise levels would depend on background levels and operating modes of the SVC equipment. The SVC would be designed so that the maximum noise level would be 55 dBA at the property line of either substation to meet Teton County and Town of Jackson standards. Please refer to Section 4.5.3.3 in the EIS.

JPM-56

The \$250,000 in the Draft EIS was the estimated cost of placing the last 122 m (400 feet) of transmission line underground into Teton Substation. The overhead option would cost an estimated \$66,000.

In the FEIS, this portion of undergrounding is identified as a mitigation alternative but is not the preferred way to mitigate because of its high cost and limited ability to minimize visual impacts around Teton Substation.

JPM-57

Please see response JPM-56.

JPM-58

This is the fundamental principle of Federal Supremacy as established in the Article VI of the U.S. Constitution. As stated by the U.S. Supreme Court in *Hancock v. Train*, 426 U.S. 167, 178 (1976), “activities of the Federal Government are free from regulation by any state” unless Congress has “clearly and unambiguously” provided an exception to this principle. Generally, with regard to the applicability of state or local processes to a BPA transmission project, the Ninth Circuit ruled in *Columbia Basin Land Protection Association v. Schlesinger*, 643 F.2d 585, 605 (9th Cir. 1981) that “to require the BPA to receive a state certification would imply that the state could deny the application, which would give them a veto power over the federal project. This clearly cannot be the meaning that Congress intended.”

JPM-59

Teton Substation with the new line underground is shown in Appendix M.

JPM-60

Please see responses to JPM-8, JPM-15, JPM-17, and JPM-23.

JPM-61

Please see responses to JPM-8 and JPM-15.

JPM-62

BPA has transmission lines throughout Oregon, Washington, Idaho, California, Nevada, Montana, and Wyoming. BPA's transmission lines cross all types of land uses, some considered to be more sensitive than others. BPA is committed to working with the many different owners and managers of these lands to balance their needs with the need for the project, taking into account the environmental (including social and political factors), technical, and financial requirements and limitations of the project.

JPM-63

Comment noted. BPA is familiar with conflicts between property owners living next to BPA facilities. Nevertheless, BPA is committed to being good neighbors given its environmental, financial and technical requirements and limitations.

1-1

Cultural resource documentation is provided in the Final EIS as Appendix I. A cultural resource survey was conducted in September 1997. Two historic sites were found during the survey: a wagon road also used as a stock trail; and an abandoned ditch once used to bring water to Pine Creek Bench (see Appendix J). The historic sites are recommended eligible for the NRHP. BPA has made a determination of no adverse effect as portions of these sites could be affected by construction but the effect would not be harmful. BPA has coordinated this determination with the Wyoming and Idaho SHPO and the Advisory Council on Historic Preservation. Mitigation in the form of recordation is proposed. BPA would work with the USFS and the SHPO's on mitigation. Mitigation would be done before construction.

2-1

Comment noted. Text has been added to Section 4.7.2.2 that refers the reader to Section 5.16 in the FEIS for information on regulations and applicable permits.

3-1

After reviewing comments received on the DEIS and additional field work, BPA better understands the potential impacts to the surrounding property of the site described in the DEIS. Subsequently, another study was performed and a new site has been proposed west of and within about 152 m (500 feet) of the existing Targhee Tap and mostly within the right-of-way. The terrain is not as level as the site described in the DEIS, making it less desirable from an engineering perspective, but it is buildable and would be hidden from your home by existing trees next to the right-of-way. It would also be located mostly on the existing right-of-way, but BPA would need to secure additional land to construct the facility. This site is farther away from residences and is now the preferred switching station site for the Short Line Alternative.

3-2

Please see response 3-1.

3-3

Please see response 3-1.

3-4

BPA believes your concerns will be alleviated by response 3-1.

3-5

Please see response 3-1. Also, as stated in the Final EIS, Appendix L, "... A transmission line might also diminish the utility of a portion of property if the line were effectively to sever this area from the remaining property (severance damage). Whether a transmission line introduces a negative visual impact depends on the placement of the line across a property, as well as on each individual landowner's perception of what is visually acceptable or unacceptable. ... These factors, as well as many other elements unique to the property, are taken into consideration to determine any loss in value within the easement area, as well as outside the easement area in case of severance."

Appendix L in the FEIS also states, "Fair market value would be offered to landowners for the fee purchase of property needed for the Short Line Alternatives's Switching Station and for property needed for the Static Var Compensation Station ..."

3-6

Please see response 3-5. Also, BPA would use local and equal property values to determine a fair market value for easements or fee acquisitions.

Also, please see response 3-1.

3-7

Please see response 3-1.

3-8

Please see response 3-1.

3-9

Please see response 3-1.

4-1

Because the Summary needs to be a short document, it does not contain all of the information found in the Draft and Final EIS. A discussion of conservation as an alternative can be found in Section 2.6.1 of the Final EIS. BPA initially considered this alternative as a solution to the problem but eliminated it from further consideration because the amount of energy savings is too small to defer the need for the project.

4-2

In the past, BPA helped sponsor conservation programs through Lower Valley that accomplished electrical savings of 3.305 average megawatts (less than one year of load growth in the Jackson area). BPA no longer has the money to provide conservation funding to Lower Valley, but Lower Valley is working with the Town of Jackson Building Department to develop building codes that include conservation measures such as increased insulation in buildings.

Lower Valley has also started a liquefied natural gas pilot program in its service area. Results are uncertain at this time, but if successful, Lower Valley may want to build a natural gas pipeline and combustion turbine plant sometime in the future.

4-3

You raise an excellent point and one which BPA has studied. Some of the existing steel lattice structure footings are strong enough to hold a new upper section of structure that can carry both circuits. Engineers and environmental specialists have determined where it would be technically, financially, and environmentally feasible to rebuild the existing structures, 26/2-27/4, 28/3, 28/4,

29/1, and 29/2 to double circuit. Other structures through Teton Pass will also be replaced with double-circuit structures (27/5-28/2, 28/5, and 29/3). Double-circuit structures are also proposed near the Pine Creek area and the area near Teton Substation.

In addition, the Agency Proposed Action identifies two other sections of line that are proposed to be double circuit. In these areas, the existing structures would be replaced by new, stronger structures, which would be costly. BPA is willing to use the more costly double-circuit structures to lessen environmental impacts. This design was proposed in direct response to scoping comments and meetings with the Forest Service.

Clearing timber for this project would be kept to a minimum by using existing roads where possible, using structure types that require a more narrow clearing path, and by using existing cleared areas.

An alternative that rebuilds the entire line to double circuit was considered but eliminated from further consideration because of the high cost (see Section 2.6.2.2, Plan 2). Building a double-circuit line is at least about twice the cost of building a single-circuit line. In some terrain, the use of double-circuit rather than single-circuit structures makes the cost of the line considerably more.

4-4

There is no generation at Jackson Lake Dam. Jackson Lake Dam is owned and operated by the Bureau of Reclamation and is a storage facility located in Grand Teton National Park.

Studies to determine if Jackson Lake Dam could accommodate generation would have to be done by the Bureau of Reclamation. Since this is a storage facility, the water needed to generate power in winter to serve Lower Valley would likely be unavailable.

If generation at Jackson Dam was feasible, substation facilities and approximately 34 km (24 miles) of high voltage transmission line to transmit the power to Jackson would have to be constructed through Grand Teton National Park and the Bridger-Teton National Forest. This is an environmentally, financially and technically challenging proposal.

The cost of adding generation combined with the costs of building substation and transmission facilities would likely make this alternative cost prohibitive.

4-5

Comment noted. Please see response 4-3.

5-1

The overall long-term plan (25 years) for this area indicates it is preferable to reinforce the transmission system from Swan Valley to Teton rather than Palisade Switchyard to Alpine with further branching to Jackson. Several plans that use the southern route through the Snake River Canyon from Palisades Dam were considered but eliminated from further consideration in Section 2.6.2.2. The transmission system under the Swan Valley-Teton plan performs better economically by a factor of almost 2:3. Also, the Swan Valley-Teton alternative route would modify or build fewer miles of transmission line.

The Swan Valley-Teton Plan immediately serves Jackson, an area of high load growth. The current load forecast for Star Valley shows static growth.

Costs for each alternative are included in Chapter 2.

6-1

Please see response JPM-15. BPA has proposed, as part of the transmission line design, to remove and replace the existing line from structure 35/1 on Phillips Ridge to the Teton Substation with a new double-circuit line using single steel poles (the existing structures have two wood

poles). In the flat area, east of Fish Creek Road, these poles can be located to use existing screening from residences. They also can be located farther apart, reducing the number of structures needed but increasing the height of the structures. The new poles and conductors (wires) would be a dull/nonreflective color to blend more naturally with the surroundings. Using these types of structures in the design and working with their location would help lessen and mitigate for visual impacts. BPA has met with landowners to get input on location of new structures. The preference is to locate structures in the same location as the existing line, keep the wire/conductors at the same height, and minimize the height of the structures.

6-2

Please see response 6-1.

7-1

Power lines do alter views and in some cases have negative impacts on the overall beauty of an area. In response to your concern, BPA met with a representative from your school district and Forest Service staff at the Pine Basin Lodge to develop several options for routing the transmission line through and away from the area that you and your students use. As a result, two additional routing options for that area are analyzed in the Final EIS. BPA and the Forest Service have selected Option D, the double-circuit option, as the preferred option through the Pine Creek area.

BPA was established in the early part of this century to electrify rural western America. Transmission lines were constructed from dams to bring the power they produced to rural areas. Transmission lines crossed tribal, federal, private, state and local government lands, and still do today. The lines that serve Pine Basin Lodge and schools within your school district most likely cross private, state, tribal, and federal lands. Those small distribution lines are connected to a larger transmission grid that crosses state boundaries because the power that flows to you may not be generated in Idaho.

7-2

Comment noted. Please see response 7-1.

8-1

Comment noted. BPA proposes to use single steel poles (double-circuit) on the existing right-of-way from structure 35/1 on Phillips Ridge to Teton Substation.

8-2

Comment noted.

8-3

Comment noted. Undergrounding the transmission line from Fish Creek Road to Teton Substation is described as a mitigation alternative in Chapter 4.

8-4

Comment noted. Please see response 6-1.

8-5

Comment noted. Please see response JPM-44.

8-6

BPA would install a steel gate at the northwest property boundary of Teton Substation where it meets the easement across your property.

8-7

BPA would be happy to meet with you before any construction. BPA would work hard to try and accommodate requests from landowners involving construction schedules, etc.

8-8

Comment noted.

9-1

Comment noted.

9-2

BPA has defined and predicted levels of impacts on those resources you mention in Chapter 4 of the Final EIS. In some cases impacts are high, in other cases there are no impacts or impacts are low or moderate. BPA has proposed mitigation that would lessen impacts to the environment.

BPA understands your desire to move towards more passive forms of energy generation and has supported research and development of renewable resources. Until less intrusive technology that delivers power becomes cost-effective, BPA will continue to use overhead transmission lines to deliver power and mitigation to lessen impacts.

9-3

BPA supports the development of renewable energy, now known as “green power” or alternative power resources. It has always been a logical niche for a public agency like BPA. In addition to solar energy, BPA includes biomass and pulping residue, geothermal, hydropower, and wind in its renewable energy resource mix. From 1992-1996, BPA invested \$84,000 in solar, \$4,063,000 in biomass and pulping residue, \$1,882,000 in geothermal, \$52,774,000 in hydropower, and \$4,059,000 in wind energy development.

BPA just signed an agreement with PacifiCorp and the Eugene Water & Electric Board to buy 37 percent of the output of a 41.1 megawatt wind turbine project to be located at Foote Creek Rim near Arlington, Wyoming. This wind project will be the first major wind project involving Northwest utilities to move to the construction phase. It will test wind energy's ability to be a reliable, economical and environmentally acceptable resource. It also will demonstrate a wind turbine's ability to operate efficiently in a cold weather environment.

10-1

Customers who benefit from the project may elect to raise their electric rates in order to add to the mitigation BPA is willing to implement. Lower Valley surveyed 300 randomly selected customers to determine if they would be willing to pay \$3.00 per month for landscaping at Teton Substation. Please see response to JPM-23 for results of this survey.

11-1

All mitigation listed in the wildlife section are actions BPA would commit to implementing if BPA chooses a construction alternative.

In some areas due to the presence of Trumpeter Swans and other migratory birds, BPA would work with the Forest Service, IDEFG, and WGF to determine where marker devices are needed to reduce the potential of bird strikes. See Section 4.9.2.2.

Though burying a transmission line in some areas might lessen bird collisions, it increases the impacts to other natural resources, specifically impacts to riparian habitat, wetlands, water quality, and fish spawning habitat. Because of these impacts, its high cost and diminished reliability, BPA does not consider this alternative feasible.

11-2

BPA would avoid construction in delineated deer/elk winter range during vulnerable times. Construction schedules would be coordinated with the Forest Service, IDFG, and the WGF. For construction, BPA would use existing access roads to the extent possible. New roads would be needed, but construction would be kept to a minimum. After construction, new and existing access roads need to be maintained for routine and emergency maintenance. BPA would continue to try and schedule routine maintenance to minimize impacts to big game. BPA would gate any access road as required by the Forest Service. Each gate would have a BPA and Forest Service lock.

BPA must construct after August 30 because the construction crews are limited by an extremely short construction season and must take advantage of the dry weather at that time of the year. BPA maintenance crews meet periodically with the Targhee National Forest in Idaho Falls or the surrounding area to discuss all types of maintenance activities, including needed access restrictions. The IDGF is invited to participate in those meetings.

BPA and the Forest Service have added two new routing options through the Pine Creek area. Option D uses double-circuit structures and is now the preferred option.

11-3

Comment noted. Streams would be crossed with bridges or appropriately designed culverts to prevent fish blockage and disturbance to the streambed. Changes were made to the FEIS regarding fish presence and passage issues.

12-1

BPA does consider the visual impacts in your area to be high. BPA has proposed, as part of the transmission line design, to remove and replace the existing line from structure 35/1 on Phillips Ridge to the Teton Substation with a new double-circuit line using single steel pole structures (the existing structures have two wood poles). These structures can be located to use existing screening from residences. They also can be located further apart, reducing the number of structures needed. The new poles would be a dull/nonreflective color to blend more naturally with the surroundings.

Using these types of structures in the line design and working with their location would help lessen and mitigate visual impacts. Because these structures are proposed as part of the design, they were not mentioned in the visual mitigation section. BPA has now recognized the benefits of this design in the mitigation section.

The conductors (wires) for the new double-circuit line need to be stacked vertically or upwards, making the new structures about 6-9 m (20-30 feet) taller than the existing structures. (See Figure 2-1 in the FEIS.) The conductors would be about 3 m (10 feet) apart, with the bottom conductor at a similar height as the existing line. The wires would also be a dull/nonreflective color to blend more naturally with the surroundings. Placement of the new structures would affect the location of wire as viewed from residences. BPA would take this into consideration when locating the new structures. If requested, BPA has met with adjacent landowners to discuss these issues. The preference is to locate structures in the same location as the existing line, keep the wire/conductors at the same height, and minimize the height of the structures.

12-2

Comment noted. Please see response 12-1.

12-3

These options are identified as mitigation alternatives in Section 4.2.2.2 of the FEIS.

12-4

Comment noted. Please see responses 12-1, 12-2, and 12-3.

13-1

The proposed transmission line would follow the existing corridor.

This mitigation measure is identified in the FEIS, Section 4.9.2.2.

13-2

The transmission line would be designed such that avian electrocution could not take place because BPA provides adequate separation between conductors (wires) so birds cannot touch two conductors at the same time. With the size of the conductor proposed for this transmission line, raptor strikes are not usually a problem. An overhead ground wire would be used, and more discussions would be needed among BPA, the Forest Service, IDFG, and WGF to determine if the smaller wire would need to be marked.

13-3

Comment noted. Marking of new transmission lines is recommended in Section 4.9.2.2 of the FEIS.

BPA will work with the Forest Service, IDGF, and WGF to determine where marker devices are needed in crucial trumpeter swan flight corridors.

13-4

Surveys for raptor nests are identified as a recommended mitigation in Section 4.9.2.2 of the FEIS. BPA is conducting wildlife surveys this year (1998) with the help of the Forest Service. BPA and the Forest Service would implement construction constraints pending the results of the surveys.

13-5

During BPAs surveying process, utility crossings are identified and mapped. Impacts to utilities are not likely because the new structures can usually be located away from the equipment. If a utility was impacted, BPA would work with the utility owner to make sure the utility is maintained or made whole. For specific utility crossings such as overhead distribution lines, the contractor building the new line would contact the utility and safeguard the distribution line with guard structures. Some outages during construction may be unavoidable for safety reasons. Unless a utility has no prescribed rights inside of an existing BPA right-of-way, BPA would pay for the utility's direct physical impacts.

13-6

Please see response 13-5.

13-7

Comment noted.

14-1

A 30-day DEIS comment period extension was granted to the Lake Creek II Homeowners Association and those they chose to involve. BPA understood it was the Homeowner's intent to contact their local, state, and federal officials so they could comment on the Draft EIS. The extension was also granted to your office.



15-1

The full 30-day DEIS comment period extension was granted to the Lake Creek II Homeowners Association and those they chose to involve.

16-1

A 30-day DEIS comment period extension was granted to the Lake Creek II Homeowners Association and those they chose to involve. BPA understood it was the Homeowner's intent to contact their local, state, and federal officials so they could comment on the Draft EIS. The extension was also granted to your office.

17-1

A 30-day DEIS comment period extension was granted to the Lake Creek II Homeowners Association and those they chose to involve. BPA understood it was the Homeowner's intent to contact their local, state, and federal officials so they could comment on the Draft EIS. The extension was also granted to your office.

18-1

Structures 29/1 and 29/2 are in the Palisades Wilderness Study Area (WSA). BPA proposes to use the footings of the existing steel lattice structures and replace the bodies and tops of the structures with taller double-circuit structures. This can be done with helicopter construction and no new roads will be needed in the WSA. This proposal is in response to a request by the Forest Service to minimize impacts to the WSA and avoid additional clearing. The new structures would be about 6-9 m (20-30 feet) higher than the existing structures. There would also be three additional conductors (wires) on each structure. Very little if any additional clearing would be required with the new structures. The new structures would add costs and provide lower reliability than single-circuit structures.

BPA will continue to work with the Forest Service to propose ways to minimize impacts to the WSA. The Agency Proposed Action would not appreciably change the character of the existing corridor or the potential for future designation of the area as wilderness.

18-2

Map 12 has been corrected.

18-3

Map 10 has been corrected.

18-4

BPA agrees that it does not have reserved rights for a new line.

18-5

BPA agrees and has tried to clear up this confusion in the FEIS.

18-6

During on-site discussions, BPA and the Forest Service jointly determined that structures 29/1 and 29/2 are in the WSA. BPA proposes to use the footings and the bodies of the existing steel lattice structures and replace the tops of the structures with taller double-circuit structures. Please see response 18/1.

18-7

Please see response 18-6.

18-8

The existing access road system uses the Old Pass Road and Philllips Bench roads for access to the transmission line. BPA wishes to build only the minimum number of roads required for construction and maintenance. BPA will work with the Forest Service to incorporate other uses (including firewood gathering and recreation) for roads, or limit access using gates.

18-9

After construction, use of the right-of-way by recreationists would continue unless the Forest Service requests certain restrictions be placed by BPA on access. Please see response 18-8.

18-10

The Agency Proposed Action would parallel the existing line along Highway 22. In most areas, a small additional ROW width would be needed requiring only small trees to be cut. New spur access road construction would be kept to a minimum and would be reseeded with a native mix to minimize visual scars.

18-11

Please see response JPM-44. The existing towers would not be painted.

18-12

BPA wishes to build only the minimum number of roads required for construction and maintenance. BPA will work with the Forest Service to incorporate other uses (including those you mention) for roads, or limit access using gates.

18-13

BPA is well aware of the Forest Service concern for new access roads and construction of the line. More access road and clearing for construction information has been added throughout the FEIS and in Appendix C.

A cultural resource survey of the additional right-of-way was done in September 1997. Results of that survey are in Section 3.12 and Appendix I.

See discussion in Section 4.7.2.2, Wetlands Impacts, and Section 4.7.2.3, Mitigation, for measures to protect wetland resources.

18-14

Table 5-2 lists the prescriptions crossed by the line and those actions BPA proposes to take to attain be consistent with the forest goals and objectives, standards and guidelines, and prescriptions of the management area. BPA would continue to work with the Forest Service throughout the design and construction process to make sure these actions are taken.

18-15

The timing of various activities that need to take place in 1998, 1999, and 2000 would need to be thoroughly thought out and coordinated with the Forest Service. BPA would work closely with the Forest Service to coordinate these activities. Much of the planning for actions taken in 1999 would need to take place in 1998 during the design phase. BPA believes that through good planning and coordination, most, if not all road building and clearing could occur in 1999, allowing for transmission line construction to occur in 2000. Depending on the weather and how quickly information comes in from the field during the surveying phase, the schedules may be accelerated. Various clearing methods for the right-of-way would be discussed with the Forest Service and memorialized in the Project Plan.

18-16

The discussion on Forest Service decisions in Chapter 1 has been expanded to include those you have listed. BPA is not planning to do further NEPA analysis on road construction as the intent is to identify all new and existing access roads in this EIS. BPA does plan to do more site-specific environmental analysis on vegetation management. This is stated clearly in Section 2.1.7.

18-17

The issues listed in Section 1.5 were meant to give the reader a general idea of the issues raised during the scoping process. The list was not meant to include all issues to be considered in the EIS. All scoping comments were logged in, characterized by subject, and forwarded to the resource specialists for inclusion in their resource analyses in Chapter 3 and 4.

18-18

Since the DEIS, more information on clearing, roads, creek crossings, gates, road closures, etc. has been gathered from field trips and at meetings with the Forest Service. The FEIS now includes this information in Chapter 2 and Appendix C. Additional impact information has been added to the resource sections in Chapter 4.

18-19a

Please see response 18-16.

18-19b

Please see response 18-18.

18-20

Please see response 18-18.

18-21

BPA needs access to each structure site, if possible, for construction and maintenance activities. Once constructed, BPA would work with the Forest Service to determine the use of each road. BPA would install gates of the appropriate type in each area as required by the Forest Service. BPA and the Forest Service would have keys to each gate. Most of the proposed uses and gate installations have already been identified and coordinated with the Forest Service and have become part of the FEIS. BPA prefers to keep vehicular activity to a minimum on access roads by keeping gates closed and locked where appropriate.

18-22

Please see response 18-1.

18-23

Comment noted. BPA agrees with this assessment. The revised estimate of right-of-way to be cleared to construct, operate and maintain the proposed transmission line is about 25 hectares (62 acres). Most of the clearing will take place within the old backline. BPA also estimates about 6 hectares (15 acres) to be cleared for new access roads.

18-24

Please see response 18-18. Since reviewing the latest road plan, the Forest Service has not identified any inconsistencies with the Forest Plan.

18-25

The proposed transmission line would cross the Dry Canyon/Pine Creek Cattle Allotment, the Burbank Sheep Allotment, the Spencer Sheep Allotment, and the Pine Creek Cattle Allotment within the Palisades and Teton Basin ranger districts within the Targhee National Forest. No allotments would be crossed on the Bridger-Teton National Forest.

Clearing an additional right-of-way through these rangelands would create additional forage for grazing, a beneficial impact. Additional access roads/clearing could also encourage livestock movement between allotments on Forest Service lands within the Targhee National Forest. Where the project would breach natural barriers between allotments, such as timber stands, fencing may need to be installed to control livestock. Should fencing be found to be necessary on the Targhee, BPA would work with the Forest Service to determine specific locations and specifications. Where mitigation would be provided, the impact would be considered low.

18-26

The EIS focuses on construction noise, habitat loss, and avian collisions because these are the primary wildlife concerns relative to the alternatives and their environmental consequences. Surveys are being conducted in 1998 according to an agreement between BPA and the Forest Service. The wording for surveys in the FEIS has been changed to more accurately reflect BPA's actions regarding surveys.

18-27

The timing and location to begin vegetation clearing would be closely coordinated with the Forest Service. Information obtained from the wildlife surveys will help in that determination.

Timing restrictions for deer, elk, and moose would begin on November 15, allowing for a four-month construction window (depending on weather conditions). Work in the fall may continue past November 15 for emergency reasons. This would be coordinated with among BPA, Forest Service, WDFG, and IDFG. Timing restrictions would not conflict with timing restrictions for other species, although collectively they do complicate BPA's ability to meet the project schedule.

18-28

Please see comment 18-16 and response.

18-29

Figure 2-1 is really meant to be a schematic of the structures and how they would fit next to the existing right-of-way and line. BPA has expanded the discussion in Section 2.1.3 and Appendix J to include the new information for clearing. The revised estimate of right-of-way to be cleared to construct, operate and maintain the proposed transmission line is about 25 hectares (62 acres). Most of the trees in the 25 hectares are small and generally nonmerchutable except for possible fenceposts. BPA also estimates about 6 hectares (15 acres) to be cleared for new access roads. These trees vary from small to larger trees.

18-30

Please see response 18-18. Since reviewing the latest road plan, the Forest Service has not identified any inconsistencies with the Forest Plan.

18-31

Figure 2-4 summarizes information in Chapters 3 and 4. It was very difficult to put all the information from Chapter 3 and 4 in the table. The issues listed in Section 1.5 were meant to

give the reader a general idea of the issues raised during the scoping process. The list was not meant to include all issues to be considered in the EIS. All scoping comments were logged in, characterized by subject, and forwarded to the resource specialists for inclusion in their resource analyses in Chapter 3 and 4.

18-32

Comment noted. BPA's revised estimate of right-of-way to be cleared is about 25 hectares (62 acres) and about 6 hectares (15 acres) for access roads. This change is reflected in Section 4.1.2.1. The impact level in the FEIS has been changed from no impact to low impact to reflect information in the Record of Decision for the Targhee National Forest's Revised Forest Plan.

18-33

Chapter 2 does describe the facilities needed for the switching station at Targhee Tap, including a new entrance road. For the preferred site, the road would follow the existing access road up past Targhee Tap to the new site for the switching station. For the second site, the road would turn off Pole Canyon Road into the new site. More information has been added to the FEIS in Sections 4.2.2.1 and 4.2.2.2.

18-34

The revised estimate of right-of-way to be cleared to construct, operate and maintain the proposed transmission line is about 25 hectares (62 acres) and about 6 hectares (15 acres) for access roads. This estimate is based on a site visit combined with aerial photography and using BPA's clearing criteria.

This clearing estimate is the best BPA can do at this time without the benefit of a ground survey. BPA considers this estimate to be conservative. The exact numbers and locations of trees to be cleared would be appropriately addressed again during the detailed design phase of the project, after a survey is completed and structure locations are known. While BPA will not mitigate for past impacts from the existing line, specific clearing plans that blend the right-of-way into the surrounding vegetation would, by clearing the smallest amount possible to achieve this effect, go a long way in mitigating for past impacts. This mitigation is recommended in Section 4.2.2.2. BPA will continue to work closely with the Forest Service to help mitigate a new line.

18-35

The objective on page III-107 reads: "Within five years of the Record of Decision, all existing roads, trails, culverts, fords and stream crossings within these lands would be inventoried and evaluated as to whether they meet management prescription goals. Those that do not meet management prescription goals would be scheduled for restoration or obliteration."

Two prescription goals stated on page III-107 of the revised forest plan would apply to the proposed project:

1. Minimize adverse effects to aquatic and riparian dependent species from past, existing and proposed management activities; and ...
3. Manage wood residue (natural and human-made), including firewood, to maintain or restore ecological health and function."

As part of project planning, BPA, with the help of the Forest Service, has evaluated all roads and stream crossings proposed to be used during construction and maintenance. Existing roads that are not in good condition would be upgraded to meet the prescription goals of the forest to minimize adverse effects to aquatic and riparian resources. Upgrades could include regrading roads, installing new or replacing culverts or bridges, armoring or eliminating existing fords, closing some roads or road sections not essential to the construction or maintenance of the transmission lines, and installing water bars or drainage ditches to minimize surface runoff to streams.

Proposed construction would remove a small amount of riparian vegetation to install new bridges or bridge replacement on existing roads, and new road stream crossings. This may directly affect aquatic or riparian resources. Overall removal of riparian vegetation would be very small in each watershed. See Sections 4.6, 4.7, and 4.8.

New roads would be designed and constructed to prevent adverse effects to aquatic and riparian resources. New roads would be constructed primarily in upland areas, outside riparian areas. However, four intermittent drainages (as shown on USGS maps) would need to be crossed by new roads. At these crossings, the minimum riparian vegetation would be removed to transport materials on the road (15 to 20 feet wide). All crossings and approaches to these crossings would be designed with measures such as appropriate siting, water bars, sediment control devices, etc. to minimize sediment transport to streams. Locations of all access, both existing and proposed roads, are shown on photomaps in Appendix C.

Timber removal as part of widening the existing right-of-way and construction of new access roads would be done in a manner which maintains or restores ecological health and function. All marketable timber would be removed using basic timber harvest best management practices. The remaining slash would most likely be left on site to degrade or be burned. BPA would coordinate closely with the Forest Service on timber removal. BPA does not believe that the proposed line would cause large woody debris to be carried to streams.

18-36

There would be no tree clearing in riparian zones, however riparian vegetation would be removed during bridge and road approach construction. The action would be in compliance with prescription 2.8.3 in the Revised Targhee Forest Plan. See Table 5-1, Targhee Forest Plan Management Prescriptions, for a discussion of the various goals and objectives for each prescription and how BPA would be consistent with them.

18-37

BPA has added this discussion in Section 2.6.

18-38

Since the DEIS was released, BPA has gathered more information on clearing, roads, creek crossings, gates, road closures, etc. during field trips and meetings with the Forest Service. The FEIS now includes this information in Chapter 2 and Appendix C. Additional impact information has been added to the resource sections in Chapter 4.

The Forest Service has reviewed the road system and recognizes that spur roads as drawn on the photomaps may move slightly during actual surveying.

In many meetings with the Forest Service, BPA has explained their intent to continue working with the Forest Service after the Record of Decision and through the clearing and construction phases. BPA would also work closely with the Forest Service on a Project Plan. The Project Plan has more detail on project design, construction specifications and standards, and additional mitigation.

18-39

BPA believes that the impact would be low. Nearly all of the new road construction would be in upland areas and have very little effect on hydrologic function or floodplains and stream

channels. There are five additional stream crossings (as shown on USGS maps) planned for the new temporary or permanent roads, and they all occur in intermittent or low flow channels (less than 1 cfs). Stream crossings would consist of either temporary or permanent bridges or culverts; no fords are planned through flowing streams. Bridges or culverts would be properly sized, designed, and armored so that they do not significantly affect stream flow or the stream gradient, and would minimize long-term sediment delivery. Bridge construction would disturb or remove some riparian vegetation, but large woody debris would not be carried into streams. See a more detailed description in FEIS Section 4.10.

18-40

We contend that with properly designed and located roads and stream crossings, overall native cutthroat habitat quality would not be appreciably reduced. More information is presented in Section 4.10 of the FEIS.

The standards and guidelines noted by the commentor are:

Standard and Guideline (watershed, general)

1. Not more than 30% of any principal watershed or their subwatersheds in hydrologically disturbed condition.

Standards and Guidelines - Fisheries and Aquatic Resources

1. Instream facilities must maintain minimum instream flows, provide fish passage, and screens to prevent loss of fish.

2. When reauthorizing existing special use permits for instream facilities, provide for minimum instream flow, fish passage, and screens to prevent loss of fish.

3. Within watersheds with native cutthroat trout or waters vital to meeting recovery goals, avoid activities which reduce habitat features (pool frequency, temperature, large woody debris, bank stability, lower bank angle, and width/depth ratio) below expected values or retard the rate of recovery of degraded habitat features.

4. Emphasize watershed analysis or site-specific analysis to more accurately define fisheries habitat features when planning or conducting management activities within Native Trout Watersheds.

5. Expected values may be adjusted based on field analysis or literature review.

Big Hole Mountains - Goals and Objectives - Fisheries, Water and Riparian Resources:

Goal - Channel stability would be rated at good to excellent for individual streams.

Objective - Improve stream channel stability rating to good or excellent by 2007 where natural conditions allow on South Fork, Packsaddle, Horseshoe, Superior, North Fork Mahogany, Main Mahogany, Henderson, Patterson, and Murphy Creeks.

No instream facilities are proposed that would affect flow (Forest Standards & Guidelines 1 and 2). No activities proposed would reduce habitat features below expected values or retard the rate of recovery of degraded habitat features (Forest Standard & Guidelines 3). No additional fish habitat analysis was conducted as part of the proposed project (Forest Standard & Guidelines 4). It is assumed that all streams with potential native trout habitat do provide habitat, and construction activities would incorporate best management practices to avoid or minimize potential impacts to fisheries resources. BPA does not propose to evaluate or attempt to adjust expected values (Forest S&G 5). Although the proposed project would not appreciably improve

stream channel stability in the drainages affected, neither would it hinder the attainment of the Big Hole goals and objectives for improved stream channel stability.

18-41

BPA is discussing several tree clearing options with the Forest Service. Options vary for selling the timber. BPA could provide the clearing design and specifications and the Forest Service could contract the sale. Or, BPA could contract the sale and reimburse the Forest Service for the value of the timber removed, minus the cost of removal. Although with the latest proposed clearing requirements, the amount of merchantable timber that would be removed has been dramatically reduced. Most of the trees that would be removed are small.

BPA will continue to discuss these options with the Forest Service and reach a mutually beneficial agreement.

18-42

Comment noted. This change has been made in the FEIS.

18-43

The influence of glaciation on the landscape was in reference to the southern Teton Range and Jackson Hole area, where the eastern portion of the project is located. This has been clarified in the FEIS.

18-44

The Snake River Range is identified on USGS 1:24000 scale quads and was the designation adopted for this northwest-trending range. The Snake River Range is dominated by a series of long parallel ridges separated by valleys. The project from Pine Creek to Trail Creek is located predominately within this range. Map 8, Soil Limitations, shows the approximate location of this range.

18-45

Because the Summary needs to be a short document, it does not contain all of the information found in the Draft and Final EIS. Impacts from road maintenance and clearing are discussed in the resource sections in Chapter 4. The relative amounts of soil disturbance, number of stream crossings, and the amount of land taken out of production are also discussed in the resource sections in Chapter 4.

18-46

See response to comment 18-45. Discussion of the SVC Alternative impacts is contained in each resource section in Chapter 4.

18-47

Additional text has been added to Chapter 4 in the FEIS.

18-48

Comment noted. This change had been made in the FEIS.

18-49

Please see response 18-43.



18-50

Since erosion rates vary from location to location depending on such variables as soil physical properties, slope length and steepness, vegetative cover, rainfall characteristics, and management practices, there is not one "normal" level for all locations. Therefore, the term "normal" erosion rate has been changed to "present" erosion rate where pre-construction erosions levels at a particular location are referred to.

18-51

Table 4-1 was intended to provide an overview of the many impacts to water and soil resources. Many of the concerns addressed in this comment are too specific to address in this table. Water temperature was not addressed in the table because impacts on stream water temperatures from clearing would be negligible. It was noted in the FYI sidebar in Chapter 4, Water Quality and Soils/Geology. The right-of-way crosses most streams at nearly a right angle. Additional clearing in forested areas for the new right-of-way would not expose long stretches of stream bank. New roads also tend to cross drainages at right angles and no streamside vegetation would be cleared for any considerable length. Additionally, clearing would not affect any lakes or ponds.

Concerns about compliance with state water quality standards and the revised Targhee Forest Plan are addressed in Section 4.6, Water Quality and Soils/Geology. Also, please see response 18-35. Wetlands are addressed in Section 4.7. The amount of soils removed from production by access road construction is also addressed in Section 4.6.

18-52

Please see response 18-51.

18-53

Please see response 18-51.

18-54

Changes have been made in Chapter 4.

18-55

See Section 4.7.2.2 for discussion of direct and indirect wetlands impacts.

18-56

Comment noted. See discussion in Section 4.7.2.2 Wetlands Impacts, and Section 5.16 Discharge Permits under the Clean Water Act.

18-57

Comment noted. See discussion in Section 4.7.2.3, Mitigation, and Table 5-1 which discusses the Targhee Forest Plan Management Prescriptions.

18-58

BPA has carefully reviewed the revised Forest Plan prescriptions for areas traversed by the project. It appears that the project is consistent with the new range of VQOs and ROS designations. Please refer to Map 25, dated April 1997, of the Forest Plan Revision for Targhee National Forest, Idaho and Wyoming.

18-59

1. BPA has worked closely with the Forest Service on survey timing and requirements. All surveys will be conducted per an Interagency Agreement with attached protocols jointly developed by the Forest Service and BPA in 1997.

2. Forest Service standards and guidelines would be followed where possible. However, most of the Forest Service standards and guidelines are oriented toward timber harvest, where planners have greater latitude to modify harvest units to accommodate threatened and endangered species. For the transmission project, where site-specific alternatives are more limited, site-specific management prescriptions may need to be developed in consultation with the Forest Service to protect nest sites or other sensitive features identified during pre-construction surveys.

3. BPA agrees, although mitigation does not necessarily require replacement of habitat. For example, mitigation for a nest site may sometimes be achieved by developing and implementing a site-specific management plan that takes into account site-specific topography, habitat, and other conditions in lieu of using the generic standards presented in the revised Forest Plan.

4. BPA would coordinate with the Forest Service regarding this issue during development of specific clearing plans and site prescriptions. This requirement, if applied to the project without regard to site-specific conditions, may not be appropriate. For example, many places where timber would be removed contain only small trees that are far too small to meet the definition of large woody debris. In addition, some conflicts may arise between leaving large woody debris for wildlife habitat while trying to meet fire management standards and guidelines. BPA is eager to maintain wildlife values within its transmission corridors, especially in ways that do not interfere with safe and reliable operation, such as retention of large woody debris where appropriate.

5. Please see responses 18-8, 18-9, and 18-12.

6. Comment noted.

7. Comment noted.

18-60

The purpose and need for the Forest Service in Chapter 1 has been combined.

18-61

Please see response 18-18.

18-62

Please see response 18-41.

18-63

Your comment is difficult to respond to without more detail. Existing motorized use is discussed in Section 3.3.1. Impacts to these resources are discussed in Section 4.3.2.1, along with the mitigation identified to “coordinate with each Ranger District to develop gaiting plans that would promote the types and levels of use desired at each access road.”

18-64

Table 5-1 in Chapter 5 lists all the Targhee Forest Plan Prescriptions on or adjacent to the new and existing line that could be affected by the line and access roads. The Goals and Objectives, Standards and Guidelines are summarized and how BPA plans to be consistent with them is listed.

18-65

Please see response 18-38.

18-66

The new routes you refer to in the Pine Creek area near the lodge are described in Chapter 2. Impacts are discussed in Chapter 4.

18-67

Map 11 shows this information.

18-68

The criteria BPA used to categorize impacts on wildlife as high, moderate, low, or none are outlined in Section 4.9.1 of the FEIS. BPA considers significance based on the CEO NEPA regulations, which discuss significance in terms of both context and intensity (40 CFR 1508.27).

In terms of context, the significance of the impact would be confined to the site of action. The impact is not significant in the context of the region or, on a smaller-scale, the Targhee National Forest, where less than 31 hectares (77 acres) of forest lost is negligible in terms of the projected 20,520 acres that will be harvested over the next 10 years on the Forest (as projected in the revised Forest Plan). So, in terms of context, BPA views the loss of conifer forest as localized and, therefore, does not consider it a “high” level of impact.

In terms of intensity (severity of the impact), the conifer forest that would be lost is a relatively common habitat type within the watersheds of the project area. In general, an impact on an exceedingly rare community type, such as one that provides critical habitat for a threatened or endangered species listed under the Endangered Species Act, is considered significant in terms of intensity. Please see the CEO regulations, which outlines 10 criteria to be considered in evaluating intensity. The impact of forest removal for the Agency Proposed Action does not meet these criteria (40 CFR 1508.27).

It is true that many sensitive species use coniferous forest, but because this forest type is one of the most common habitats present within the watersheds where the project would occur, BPA does not consider this a high intensity impact. Many species referred to in the comment are in trouble because of changes in forest structure that have occurred from other human influences. The majority of coniferous forest that would be lost because of the transmission line consists of dense stands composed of small lodgepole pine, Douglas-fir, and other conifers. This habitat type is the result of decades of fire suppression that has caused landscape level changes in forest stand composition and habitat loss for forest dependent species. For instance, much of the coniferous forest that would be lost as a result of the proposed transmission line is much too small to be of use to many of the sensitive species referred to in your comment, and much of the forest is so densely stocked that northern goshawks and flammulated owls would have difficulty navigating within them.

The cleared right-of-way would still provide wildlife habitat, including habitat for several sensitive species. For example, northern goshawk and great gray owl are known to forage along forest clearings. Small mammal populations may be higher as well, partly because food would be more abundant in the new right-of-way than in the densely stocked forest stands present now.

These factors need to be considered when evaluating the significance of impacts on wildlife and, in consideration of these factors and the criteria established in the EIS, BPA believes that the loss of conifer forest does not constitute a “high” level of impact in terms of context and intensity.

The DEIS identified lost production or use of renewable resources, such as timber, as an irretrievable loss. However, BPA considered the loss not to be irreversible because management direction could change and return lost lands to producing timber and associated wildlife habitat. Nevertheless, because of the long-term purpose and need of the project, it is reasonable to expect that the line would remain indefinitely. Therefore, this impact has now been identified as an irreversible commitment of resources as well.

BPA typically mitigates impacts on species listed under the Endangered Species Act or other unique habitats, such as wetlands. BPA does not typically mitigate impacts on relatively common habitat types. As stated above, BPA does not believe the loss of coniferous forest represents a high level of impact.

BPA lists mitigation measures in the FEIS.

18-69

The source of the EIS information relating to fish habitat condition in the Pine Creek drainage was from a U.S. Forest Service environmental assessment of several grazing allotments, including grazing allotments in the Pine Creek drainage (U.S. Department of Agriculture, Forest Service, 1996a). In discussing fish habitat conditions in the Pine Creek drainage, the EA states on page 29, paragraph 5, that the “fisheries habitat condition has been rated poor to fair through these reaches.” Though habitat conditions were rated poor to fair, this EIS acknowledges that Pine Creek does provide a significant portion of spawning habitat for Snake River populations of cutthroat trout.

18-70

Information in the EIS relating to beaver activity contributing to sedimentation problems in the Pine Creek drainage came from the same cattle allotment EA discussed under the response to Comment 18-69. The Forest Service states on page 29, paragraph 6, that “a short reach just above North Pine Creek shows an increase in sediment deposition due to a series of beaver dams.”

The comment regarding sediment problems (i.e., Tie Canyon) is noted. Road upgrades and new roads would be designed to minimize construction-related and long-term sediment transport to streams. For instance, after visiting Tie Canyon several times, the Forest Service and BPA recognized the need to control sediment from entering the creek. The existing bridge coming off the highway would be used for construction and the road up to Tie Canyon would be re-rocked. A new bridge would be installed to span the drainage and the alignment of the road would be altered slightly to bring the road up out of the drainage.

Road access to existing structures already exists for over 80 percent of the line. BPA would need to construct about 4.5 km (2.8 miles) of new road to access 2.7 km (1.7 miles) of new road and existing roads within the right-of-way. This includes about four or five new, short access roads from the main highways. BPA would need to construct about 7.3 km (4.5 miles) of short spur roads within the right-of-way to site new structures.

Additional site-specific information and analysis of road locations and potential impacts is provided in Chapters 2 and 4. Existing and proposed new roads are shown in Appendix C.

18-71

- Please see response 18-38.

18-72

BPA completed a study of recreation issues along Teton Pass. The potential positive impacts to yo-yo skiing/snowboarding are in Section 4.3.2.1.

18-73

Please see response 18-16.

18-74

Please see response 18-38.

18-75

BPA briefly analyzed the alternative of burying the transmission line but dismissed it from further consideration because of its high cost. This is explained in Section 2.6.5. As you suggest, BPA has stated the reason for dismissal in the first paragraph of the discussion instead of waiting to state it in the last paragraph of that section.

18-76

The population of the project area is discussed on page 3-31 and 3-32 of the draft EIS in the Socioeconomics Section. Specifically Section 3.13.1, Population, discusses the population of the project area including Teton County. The information for this discussion was obtained from a number of sources including the U. S. Department of Commerce, Bureau of the Census, 1993; the Idaho Department of Employment, Research, and Analysis Bureau, February 1996; and the Wyoming Department of Administration and Information, Division of Economic Analysis, 1995. This same information is in the FEIS.

18-77

Please see responses 18-18 and 18-23.

BPA proposes removing trees off the new right of way only where they are diseased or leaning toward the line and might fall into the line and cause an outage or fire.

18-78

BPA has worked with the Forest Service to identify appropriate mitigation and it is identified in the FEIS. BPA will develop a Mitigation Action Plan after the Record of Decision as required by the National Environmental Policy Act and Department of Energy Regulations implementing NEPA.

18-79

This has been clarified in the FEIS.

18-80

The proposed project would pass through two cattle and two sheep allotments on the Targhee National Forest. No grazing allotments would be affected on the Bridger-Teton National Forest. Please see response 18-25.

18-81

BPA would work with the Forest Service to develop the method of tree disposal or removal, and if merchantable, how the timber is marketed. If it is possible to open up areas for firewood gathering by the public, clearing would have to be completed in one short summer season and the right-of-way would need to be left in the best condition possible for construction activity. BPA would work with all parties to ensure that the appropriate number of trees are removed from the right-of-way to lessen visual and erosion impacts. If trees are removed commercially during a timber sale, the activity would be coordinated with affected parties so as not to interfere with the general clearing contractor.

18-82

The text in the FEIS has been revised.

18-83

The text in the FEIS has been revised. Surveys will be completed in 1998.

18-84

BPA has worked closely with the Forest Service on survey timing and requirements. All surveys will be conducted per an Interagency Agreement with attached protocols jointly developed by the Forest Service and BPA in 1997.

18-85

Please see response 18-84.

BPA will send the biological evaluation to the Forest Service for their review.

BPA received a memo from the Forest Service dated September 11, 1997 that drops the date of July 15 as to when ground disturbing activities could begin.

Forest Service Standards and Guidelines would be followed where possible. BPA has not completed all surveys yet but anticipates that if nests are found, all Forest Service Standards and Guidelines for certain nesting species will not be met. Most of the Forest Service Standards and Guidelines are oriented toward timber harvest, where planners have greater latitude to modify harvest units to accommodate species. For transmission lines, where site-specific alternatives are more limited, site-specific management prescriptions (in lieu of using the generic standards presented in the revised Forest Plan) that take into account site-specific topography, habitat, and other conditions may be more appropriate and may need to be developed in consultation with the Forest Service to protect nest sites or other sensitive features identified during pre-construction surveys.

As per the Interagency Agreement detailing wildlife surveys, GPS will not be used in the survey. Locations will be identified on maps provided by the Forest Service.

Site-specific mitigation if required will be determined by BPA and the Forest Service in conjunction with other interested parties.

18-86

Please see response 18-18.

In general, an additional 12 m (40 feet) of new right-of-way would be needed for a new parallel line. Clearing outside this area would only be done where trees are diseased or leaning towards the line and are tall enough to possibly fall into the conductor and cause an outage or fire.

18-87

This information has been added to Section 2.1.4.

18-88

The text has been revised in the FEIS. Also, snowmobiling is described under motorized recreation in Section 3.3.1.

18-89

The specific requirements for gates, including allowing passage for horses, bikes, etc., would be determined by BPA and the Forest Service at each site.

18-90

Please see response JPM-44. This will be done.

18-91

The purpose of this project is to provide better, more reliable, service to Lower Valley's service territory. The primary intent was not focused to improve service to Fall River's service territory, which includes Teton Valley, Idaho.

The Agency Proposed Action and the Single-Circuit Alternative would not provide obvious benefits to Fall River. However, for certain outages and after crews have had time to open and close certain switches and breakers, Fall River would experience slightly better voltages on their system.

The Short Line Alternative that includes development of a new switching station would offer the most benefit to Fall River. There would be fewer unplanned outages due to faults on the existing Swan Valley-Teton line and the Goshen-Drummond line.

The SVC alternative would not provide significant benefits to Fall River. Fall River would have slightly better voltages for certain outages, specifically the Palisades-Snake River 115-kV line outage or the Swan Valley-Teton 115-kV line outage.

19-1

BPA granted a 30-day extension of the Draft EIS public comment period to the Lake Creek II Homeowners and those groups they chose to involve. The public comment period closed September 11, 1997.

21-1

BPA placed Mr. Speyer on the mail list and sent him the requested information.

22-1

BPA granted the 30-day extension of the Draft EIS public comment period to the Lake Creek II Homeowners and those groups they chose to involve. BPA understood that Teton County was one of the groups that Lake Creek II Homeowners intended to involve. The public comment period closed September 11, 1997.

23-1

Please see response 11-1.

23-2

Please see response 11-2. Also, restrictions are mentioned in Chapter 4.

23-3

Additional information regarding deer, elk, and moose winter range has been added to the FEIS in response to your comment. About 24 km (15 miles) of the 58 km (36 mile) line, or 41 percent, is within winter range. Please note that the Wildlife Report (now Appendix G) has not been revised because it is included as a background report and not as a replacement for the FEIS. As a matter of efficiency, BPA is responding to public comments directly in the FEIS and not in the background material used to develop the DEIS.

23-4

Your concerns were addressed in the DEIS, which noted that wintering deer, elk, and moose could be disturbed by construction noise and activity in the Swan Valley and Jackson areas (pages 4-55), as well as potentially disturbed by recreationists using new access roads created by

the project. BPA concurs with IDGF that this could be a significant impact and, therefore, this topic was addressed in the EIS. BPA also concurs that this impact is avoidable and identified appropriate mitigation in the DEIS and FEIS.

There would be no construction during the crucial period of November 15 and April 30 in delineated deer/elk winter range.

23-5

Where the Forest Plan directs limiting motorized vehicles, BPA would coordinate with the Forest Service on gates for roads.

BPA's maintenance crews and the Forest Service meet on a regular basis in Idaho Falls to discuss ongoing and upcoming maintenance needs and activities. BPA invites the IDFG to contact the Targhee National Forest or BPA maintenance crews in Idaho Falls to become involved in those meetings.

Because of the short construction window, construction activities need to take place after August 30 until the weather makes these activities impossible. BPA can work with agencies to schedule certain activities at certain times or in certain locations to try and avoid the fall big game hunts.

23-6

Comment noted. Option D uses double-circuit structures and is now the preferred route through Pine Creek.

23-7

All streams that have been identified as critical to fish would be crossed either by bridge or appropriately designed culvert. Fish passages would not be blocked or impeded.

23-8

BPA would reseed disturbed sites with an appropriate seed mixture as recommended by the Forest Service.

23-9

There is much debate about the distinction of forms of Yellowstone cutthroat trout. Forest Service biologists indicated that Yellowstone cutthroat present in streams along the project are the fine-spotted form. However, we have changed the text in the FEIS to Yellowstone cutthroat (the fine-spotted form).

23-10

Please see response 18-18.

The amount of timberland that would be removed has been revised. The new figure is 25 hectares (62 acres) and includes timber removed for an additional average 40 feet of new right-of-way. About 6 hectares (15 acres) will be removed for new access roads off right-of-way. All spur roads would be within the additional 40 feet of new right-of-way and would average about 100 feet in length. Map 9 shows vegetation crossed by the line. In addition to timberland, agricultural land, mountain brush, and grass brush forb and sage would be disturbed.

23-11

Neither the Northwest Electric Power Planning and Conservation Act of 1980 nor other federal laws governing BPA require the full mitigation for lost habitat sought by this comment. Section 4(h)(1)(O)(A) of the Act directs BPA to protect, mitigate, and enhance fish and wildlife affected by the construction and operation of the federal hydroelectric dams in the Columbia



River Basin. 16 U.S.C. 839b(h)(10)(A). Mitigation for transmission projects was not required in the Act. Even if such mitigation is proposed in the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program, BPA is guided, not directed, by the Council and can choose not to implement this measure. If IDFG submits this project to the Council's regional prioritization process and it is recommended for funding by the Council, BPA could consider funding it as part of the BPA fish and wildlife budget in the 1996 Fish Budget Memorandum of Agreement.

23-12

See Section 4.9.2.2 for wildlife mitigation. Mitigation includes no construction during winter in big game winter range (from November 15 to April 30), using marker devises on the transmission line in critical avian flight paths, minimizing new road construction, and following Forest Plans on road closures to motorized vehicles at any time of the year. Also, paralleling the existing transmission line would minimize the amount of critical habitat lost.

For more information, please see response 23-11.

24-1

BPA appreciates the information the Trumpeter Swan Society has provided.

Your comment states that Appendix D in the DEIS (now Appendix G in the FEIS) contains inaccuracies. BPA compared your description of trumpeter swans in the project area with the appendix and did not find the discussion to differ significantly from yours. Most of the information presented in your letter was collected since the appendix was prepared. This information was regarding trumpeter swan activity in the region and outside the area of the project's influence, and although appreciated, the information was not included in the FEIS.

The primary concern regarding the project and its consequences on trumpeter swans are (1) disturbance of nesting trumpeter swans and (2) the potential for trumpeter swans to fly into lines. Because the additional information you provided did not identify any nest sites that may be disturbed or any new information regarding collisions, BPA did not see a need to revise information in the DEIS.

24-2

Please see response 24-1.

24-3

Please see response 24-1.

24-4

Please see response 24-1.

24-5

Please see response 24-1.

24-6

Please see response 24-1.

24-7

Section 3.10.2 in the FEIS references the use of Pine Creek as a likely travel corridor for trumpeter swans.

24-8

Please see response 24-1.

24-9

BPA addressed concerns regarding potential trumpeter swan collisions with the new transmission line by proposing that marker balls be installed as you recommended. Marker devices would be used in critical avian flight paths. BPA would work with the Forest Service, IDFG, and the WGF to explore using different marker devices, including marker balls.

25-1

At the July 24 meeting with the Lake Creek II Homeowners Association, BPA agreed to provide visual simulations of the existing condition at Teton Substation, the overhead option, and the 22 m (400 ft.) underground option into Teton Substation. These simulations were given to the Homeowners via Rick Khori at Lower Valley Power and Light. They were also sent to the Homeowner's Association. BPA did not agree to provide models or specifications. Cost estimates for the alternatives are in the DEIS and FEIS. The July 24 meeting was taped by the Homeowners and BPA requested a copy of the tape from the Homeowners to clarify what was agreed to. BPA has not received a copy of the tape from the Homeowner's Association.

26-1

The text has been changed in the FEIS.

27-1

Please see responses 27-8, 27-9, 27-11, 27-12, 27-13, 27-17 to 27-29.

27-2

Please see responses 27-8, 27-12 to 27-16.

27-3

Please see responses 27-9, 27-15, 27-17 to 27-21.

27-4

Please see responses 27-21, 27-23, 27-24, 27-25.

27-5

Please see responses 27-7 to 27-29.

27-6

Please see responses 27-7 to 27-29.

27-7

Please see responses 27-8 to 27-29.

27-8

You are correct. Relocation of Teton Substation was not considered in the Draft EIS. It is now included in the FEIS in Section 4.2.2.2 as visual mitigation considered but not preferred.

27-9

The FEIS discussions on noise impacts, EMF, visual impacts, and property values are in Sections 4.5.3, 4.5.2, 4.2.2, and 4.12.2.7, respectively. The FEIS also discusses opportunities to minimize impacts in these areas.

Noise: BPA would design the SVC to meet Teton County and Town of Jackson standards. A new line would not create additional noise so no mitigation is offered.

EMF: None of the transmission line alternatives are expected to increase the magnetic field environment at the residences near Teton Substation. This is because any new equipment additions (which are similar to existing equipment within the substation) would be located at the far side of the substation away from the residences. Since magnetic fields decrease rapidly with distance, contributions to residences from these new sources would be substantially less than the contributions from the existing transmission line and substation equipment, which are located much closer to residences.

If the SVC alternative is selected, the specialized SVC equipment would result in an additional, and somewhat unique, magnetic field source within Teton or Jackson substations. While BPA has no specific magnetic field information available related to the 115-KV SVC equipment proposed for this project, BPAs experience with 500-KV SVC equipment suggests the fields could be a much larger contributor to the magnetic field environment within the substation fence than the standard equipment associated with the transmission line alternatives or existing facilities. Increases to nearby residences are therefore possible, and the amount of any potential increase at either site would depend on the design, location and operating modes of the SVC equipment. Like the transmission line alternatives, the SVC is proposed to be located on the far side of the substation away from residences (see Figure 2-7.)

Visuals: Visual mitigation is identified in Section 4.2.2.2. BPA has identified as its preferred mitigation to design and implement a landscaping plan and use the landscaping plan prepared by Verdone Landscaping Architects and submitted by the Lake Creek II Homeowners Association during scoping to aid in that effort.

Property Values: New land rights needed across private landowners' property for transmission line right-of-way or access roads would be acquired as easements. New land rights needed for the switching station (Short Line Alternative) or the SVC Alternative at Jackson would be acquired in fee. Landowners would be offered fair market value for the easements or fee acquisitions established through the appraisal process.

The appraisal process takes all factors affecting property value into consideration including the impact of the transmission lines on property value. It may also reference studies conducted on similar properties to add support to valuation considerations. The strength of any appraisal is dependent on the individual analysis of the property, using neighborhood and specific market data to estimate fair market value.

BPA does not predict long-term adverse effects on property values along the existing right-of-way.

27-10

In the early planning stages of this project, BPA did a cost/benefit studies of the alternatives. These analyses were focused primarily on business objectives, though societal costs are factored into the equation. These studies allowed BPA to choose which alternatives to analyze further.

If a transmission line is built, as load continues to grow in the Jackson area, the whole community would benefit. Blackouts would be prevented and the financial and social disruption they can cause would not occur. All members of the community who use electricity would benefit, so the entire community would pay for this facility through electricity rates.

It is very difficult for BPA to get right-of-way for a new transmission facility. BPA prefers to build next to existing facilities whenever possible. BPA built Teton Substation in 1968, locating it well away from neighborhoods. Since that time, property owners have chosen to buy and build homes next to the transmission line and substation.

As the Jackson area grows, additional infrastructure will be needed. For example, one part of town may need to accommodate a new sewage facility or trash transfer station, another may need to accommodate a new or upgraded transmission facility or road expansion. Property owners near or next to these facilities may experience direct impacts. Others that live away from the facility may experience indirect impacts. BPA and Lower Valley have allocated money to mitigate impacts. While this money originates from all ratepayers, property owners immediately surrounding Teton Substation, for example, would benefit the most, if not solely, from mitigation at Teton Substation.

27-11

You are correct. At the time the DEIS was distributed, BPA had not identified specific actions to mitigate for impacts around Teton Substation. The FEIS now identifies more specific mitigation.

27-12

Please see response 27-8. Also, consideration of underground technology is in Section 2.6.5. It is also included as mitigation considered for visual impacts near Teton Substation but not preferred in Chapter 4.

27-13

Please see response 27-8. Because of its extremely high cost, relocation of the substation is not feasible.

27-14

Undergrounding the last 1-2 miles of transmission line from Fish Creek Road to Teton Substation was not considered as an alternative by itself in the Draft EIS but it was discussed as part of Burying the Transmission Line in Section 2.6.5 of the Draft EIS. The discussion identified the cost of burying a transmission line in flat agricultural land with deep soils and few outcrops, similar to the terrain found in the last 1-2 miles of transmission line from Fish Creek Road to Teton Substation.

BPA has now identified undergrounding the transmission line from Fish Creek Road to Teton Substation as mitigation in Section 4.2.2.2. New estimates have been done and the cost of undergrounding a single-circuit line is \$1,300,000 - \$2,900,000. Putting both circuits underground would cost about \$2,600,000 - \$5,300,000. These estimates do not include any costs for land. Because of the high cost, BPA has not identified undergrounding the line to be a preferred mitigation for visual impacts.

27-15

Overhead termination of the line is described in Section 2.1.5 of the Final EIS. The remaining options are now identified as mitigation, although not preferred, in Chapter 4. These alternatives and others suggested as mitigation for visual impacts are listed and briefly described in Chapter 4.

27-16

The Underground Termination Option in the DEIS is now identified in the FEIS as mitigation, although not preferred. Because of its high cost and limited ability to mitigate for visual impacts, BPA prefers to implement a landscaping plan rather than undergrounding the line. The cost for undergrounding the line into the substation would not be unconditionally committed to the Homeowners for their use.

BPA will document its final decision regarding the alternatives in the Record of Decision. BPA will make its decision based on the input from Lake Creek II through the public involvement process and other public comment. BPA is not familiar with the “Teton Substation Mitigation Action Plan.” BPA will prepare a Mitigation Action Plan as required by Department of Energy guidelines and procedures implementing NEPA following the Record of Decision. If a line alternative is chosen, the plan will describe mitigation that will be implemented across the entire project, including Teton Substation. If the SVC Alternative is chosen and placed at Teton Substation, the mitigation action plan would focus mostly, if not entirely on the area surrounding Teton Substation.

27-17

Please see response 27-9.

27-18

Concerning the questions related to substation noise, please refer to sections 3.5.2.2 and 4.5.3.3 in the EIS and responses JPM-54 and 55.

Quantitative magnetic field analyses for substations are complex, expensive, and time consuming, and were therefore not attempted for this project. However, none of the transmission line alternatives are expected to increase the magnetic field environment at the residences near Teton Substation. This is because any new equipment additions (which are similar to existing equipment within the substation) would be located at the far side (west side) of the substation away from the residences. Since magnetic fields decrease rapidly with distance, contributions to the residences from these new sources would be substantially less than the contributions from the already existing transmission line and substation equipment, which are located much closer.

However, if the SVC alternative is selected, the specialized SVC equipment would result in an additional, and somewhat unique, magnetic field source within Teton or Jackson substations. While BPA has no specific magnetic field information available related to the 115-kV SVC equipment proposed for this project, BPAs experience with 500-kV SVC equipment suggests the fields could be a much larger contributor to the magnetic field environment within the substation fence than that from the standard equipment associated with the transmission line alternatives or existing facilities. Increases to nearby residences are therefore possible, and the amount of any potential increase at either site would depend on the design, location and operating modes of the SVC equipment. Like the transmission line alternatives, the SVC is proposed to be located on the far side of the substation away from residences. This is shown in Figure 2-7.

BPA is required to conduct environmental analysis on all reasonable alternatives. If an alternative is considered unreasonable, BPA will dismiss it from further consideration without conducting detailed environmental analysis.

27-19

Comment noted. Please see response 27-20.

27-20

As stated in Appendix L, new land rights needed across private landowners' property for transmission line right-of-way or access roads would be acquired as easements. New land rights needed for the switching station (Short Line Alternative) or the SVC Alternative at Jackson would be acquired in fee. Landowners would be offered fair market value for the easements or fee acquisitions established through the appraisal process.

The appraisal process takes all factors affecting property value into consideration including the impact of the transmission lines on property value. It may also reference studies conducted on similar properties to add support to valuation considerations. The strength of any appraisal is dependent on the individual analysis of the property, using neighborhood and specific market data to estimate fair market value.

27-21

A discussion of visual impacts is in Section 4.2.2.1. A discussion of property values is in Section 4.12.2.7 and Appendix L (Appendix G in the DEIS). A discussion of mitigation alternatives for visual impacts is in Section 4.2.2.2. A new landscaping plan that incorporates the landscaping plan prepared by Verdone Landscaping Architects during scoping is identified as preferred mitigation for visual impacts. BPA does not believe that long-term impacts to property values would occur.

27-22

BPA's course of action is consistent with the level of relevant science and consistent with its EMF strategy which states: "...Transmission facilities would consider EMF as an important factor with other design and siting factors for new and upgraded transmission facilities. BPA would take reasonable low-cost steps to minimize field exposure for these facilities while taking into account operation and maintenance considerations."

27-23

You are correct. At the time the DEIS was distributed, BPA had not identified specific actions to mitigate for impacts around Teton Substation that would be caused by this proposal. BPA has now proposed to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation. This plan will incorporate the landscaping plan prepared by Verdone Landscaping Architects during scoping and submitted by Lake Creek II to BPA during scoping.

27-24

At the time the DEIS was distributed, Lake Creek II had verbally accepted the \$60,000 offer made by BPA to mitigate for impacts caused by past additions in 1994 and 1995 at Teton Substation. BPA assumed that landscaping would be planted in spring and early summer 1997, hence the wording in the DEIS. After DEIS distribution, Lake Creek II informed BPA they would not accept the offer, making BPA's reference to landscaping in the DEIS completely inaccurate as noted. Since submitting comment letter 27, Lake Creek II Homeowners accepted the \$60,000 offer with an attachment to the contract listing certain provisions. BPA was not able to accept those provisions and could not sign the contract. BPA has now proposed as preferred mitigation to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation. This plan will incorporate the landscaping plan prepared by Verdone Associates during scoping and submitted by Lake Creek II to BPA during scoping.

Because the 1994 and 1995 additions to Teton Substation were previously covered under the National Environmental Policy Act process and BPA is now proposing as its preferred mitigation to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation, there is no need to mention the 1994 and 1995 additions in the Final EIS.

27-25

As stated in Chapter 4, BPA recognizes a potential for moderate or high impact to residences surrounding Teton Substation. Snow piles are not mentioned anywhere in Chapter 4 in the discussion of impacts or mitigation.

Snow piles created from the clearing of snow from residential streets are mentioned in Chapter 3, Affected Environment. This chapter is meant to describe the environment that may be affected by the project. Chapter 3 does not describe impacts or mitigation.

27-26

If the SVC is chosen to meet the need for this project, a full design of the facility would be done. Designs that mitigate for noise would be done to meet Town of Jackson and Teton County noise regulations. BPA recognizes that the specialized SVC equipment would result in an additional, and somewhat unique, magnetic field source within Teton or Jackson substations. While BPA has no specific magnetic field information available related to the 115-KV SVC equipment proposed for this project, BPA's experience with 500-KV SVC equipment suggests the fields could be a much larger contributor to the magnetic field environment within the substation fence than that from the standard equipment associated with the transmission line alternatives or existing facilities. Increases to nearby residences are therefore possible, and the amount of any potential increase at either site would depend on the design, location and operating modes of the SVC equipment. Like the transmission line alternatives, the SVC is proposed to be located on the far side of the substation away from residences. This is shown in Figure 2-7.

27-27

Comment noted. The SVC is not the Agency Proposed Action. Teton Substation remains the preferred site for the SVC Alternative.

27-28

Comment noted. Please see responses 27-1 to 27-27.

27-29

BPA has responded to the Freedom of Information Act request from the Lake Creek II Homeowners Association. In a letter from BPA to the Homeowners dated September 19, 1997, BPA agrees to provide the Homeowners with information after they have agreed to pay for their request and have clarified their request for BPA. Lake Creek II Homeowners have not responded to this letter.

BPA did grant a 30-day DEIS public comment period extension to Lake Creek II Homeowners and those they chose to involve which ended on September 11, 1997.

Unfortunately, BPA cannot grant another extension of the DEIS public comment period because of the need to keep the process on schedule.

28-1

The studies for the impact of transmission lines on property values did include properties adjacent to substations, but the impact to these specific properties was not isolated in these studies.

Although these studies were not located in the Jackson area, any new land rights (either easements or fee acquisitions) that need to be acquired would follow the appraisal process identified in Appendix L using local area data.

28-2

The "Summary of Biological and Epidemiological Studies Relating to EMF" in Appendix D of the EIS is intended to summarize briefly the large body of research on EMF. As indicated in the Appendix, much more detailed information can be found in two BPA publications: *Electrical and Biological Effects of Transmission Lines: A Review* (1996), and *Electric Power Lines: Questions and Answers on Research into Health Effects* (1995). These publications are available upon request. BPA believes this information adequately summarizes the research related to EMF health concerns.

BPA also believes reasonable low-cost steps have been taken to minimize EMF exposure to residences near Teton Substation. New equipment additions for the alternatives (including the Agency Proposed Action) would be installed at the far side of the substation away from the residences.

For more information, please see response 27-18.

28-3

Utility infrastructure was added at Teton Substation in 1994 and 1995. In 1994, BPA installed a 115-KV line terminal addition, and installed two capacitor groups in 1995. Because these additions were installed within previously developed areas (inside the substation yard), BPA determined that these actions complied with Section 1021.410 of the Department of Energy National Environmental Policy Act (NEPA) regulations (April 24, 1992) and were categorically excluded from further NEPA review and documentation. A copy of this documentation and pertinent sections of the regulations were sent at their request as an attachment to a letter to the Lake Creek II Homeowners Association dated June 12, 1996.

BPA analyzed and identified the environmental impacts of the proposal on the surrounding natural and urban environment. Environmental impacts are determined by resource specialists who analyze present conditions with proposed changes as described in each of the alternatives. For example, at Teton Substation the specialists analyzed the present condition, which includes the additions described above and proposed changes. BPA also recognizes that its proposed actions do have cumulative impacts on the surrounding natural and urban environment. Discussions of these impacts are found in the resource sections. As you point out, the cumulative impact discussion for land use is in Section 4.1.2.3. To help mitigate for the low, moderate, or high impacts, as well as cumulative impacts identified in the resource sections, BPA has identified and listed mitigation in each resource section.

28-4

At this time, BPA is not aware of any reasonably foreseeable plans to expand Teton Substation. Though BPA does recognize that each of the alternatives include future planning actions (see Chapter 2), those actions are highly dependent on many uncertainties: future load growth, advances in technology, energy conversion to renewable resources, future customer needs, etc. (see Section 1.7.1). It is possible they may not occur when predicted. The EIS recognizes that these future planning actions are outside the scope of this EIS and would be studied in more depth later if they became less speculative. Potential impacts would likely be studied in subsequent environmental documents.

The Agency Proposed Action would be built to solve a reliability problem (specifically voltage instability) caused by present demands on the system, and would create additional capacity. This capacity, combined with other infrastructure needed for development, could accommodate residential and commercial expansion. Section 4.12.2.10 has been added to the Socioeconomic resource section to recognize potential cumulative impacts from residential and commercial development.

28-5

You are correct. The DEIS incorrectly characterized a landscaping plan. At the time the DEIS was distributed, Lake Creek II had verbally accepted the \$60,000 offer made by BPA to mitigate for impacts caused by past additions in 1994 and 1995 at Teton Substation. BPA assumed that landscaping would be planted in spring and early summer 1997, hence the wording in the DEIS. After BPA distributed the DEIS, Lake Creek II informed BPA they would not accept the offer. Since submitting comment letter 27, Lake Creek II Homeowners again



accepted the \$60,000 offer (this time in writing) with an attachment to their letter of acceptance listing certain new provisions. The suggested new provisions were unacceptable to BPA. BPA has now proposed to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation. This plan will incorporate the landscaping plan prepared by Verdone Landscaping Architects during scoping and submitted by Lake Creek II to BPA during scoping.

Please also see response 28-3.

28-6

BPA believes that design and placement of new structures would help mitigate visual impacts.

As stated in response 28-5, BPA has now proposed to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation. This plan will incorporate the landscaping plan prepared by Verdone Landscaping Architects during scoping and submitted by Lake Creek II to BPA during scoping.

28-7

Please see response 27-25.

28-8

BPA does recognize that some short-term adverse impacts on property value and salability along the proposed new ROW may occur on individual properties. However, these impacts are highly variable, individualized, and not predictable. BPA does not expect overall long-term adverse effects on property values along the existing ROW and therefore did not recommend any mitigation.

BPA recognizes that the state of scientific evidence relating to EMF has not yet established a cause-and-effect relationship between electric or magnetic fields and adverse health effects. As stated in response 28-2, BPA believes reasonable low-cost steps have been taken to minimize EMF exposure to residences near Teton Substation. This is done by locating the new equipment additions for the transmission line alternatives (including the Agency Proposed Action) at the far side of the substation away from the residences. For more information, please see response 27-18.

28-9

BPA thoroughly analyzed all reasonable alternatives identified in Chapter 2. Other alternatives were considered and eliminated from detailed consideration (see Section 2.6). As you correctly state, conservation was considered, but was eliminated because the amount of conservation savings is too low to meet the need for this project. BPA, through Lower Valley, has accomplished 3.305 average megawatts of conservation savings. These savings most likely helped delay the need for this project in the past but growth in the Jackson area has been too great for present conservation efforts to keep up with demand.

BPA no longer provides conservation funding to Lower Valley, but Lower Valley is working with the Town of Jackson Building Department to develop building codes that include conservation measures such as insulation in buildings.

BPA is confident that as conservation technology improves and Jackson residents choose to spend more money to implement these technologies, Lower Valley would help find the best ways to integrate the technology into the community and possibly delay the need for future projects of this size. However, such measures would not replace the need for this project.

28-10

Please see response 27-14.

29-1

1. Relocation of the Teton Substation is identified as mitigation to lessen visual impacts, but it is not preferred. It is described in Section 4.2.2.2.

2. Undergrounding the existing and new transmission lines into Teton Substation is identified as mitigation, although not preferred, to lessen visual impacts. It is described in Section 4.2.2.2.

3. Using low profile equipment at Teton Substation that reduces the height and girth of the substation is identified as mitigation, although not preferred, to lessen visual impacts. It is described in Section 4.2.2.2.

4. Please see response 29-1, #3.

5. BPA has added more information on noise in Sections 3.5.2 and 4.5.3 and included a noise report as Appendix E.

29-2

Please see response 29-1, #1.

29-3

Please see response 29-1, #2 and #3.

29-4

Please see response 29-1, #3.

If the SVC Alternative is chosen, a site-specific plan would be prepared that includes appropriate mitigation. BPA recognizes that the SVC would be an additional noise source at either substation. BPA would design the SVC to meet Town of Jackson and Teton County noise regulations. BPA cannot agree at this time that housing the SVC in an enclosed structure would minimize visual impacts and effectively eliminate noise impacts to the surrounding areas. Until BPA does a full design of the facility and determines the final location, specifications, and operating modes of the equipment, appropriate detailed mitigation cannot be determined.

29-5

Appendix G in the DEIS (now Appendix L in the FEIS) of the DEIS contained results of a study entitled *Residential Property Values along BPA Transmission Lines*, that BPA completed in 1995. The -1.05% to 1.46% information contained in this report reflects property value decreases or increases reported in the Portland, Vancouver, and Seattle areas. BPA was not making any comparisons to the Jackson area.

The studies for the impact of transmission lines on property values did include properties adjacent to substations, but the impact to these specific properties was not isolated in these studies.

Any new land rights (either easements or fee acquisitions) that need to be acquired would follow the appraisal process identified in Appendix L using local area data.

29-6

Comment noted. Please see response 29-1.

29-7

Comment noted.

29-8

Comment noted. Please see responses 29-1 and 29-3.

29-9

Comment noted. Please see responses 28-3 and 29-5.

30-1

Please see responses 27-1 to 27-6.

31-1

Mitigation that potentially lessens the visual impacts to the area surrounding Teton Substation is now included in Chapter 4, Section 4.2.2.2. Reducing the superstructure of Teton Substation and undergrounding the last 122 m (400 feet) of transmission line into Teton Substation are included as mitigation, although not preferred.

31-2

Please see response 28-3. BPA has identified mitigation for visual impacts. The landscaping plan is identified as BPA's preferred mitigation alternative to lessen the visual impacts surrounding Teton Substation.

31-3

BPA will prepare a Mitigation Action Plan as required by the Department of Energy Guidelines implementing NEPA following the Record of Decision. If a line alternative is chosen, the plan will describe mitigation that will be implemented across the entire project, including Teton Substation. If the SVC Alternative is chosen and placed at Teton Substation, the mitigation action plan would focus mostly, if not entirely, on the area surrounding Teton Substation.

BPA has now proposed as its preferred mitigation to develop and implement a landscaping plan to mitigate for visual impacts around Teton Substation. This plan will incorporate the landscaping plan prepared by Verdone Landscaping Architecture during scoping and submitted by Lake Creek II to BPA during scoping.

31-4

Undergrounding the new and existing line from Fish Creek Road into Teton Substation is identified as mitigation, although not preferred, in Chapter 4, Section 4.2.2.2.

31-5

Undergrounding the last 123 m (400 feet) of transmission line into Teton Substation is now identified as mitigation, although not preferred, in the FEIS in Section 4.2.2.2. Visual simulations of the existing condition, the overhead approach into the substation and an underground approach are included in Appendix M.

31-6

On July 24, 1997, BPA met with several members of the Lake Creek II Homeowners Association at Lower Valley's offices. BPA agreed to provide visual simulations of the existing condition, and the overhead and underground line termination options. BPA did not agree to provide models or specifications. Cost estimates for the different alternatives are already given in the EIS. Lake Creek II Homeowners taped the meeting and BPA requested a copy of the tape to confirm the items requested and what agreements were made. BPA has not received a copy of the tape from the Homeowners.

BPA cannot grant another extension of the comment period due to the demands of the schedule. BPA did grant a 30-day DEIS public comment period extension to Lake Creek II Homeowners and those they chose to involve which ended on September 11, 1997.

32-1

Please see responses 27-1 to 27-6.

33-1

Comment noted.

34-1

Please see response 27-10.

34-2

BPA has responded to Lake Creek II Homeowners' and Diane Connolly's comments. Please refer to responses from comment letters 27 and 28. BPA has answered all comments thoroughly and has made appropriate changes in the FEIS.

34-3

BPA believes that it has been very responsive to the Lake Creek II Homeowners Association. As required by NEPA, BPA conducted four public scoping meetings in May 1996 and two public comment meetings on the Draft EIS in July 1997. Lake Creek II Homeowners attended the Jackson meetings. In addition, since June 1995, members of the BPA project team have met with the Homeowners on eight separate occasions. The Forest Service met with a representative from the Homeowners once. Lower Valley has met with the Homeowners on six separate occasions (not including the meetings together with BPA). In addition to meetings, BPA extended the DEIS public comment period an additional 30 days to the Lake Creek II Homeowners and those groups they chose to involve. After the FEIS is issued and before the Administrator makes a final decision, there is a 30-day no-action period.

BPA, Lower Valley, and the Forest Service have phoned, and received and responded to correspondence from the Lake Creek II Homeowners.

BPA has reviewed all correspondence from Lake Creek II Homeowners and believes it has provided feedback on all issues raised by responding verbally in various meetings or phone conversations, through written correspondence, and through the Draft and Final EIS's.

34-4

Please see response 27-14.

34-5

BPA has now identified three mitigation alternatives that reduce the height and girth of Teton Substation in Section 4.2.2.2. The structures in these new designs would be less than 16 m (54 feet). Cost estimates done for these alternatives do not make their implementation by BPA likely. BPA has identified landscaping as the preferred mitigation for visual impacts around Teton Substation. BPA cannot combine the landscaping mitigation with other mitigation because costs become prohibitive.

34-6

All mitigation that may help lessen the visual impacts to the area surrounding Teton Substation are included in each transmission line alternative. Landscaping around Teton Substation is identified as the preferred way to mitigate for visual impacts.

34-7

The SVC Alternative is a reasonable alternative that meets the need for the project and cannot be eliminated from further consideration. It is not the Agency Proposed Action.

34-8

BPA has identified cumulative impacts for each alternative in each resource area. Please refer to those sections in Chapter 4. Mitigation is also included in Chapter 4.

34-9

Please see responses 34-1 to 34-8.

34-10

BPA is working hard to achieve this end guided by its environmental, financial, and technical requirements and responsibilities.

35-1

Please see responses to comment letters 27 and 28.

37-1

BPA has identified landscaping as the preferred mitigation for visual impacts around Teton Substation.

37-2

Please see response 37-1. BPA has hired Verdone Landscaping Architecture to develop a landscaping plan to lessen the visual impacts around Teton Substation.

37-3

Costs for landscaping and minimizing the height of Teton Substation are now included in Chapter 4.

Construction is scheduled for the year 2000, although this could be accelerated by information gathered from field surveys and review. Any changes to Teton Substation would be done at that time. Implementation of a landscaping plan would be coordinated with landowners affected by the proposed changes at Teton Substation.

37-4

Please see response 27-14.



## Chapter 7 EIS Preparers

JOHN BRUNKE, P.E., Principal High Voltage Equipment Engineer. Responsible for high voltage equipment application and design. Education: B.S. Engineering and Applied Science, M.S. Applied Science, and additional graduate work. Experience: Equipment engineering, design, and testing; with BPA since 1976.

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LAURENS C. DRIESSEN, Project Manager. Responsible for overall project management, engineering information and review. Education: B.S. Civil Engineering. Experience: Facility siting and project management; with BPA since 1969.

KATHY FISHER, Environmental Specialist. Assisted in early coordination and completion of environmental review requirements. Education: B.A. Economics. Experience: Forest and transportation planning, energy conservation, renewable resources, and environmental coordination; with Forest Service and BPA since 1978.

DUSTY GLANS, Electrical Engineer. Responsible for field engineering and long range transmission system planning for the Idaho Falls District. Education: B.S.B.A. Real Estate-Management-Finance, B.S. Engineering. Experience: with BPA since 1986.

STEPHEN M. HALL, Wildlife Biologist with Jones and Stokes Associates, Inc. Responsible for wildlife analysis. Education: B.S. Wildlife Management. Nine years experience in terrestrial wildlife and vegetation studies.

MIKE JOHNS, Project Manager. Responsible for early project management, engineering information and review. Education: B.S. Civil Engineering. Experience: Project management, project agreements and contracts, and division management; with BPA since 1973.

LESLIE H. KELLEHER, Biologist. Responsible for vegetation, floodplain, and wetland analysis. Education: B.A. Biology, B.S. Secondary Education, M.A. Secondary Education/Environmental Science. Experience: Vegetation analysis, wetland assessments and delineations; with BPA as a contractor and employee since 1991.

MARK KORSNESS, Civil Engineer. Responsible for transmission line design, structure sizing and location, conductor clearances, foundation stability, and access road design. Education: B.A. Geology, B.S. Civil Engineering. Experience: Foundation geology, river and stream hydraulics, and transmission line engineering; with BPA since 1991.

LINDA KRUGEL, AICP, Planning Consultant. Responsible for public involvement. Education: B.S. Related Arts, M. of City Planning, M. of Public Administration. Experience: Policy development and public involvement; contractor to BPA since 1984.

DAVID LE, Electrical Engineer. Responsible for transmission system planning. Education: B.S. Electrical Engineering. Experience: Main grid and area service project planning; with BPA since 1990.

GENE P. LYNARD, Environmental Specialist. Responsible for socioeconomic and land use analysis. Education: B.A. Liberal Arts, M. of City and Regional Planning. Experience: Real estate development economics; environmental analysis; facility planning; with BPA as a contractor and employee since 1984.

DEBRA MALIN, Environmental Specialist. Responsible for air quality and global warming analysis and public health and safety analysis and coordination. Education: B.S. Cellular Biology, M.S. Public Health; with environmental consulting firms and BPA since 1987.

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GREG A. POREMBA, Contract Project Manager with Jones and Stokes Associates, Inc. Responsible for NEPA evaluation and contract project management. Education: B.A. Sociology, M.A. Sociology, PhD. Sociology. Fifteen years in project management and socioeconomic impact assessments, land use, recreation, and aesthetic issues.

LEROY P. SANCHEZ, Visual Information Specialist. Responsible for EIS graphics. Education: Graphics Design, University of Nevada, Las Vegas 1970 - 1973; Portland State University 1983 - 1985. EIS graphics coordination, cartographic technical duties; with BPA since 1978.



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RICHARD D. STEARNS, Electrical Engineer. Responsible for engineering aspects of public health and safety data. Education: B.S. Electrical Engineering, M.S. Electrical Engineering. Experience: Transmission line design issues related to corona and field effects; with BPA since 1978.

NANCY A. WITTPENN, Environmental Specialist. Responsible for coordination and completion of environmental review requirements. Education: B.S. Geology, M.S. Marine Geophysics. Experience: Environmental analysis and natural resource management; with BPA as a contractor and employee since 1989.

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## Chapter 8 List of Agencies, Organizations, and Persons Sent the EIS

The project mailing list contains about 1,100 affected landowners, Tribes, local, state, and federal agencies, utility customers, public officials, interest groups, and the media. They have directly received or been given instructions on how to receive all project information made available so far and will have an opportunity to review the Draft and Final EIS.

### Federal Agencies

- Bonneville Power Administration
- Bureau of Indian Affairs
- Bureau of Reclamation
- Corps of Engineers
- Bureau of Land Management
- Environmental Protection Agency
- Fish and Wildlife Service, National Elk Refuge
- Fish and Wildlife Research
- Fish and Wildlife Service
- Forest Service
- Grand Teton National Park
- Natural Resources Conservation Service
- Yellowstone National Park

### State Agencies, Idaho

- Agriculture
- Environmental Quality
- Extension Services
- Farm Bureau
- Fish and Game
- Forest Pest Management
- Geological Survey
- Health and Welfare
- Historic Preservation Office
- Lands
- Parks and Recreation
- Soil Conservation Service
- Transportation
- Water Resources
- Forest Service

### State Agencies, Wyoming

- Agriculture
- Commerce
- Environmental Quality
- Game and Fish

Historic Preservation Office  
Extension Service  
Federal Land Policy  
Forestry Division  
Parks and Historical Sites  
Transportation  
Geological Survey

Local Governments, Idaho

City of Ashton  
Drummond  
Idaho Falls  
Irwin  
Newdale  
Parker  
Rexburg  
Rigby  
Ririe  
Swan Valley  
Teton  
Tetonia  
Victor

County of Fremont

Teton  
Bonneville  
Madison

Local Governments, Wyoming

City of Alpine  
Jackson  
Kemmerer  
Pinedale

County of Lincoln

Sublette  
Teton

Tribes or Tribal Groups

Arapahoe Business Council  
Assiniboine  
Crow  
Gros Ventre  
Medicine Wheel Alliance  
Nez Perce  
Shoshone Bannock of Fort Hall  
Shoshone Business Council, Fort Washakie  
White Clay Society  
Wind River (Eastern) Shoshone

Libraries

Albertson College Federal Depository  
Boise State University Library  
Central Wyoming College  
City of Boise Public Library  
City of Idaho Falls Public Library  
City of Rigby Public Library  
College of Southern Idaho Library  
County of Campbell Public Library  
County of Natrona Public Library  
Eastern Idaho Tech College Library  
Idaho State University Library  
Madison Free Library  
Northwest College Library  
Northwest Nazarene College Library  
Ricks College Library  
Sheridan College Library  
State of Idaho Library  
State of Wyoming Law Library  
State of Wyoming Library  
Teton County Library  
University of Wyoming Law Library  
Upper Snake River Historical Society Library  
Valley of the Tetons District Library  
Western Wyoming Community College Library

Utilities

Fall River Rural Electric Coop, Inc.  
Utah Power & Light Company  
Lower Valley Power & Light, Inc.

Public Officials, Idaho

Federal Congressional Representatives  
Larry Craig  
Michael Crapo  
Dirk Kempthorne  
Governor  
Phil Batt  
State Senator and Representatives  
Golden Linford  
Cameron Wheeler  
Max Mortensen  
M. Reed Hansen  
Thomas F. Loertscher  
Melvin M. Richardson  
Lee Gagner  
Jack T. Barraclough  
Stan Hawkins

John D. Hansen  
Robert R. Lee  
Diana S. Richman

Public Officials, Wyoming

Federal Congressional Representatives

Barbara Cubin  
Michael Enzi  
Craig Thomas

Governor

Jim Geringer

State Senator and Representative

Grant Larson  
Clarene Law

Interest Groups

Alliance for the Wild Rockies  
American Fisheries Society, Idaho Chapter  
American Wildlands  
Audubon Society  
Bass Federation  
Blue Ribbon Coalition  
Bonneville Sportsmen Association  
Citizens for Teton Valley  
Common Cause  
Eagle Rock Back Country Horsemen  
Fall Creek Basin Cattlemens Association  
Federation of Flyfishers  
Federation of Western Outdoor Clubs  
Forest Trust  
Foundation for North American Big Game  
Friends of the River  
Greater Yellowstone Coalition  
Idaho Association of Cities  
Idaho Association of Counties  
Idaho Association of Soil Conservation Districts  
Idaho Bass Chapter Federation  
Idaho Cattle Association  
Idaho Conservation League  
Idaho Falls Alpine Club  
Idaho Falls Ski Club  
Idaho Forest Owners Association  
Idaho Rivers United  
Idaho Sporting Congress  
Idaho Sportsmens Coalition  
Idaho Trails Council  
Idaho Wildlife Federation  
INEL Oversight Program  
International Wolf Center  
Izzak Walton League of America, Inc.

Jackson Hole Alliance  
Jackson Hole Land Trust  
Jackson Hole Outfitters and Guides Association  
Jackson Hole Preserve, Inc.  
Jackson Hole Ski Club  
Lake Creek Acres II Homeowners Association  
Museum Historical Society  
National Association of Conservation Districts  
National Flyway Council  
Native Ecosystem Council  
Northern Rockies Conservation Cooperative  
Northwest Powerboat Association  
Northwest Resource Information Center  
Renewable Natural Resources Foundation  
Resources for the Future  
River Network  
Save America's Forest  
Sierra Club Foundation  
Society for Ecological Restoration  
Society of American Foresters  
Society of Wetland Scientists  
Soil and Water Conservation Society  
Sweetwater Wildlife Association  
Trees for the Future, Inc.  
Trout Unlimited  
Trust for Public Land  
Upper Green River Cattle Association  
Upper Snake River Fly Fishers  
Western Forestry & Conservation Association  
West Palisades Cattle Association  
Wild Rockies Action Fund  
Wilderness Society  
Wildlife Federation  
Wildlife Habitat Council  
Wind River Multiple Use Advocates  
Wolf Fund  
Wolf Haven International  
Wyoming Association of Professional Archeologists  
Wyoming Backcountry Horsemen  
Wyoming Coalition  
Wyoming Heritage Society  
Wyoming Native Plant Society  
Wyoming Outdoor Council  
Wyoming Outfitters Association  
Wyoming Public Lands Council  
Wyoming Wildlife Federation  
Yellowstone Grizzly Foundation

Media

Associated Press  
Billings Gazette  
Casper Star Tribune  
Herald Chronicle  
Idaho Falls Post Register  
Idaho Statesman  
Jackson Hole Daily  
Jackson Hole Guide  
Jackson Hole News  
Jefferson Star  
Kemmerer Gazette  
Morning News  
Pinedale Roundup  
Post Register Newspaper  
Rexburg Standard Journal  
Shoban News  
South Idaho Press  
Teton Valley Independent  
Teton Valley News  
Wyoming Eagle  
Wyoming State Journal  
Yellowstone Gateway Press  
KADQ FM  
KFTZ FM  
KGTM FM  
KID AM  
KSIF FM  
KDID TV 3  
KIFI TV 8  
KJVI  
KLCE Classy 97  
KMER  
KMTN FM  
KOSZ FM  
KPVI TV 6  
KRSV  
KRXX AM  
KRXX AM FM  
KSGT  
KTRZ  
KTWO  
KUPI AM FM  
KZJH FM  
KRIC FM



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## Chapter 10 Glossary and Acronyms

This chapter contains a list of acronyms, abbreviations, and technical terms used in this EIS. Words that would be defined in a desk-size dictionary (for example, the College Edition of the American Heritage Dictionary) are not included.

### Acronyms

a-c	alternating current
aMW	Average megawatt
<u>BMP's</u>	<u>Best Management Practices</u>
BPA	Bonneville Power Administration
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
cm	centimeter
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
dba	decibels (A-weighted)
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
<u>EMI</u>	<u>Electromagnetic Interference</u>
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Policy Act
ft	feet
FYI	For Your Involvement
GIS	Geographic Information System
ha	hectares
IDFG	State of Idaho, Department of Fish and Game

IVM	Integrated Vegetation Management
kV	kilovolt
LVPL	Lower Valley Power and Light, Inc.
m	meter
mG	milligauss
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
PCB	Polychlorinated biphenyl
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
RHCA	Riparian Habitat Conservation Area
RI	Radio Interference
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SVC	Static Var Compensator
SHPO	State Historic Preservation Office
SWPP	Storm Water Pollution Prevention Plan
TSCA	Toxic Substances Control Act
TVI	Television Interference
USBR	U.S. Bureau of Reclamation
USDOE	U.S. Department of Energy
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey



VQO	Visual Quality Objectives
WDGF	Wyoming Department of Game and Fish

## Technical Terms

**Access road** - Roads constructed to each structure site first to build the tower and line, and later to maintain and repair it. Access roads are built where no roads exist. Where county roads or other access is already established, access roads are built as short spurs to the structure site. Access roads are maintained even after construction, except where they pass through cultivated land. There, the road is restored for crop production after construction is completed.

**Acid rain** - Sulfur and nitrogen oxides mix with water drops (snow, rain, and fog) in the atmosphere and make sulfuric and nitric acid. These acids fall to the earth as acid rain or snow. The presence of these compounds in the air can cause respiratory problems and affect visibility.

**Airshed** - An air supply of a given geographic area, usually defined by topographic barriers or atmospheric conditions that confine air emissions.

**Alluvial** - Formed by flowing water.

**Alternating current (a-c)** - An electric current or voltage that reverses direction of flow periodically and has alternately positive and negative values.

**Alternatives** - Refers to different choices or means to meet the need for action.

**Aquifer** - Water-bearing rock or sediments below the surface of the earth.

**Aspect** - The degree of exposure to the sun.

**Average megawatts (aMW)** - The unit of energy output over a year, equivalent to the energy produced by the continuous operation of one megawatt of capacity over a period of time.

**Backdropped** - Landscape elements behind facilities; a background setting.

**Backline** - The line painted on trees (on or off the right-of-way) that encompasses most of the trees that could fall or bend into a transmission line or that the line could swing into. The line is placed where most of the trees inside the line are dangerous to the transmission line and most of the trees outside the line are safe. All the trees inside the backline would be cut (including safe trees). Individual "danger trees" would then be marked and cut outside of the backline. A "full safe" backline is a line that encompasses all the trees mentioned above. In this case the line would be painted around all the "danger trees" and all trees within the line (including safe trees) would be cut.

**Bay** - A bay is an area set aside in a substation for special equipment.

**Best management practices** - A practice or combination of practices that are the most effective and practical means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.

**Biodiversity** - A measure of the number of different species in a given area; species richness.

**Biological Evaluation** - The means by which the U. S. Forest Service conducts a review and documents the findings of the affects of an action or proposed action on any sensitive species.

**Bus pedestals** - Supports that elevate bus tubing within a substation.

**Bus tubing** - A metal “bar” used to carry electricity from one piece of equipment to another within a substation.

**Capacitor** - A device to store an electrical charge.

**Carbon monoxide (CO)** - An odorless and colorless gas formed from one atom of carbon and one atom of oxygen.

**Climax** - The end point in plant succession when the community will perpetuate itself if the current environmental conditions prevail.

**Conductor** - The wire cable strung between transmission towers through which electric current flows.

**Corona** - Corona occurs in regions of high electric field strength on conductors, insulators, and hardware when sufficient energy is imparted to charged particles to cause ionization (molecular breakdown) of the air.

**Crossarms** - The horizontal supports on a wood pole or steel tower, that support the insulators.

**Crossdrains** - Channels or dips constructed across a road to intercept surface water runoff and divert it before erosive runoff volumes and concentrations occur.

**Culvert** - A corrugated metal or concrete pipe used to carry or divert runoff water from a drainage; usually installed under roads to prevent washouts and erosion.

**Cumulative impact** - Cumulative impacts are created by the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions.

**Current** - The amount of electrical charge flowing through a conductor (as compared to voltage, which is the force that drives the electrical charge).

**Cut and fill** - The process where a road is cut or filled on a side slope. The term refers to the amount of soil that is removed (cut) or added (fill).

**CWA** - Clean Water Act. A federal law intended to restore and maintain the chemical, physical, and biological integrity of the nation’s waters and secure water quality.

**Danger trees** - Trees (or high growing brush) in or alongside the right-of-way, which are hazardous to the transmission line. These trees are identified by special crews and must be removed to prevent tree-fall into the line or other interference with the wires. The owner of danger trees off the right-of-way is compensated for their value. BPA’s Construction Clearing Policy requires that trees be removed that meet either one of two technical categories: Category A is any tree that within 15 years will grow within about 5 m (18 ft.) of conductors with the conductor at maximum sag (100 ° C or 212 ° F) and swung by 30 kg per sq/m (6 lb per sq/ft.) of wind (93 kph or 58 mph); Category B is any tree or high-growing brush that after 8 years of growth will fall within about 2 m (8 ft.) of the conductor at maximum sag (80 ° C or 176 ° F) and in a static position.

**dba** - The first two letters (dB) are an abbreviation for decibel, the unit in which sound is most commonly measured (see decibel). The last letter (A) is an abbreviation for the scale (A scale) on which the sound measurements were made.

**Dead ends** - Heavy towers designed for use where the transmission line loads the tower primarily in tension rather than compression, such as in turning large angles along a line or bringing a line into a substation.

**Debris flows** - Rapid movement of water-charged mixtures of soil, rock, and organic debris down steep stream channels.

**Decibel** - A decibel is a unit for expressing relative difference in power, usually between acoustic signals, equal to 10 times the common logarithm of the ratio of two levels.

**Discharge reactor** - A device that is used during removal of capacitors from service (bypassing) to control currents to safe levels.

**Double-circuit** - The placing of two separate electrical circuits on the same tower.

**Easement** - A grant of certain rights to the use of a piece of land (which then becomes a “right-of-way”). BPA acquires easements for many of its transmission facilities. This includes the right to enter the right-of-way to build, maintain, and repair the facilities. Permission for these activities are included in the negotiation process for acquiring easements over private land.

**Electric and magnetic fields (EMF)** - The two kinds of fields produced around the electric wire or conductor when an electric transmission line or any electric wiring is in operation.

**Emergent** - Plants that have their bases submerged in water.

**EMI** - Electromagnetic interference caused by corona.

**Endangered species** - Those species officially designated by the U.S. Fish and Wildlife Service that are in danger of extinction throughout all or a significant portion of their range.

**Environmental impact statement (EIS)** - A detailed statement of environmental impacts caused by an action, written as required by the National Environmental Policy Act.

**Exposure assessments** - Estimates of the magnetic field levels that people are and will be potentially exposed to.

**Feeder** - A feeder line is a distribution line that serves certain neighborhoods.

**Fiber optics** - Special wire installed on the transmission line that is used for communication between one location and another.

**Floodplain** - That portion of a river valley adjacent to the stream channel which is covered with water when the stream overflows its banks during flood stage.

**Footings** - The supporting base for the transmission towers. Usually steel assemblies buried in the ground for lattice-steel towers.

**Forb** - Any herbaceous plant that is not a grass or not grasslike.

**Ford** - A travelway across a stream where water depth does not prevent vehicle movement. Ford construction can include grading and stabilizing streambanks at the approaches and adding coarse fill material within the channel to stabilize the roadbed.

**Foreground** - The viewed landscape from 0 to 0.8 km (0 to 0.5 mi.) from an observer.

**Gauss** - A unit of magnetic induction.

**Generation** - The power that is produced through some type of power plant.

**GIS** - Geographic Information System. A computer system that analyzes graphical map data.

**Glacial outwash** - Materials deposited by glacial meltwaters.

**Gneiss** -A banded metamorphic rock with the same composition as granite.

**Ground wire (overhead)** - Wire that is strung from the top of one tower to the next; it shields the line against lightning strikes.

**Habitat type** - Lands capable of producing similar plant communities at climax.

**Herbaceous** - A plant having the characteristics of an herb, not woody; or having a green color and a leafy texture.

**Hertz (Hz)** - The unit of frequency in cycles per second.

**H-Frame** - Refers to a type of structure usually made of wood, with vertical poles and horizontal crossarms. When erected, it resembles a capital letter H.

**Hydrology** - The science dealing with the properties, distribution, and circulation of water.

**Insulators** - A ceramic or other nonconducting material used to keep electrical circuits from jumping over to ground.

**Intermittent** - Referring to periodic water flow in creeks or streams.

**Jurisdictional wetlands** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

**Kilovolt** - One thousand volts. (See **Volt**.)

**Landslide** - Any mass-movement process characterized by downslide transport of soil and rock, under gravitational stress, by sliding over a discrete failure surface; or the resultant landform. Can also include other forms of mass wasting not involving sliding (rockfall, etc.).

**Lattice steel** - Refers to a transmission tower constructed of multiple steel members that are connected together to make up the frame.

**Line losses** - The power lost during the transfer of power from one place to another. More power moved over a smaller number of lines increases line loss.

**Lithic** - Associated with stones or rock.

**Lithic Scatters** - A prehistoric site, generally lacking cultural features or significant cultural depth, having a surficial scatter of flakes and lithic debris which provide evidence of lithic reduction and/or temporary occupation activities.

**Load** - The amount of electric power or energy delivered or required at any specified point or points on a system. Load originates primarily at the energy-consuming equipment of customers.

**Load growth** - Increase in demand for electricity. (See **Load**.)

**Loess** - Sediment composed of mostly silt-sized particles, deposited by the wind.

**Low-gradient** - With gentle slopes.

**Management prescription** - Management practices selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.

**Mass failure** - An event occurring on steep slopes with physical characteristics that allow failure of stable landforms. Soil properties may include low permeability, high water content, and high slope resulting in large scale failure and movement of surface material.

**Mass movement** - The dislodgment and downhill transport of soil and rock materials under the direct influence of gravity. Includes movements such as creep, debris torrents, rock slides, and avalanches.

**Mass wasting** - The slow downward slope of rock debris.

**Megawatts (MW)** - A megawatt is one million watts, or one thousand kilowatts; an electrical unit of power.

**Metric ton** - Equivalent to 1000 kilograms or 2,205 pounds.

**Milligauss** - A unit used to measure magnetic field strength. One-thousandth of a gauss.

**Mitigation** - Steps taken to lessen the effects predicted for each resource, as potentially caused by the transmission project. They may include reducing the impact, avoiding it completely, or compensating for the impact. Some mitigation, such as adjusting the location of a tower to avoid a special resource, is taken during the design and location process. Other mitigation, such as reseeding access roads to desirable grasses and avoiding weed proliferation, is taken after construction.

**National Environmental Policy Act (NEPA)** - This act requires an environmental impact statement on all major Federal actions significantly affecting the quality of the human environment. [42 U.S.C. 4332 2(2)(C).]

**NESC** - National Electrical Safety Code

**1994 Dollars** - Assumptions about inflation, cost of equipment, interest rates, used by analysts in 1994 to determine the cost of system plans so that they could be evaluated.

**Nitrogen oxides** - A group of compounds consisting of various combinations of nitrogen and oxygen atoms.

**Non-attainment** - An area which does not meet air quality standards set by the Clean Air Act for specified localities and periods.

**Nonrenewable** - Not capable of replenishing.

**Noxious weeds** - Plants that are injurious to public health, crops, livestock, land or other property.

**Oil spill containment** - Units installed in a substation to collect oil spilled from equipment.

**100-year Floodplain** - Areas that have a 1 percent chance of being flooded in a given year. (See Floodplain.)

**Outage** - Events caused by a disturbance on the electrical system, that requires BPA to remove a piece of equipment or a portion or all of a line from service. The disturbances can be either natural or human-caused.

**Overload** - Moving too much current flow over transmission facilities. Equipment has safeguards: in the event of overloading of the system, switches will disconnect sensitive equipment from the flow of electricity.

**Partial retention** - The VOO that applies to areas where activities may be evident but must remain subordinate to the natural landscape. These visually sensitive areas are along major state and federal highways, wild and scenic river corridors, and other high public use areas.

**Particulate matter (PM)** - Airborne particles including dust, smoke, fumes, mist, spray, and aerosols.

**Perennial** - Streams or creeks with year-round water flow.

**Permeable** - Capable of transporting liquids.

**Phase** - A conductor or conductors or piece of electrical equipment that is associated with one of three separate phases of an alternating-current power system, designated A-phase, B-phase, and C-phase.

**Piedmont** - Lying along or near the foot of a mountain range.

**Polychlorinated biphenyl (PCB)** - Oily, persistent substance formerly manufactured for use in electrical equipment, primarily as a dielectric in capacitors. Banned from use in 1979 after research showed that PCBs cause skin disease and liver damage, and are a suspected carcinogen.

**Power circuit breakers** - A switch, installed at a substation, which breaks or restores the flow of current through the line.

**Preservation** - The VQO that applies to wilderness and other special areas where the natural landscape should be unaltered by forest management activities.

**Prime and unique farmland** - Prime farmland is land with the best combination of physical and chemical characteristics for producing food and other agricultural crops. Unique farmland is land other than prime farmland that is used to produce specific high-value food and fiber crops. It also has special characteristics to economically produce sustained high quality or high yields of specific crops.

**Project Plan** - A Project Plan is permanent documentation of agreements made between land managers (in this case BPA and the USFS). The Plan identifies methods for improving or creating roads, clearing trees and other vegetation, erosion control, fire control, protection of special resources, and mitigation.

**Province** - An area of land less extensive than a region and having a characteristic plant and animal population.

**Pulling site** - The site where the machinery used to string the conductors is staged.

**Reactor** - A device to introduce inductive reactance in a system.

**Record of Decision (ROD)** - The document notifying the public of a decision taken on a Federal action, together with the reasons for the choices entering into that decision. The Record of Decision is published in the *Federal Register*.

**Retention** - The VQO that applies to areas where activities should not be evident to the casual forest visitor.

**Revegetate** - Reestablishing vegetation on a disturbed site.

**Right-of-way (ROW)** - An easement for a certain purpose over the land of another, such as a strip of land used for a road, electric transmission line, pipeline, etc.

**Rill** - A rill is a channel made by a small stream.

**Riparian habitat** - The zone of vegetation which extends from the water's edge landward to the edge of the vegetative canopy. Associated with watercourses such as streams, rivers, springs, ponds, lakes, or tidewater.

**Riprap** - Broken stones put in areas to prevent erosion, especially along river and stream banks.

**Roadless Areas** — Areas of National Forest land that qualify for placement on the inventory of potential wilderness. In addition to meeting the statutory definition of wilderness, they meet one or more of the following criteria: they contain 5,000 acres or more; they are smaller but are manageable in their natural condition, are self-contained ecosystems, or are contiguous to existing wilderness, primitive areas or roadless areas; or they do not contain improved roads maintained for travel by standard passenger-type vehicles, except as permitted in areas east of the 100th meridian.

**Scoping** - A part of the NEPA process where significant issues to be analyzed in detail in the environmental document are identified.

**Seismic** - Earthquake activity.

**Sensitive species** - Those plants and animals identified by the Regional Forester for which population viability is a concern as evidenced by significant current or predicted downward trend in populations or density and significant or predicted downward trend in habitat capability.

**Series capacitors** - Electrical devices that can increase loading on a transmission line. Used to increase the capability of interconnections and to achieve the most advantageous and economical division of loading between lines.

**Silt** - Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 mm) to the lower limit of very fine sand (0.05 mm).

**Single-circuit** - A line with one electrical circuit on the same tower.

**Slash** - Debris left over from felling trees.

**Slash windrows** - Rows of slash or cut vegetation placed on the side of an access road to control erosion.

**Slump** - Deep, rotational landslide, generally producing coherent movement (back rotation) of blocks over a concave failure surface. Typically, slumps are triggered by the buildup of pore water pressure in mechanically weak materials (deep soil or clay-rock rock).

**Sole source aquifer** - An aquifer designated by the Environmental Protection Agency which provides at least half of an area's drinking water.

**Species** - A group of interbreeding individuals not interbreeding with another such group; similar, and related species are grouped into a genus.

**Structure** - Refers to a type of support used to hold up transmission or substation equipment.

**Subsoiling** - Breaking up compacted soils, without inverting them, using a plow or blade.

**Substation** - The fenced site that contains the terminal switching and transformation equipment needed at the end of a transmission line.

**Substation dead ends** - Dead end towers within the confines of the substation where incoming and outgoing transmission lines end. Dead ends are typically the tallest structures in a substation.

**Substation fence** - The chain-link fence with barbed wire on top provides security and safety. Space to maneuver construction and maintenance vehicles is provided between the fence and electrical equipment.

**Substation rock surfacing** - An 8-cm (3-in.) layer of rock selected for its insulating properties is placed on the ground within the substation to protect operation and maintenance personnel from electrical danger during substation electrical failures.

**Sulfur oxides** - Various combinations of sulfur and oxygen; one of the most common being sulfur dioxide, which is a gas at normal temperatures and pressures in the atmosphere. Sulfur oxides combine with particulates and moisture to produce acid rain.

**Switches** - Devices used to mechanically disconnect or isolate equipment; found on both sides of circuit breakers.

**System reliability** - The ability of a power system to provide uninterrupted service, even while that system is under stress.

**Tackifiers** - A water-based agent used to bind soil particles together to provide erosion protection.

**Talus** - Rock debris that has accumulated at the base of a cliff or steep slope.

**Tap** - The point at which a transmission line is connected to a substation or other electrical device to provide service to a local load.

**Threatened species** - Those species officially designated by the U.S. Fish and Wildlife Service that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

**Thyristor** - Thyristors are semiconductor switches. Three valves would be installed between the transformer and the reactors.

**Tower** - See **Structure**.

**Traditional Cultural Properties** - A traditional cultural property is defined generally as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs (e.g., traditions, beliefs, practices, lifeways, arts, crafts, and social institutions) of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community.

**Transformers** - Electrical equipment usually contained in a substation that is needed to change voltage on a transmission system.

**Transmission dead end towers** - The last transmission line towers on both the incoming and outgoing sides of the substation. These towers are built extra strong to reduce conductor tension on substation dead ends and provide added reliability to the substation.

**Transmission line** - The structures, insulators, conductors, and other equipment used to transmit electrical power from one point to another.

**Undesirable Plants** - Plants that are injurious to public health, crops, livestock, land or other property. (See **Noxious Weeds**.)

**Volatile organic compounds (VOC)** - Compounds containing carbon that evaporates readily at normal room temperature and pressure. VOCs react with sunlight to form ozone.

**Volt** - The international system unit of electric potential and electromotive force.

**Voltage** - The driving force that causes a current to flow in an electrical circuit.

**Water bars** - Smooth, shallow ditches excavated at an angle across a road to decrease water velocity and divert water off and away from the road surface.

**Wetlands** - An area where the soil experiences anaerobic conditions because of inundation of water during the growing season. Indicators of a wetland include types of plants, soil characteristics and hydrology of the area.

**Wild and Scenic River** - A river within the national wild and scenic river system that offers outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act of 1968 for preservation of their free-flowing condition.

**Wilderness** — Areas designated by congressional action pursuant to the Wilderness Act that are managed for primeval characteristics, solitude or unconfined primitive recreation, natural conditions and where the imprint of humans is substantially unnoticeable. The land must be primarily affected

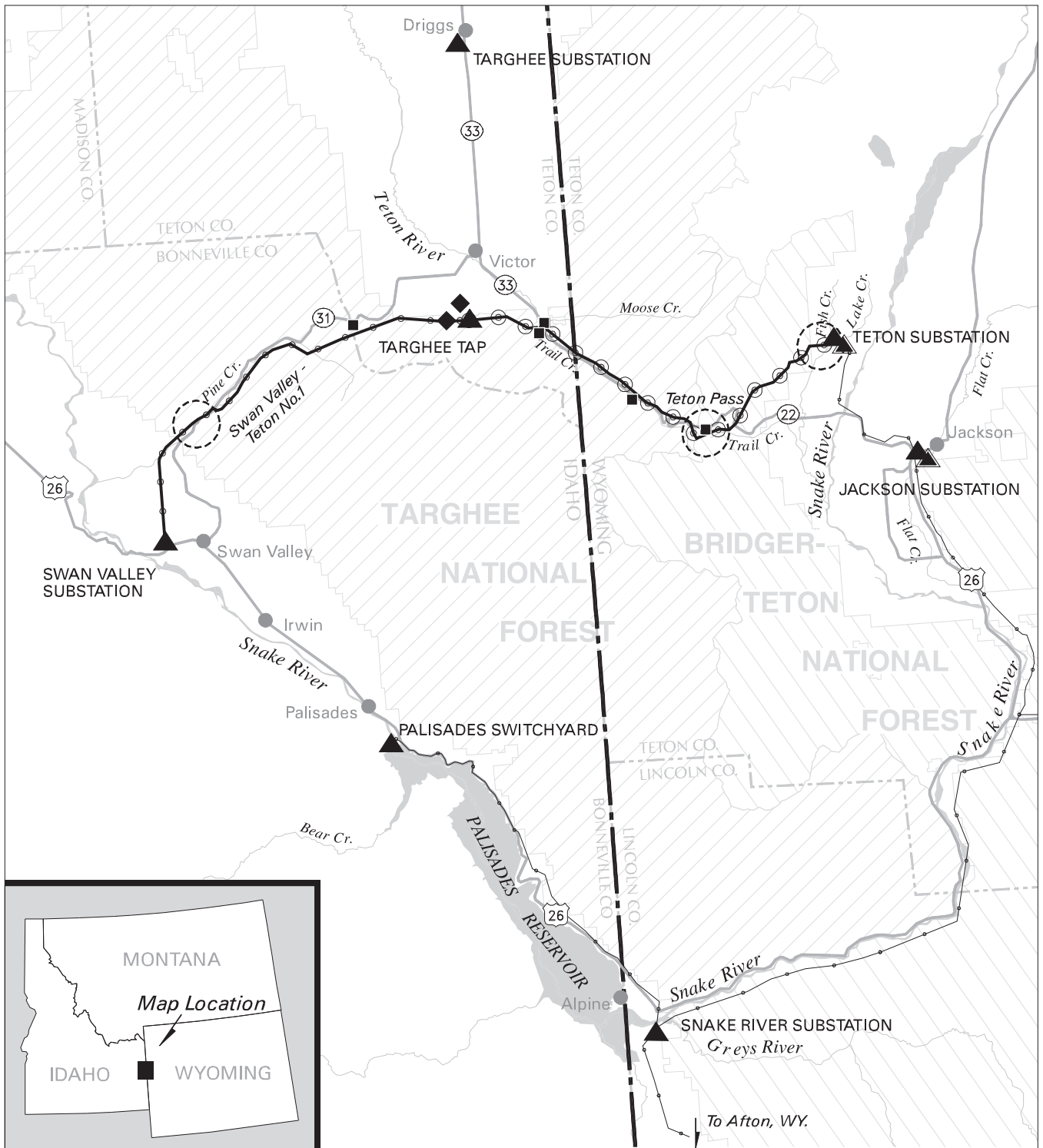


by the forces of nature, have outstanding opportunities for solitude or primitive recreation, be at least 5000 acres in size, and may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Yo-yo skiing** - Yo-yo skiing is shuttle skiing at Teton Pass. Skiers leave one car in Wilson at the bottom of the Pass and drive another car to the top of the Pass. After skiing down the hill, they use the second car to drive back up to the top of the Pass.

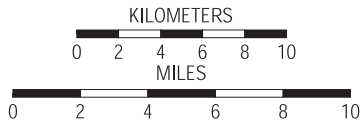


# BPA / LOWER VALLEY TRANSMISSION PROJECT - LOCATION MAP

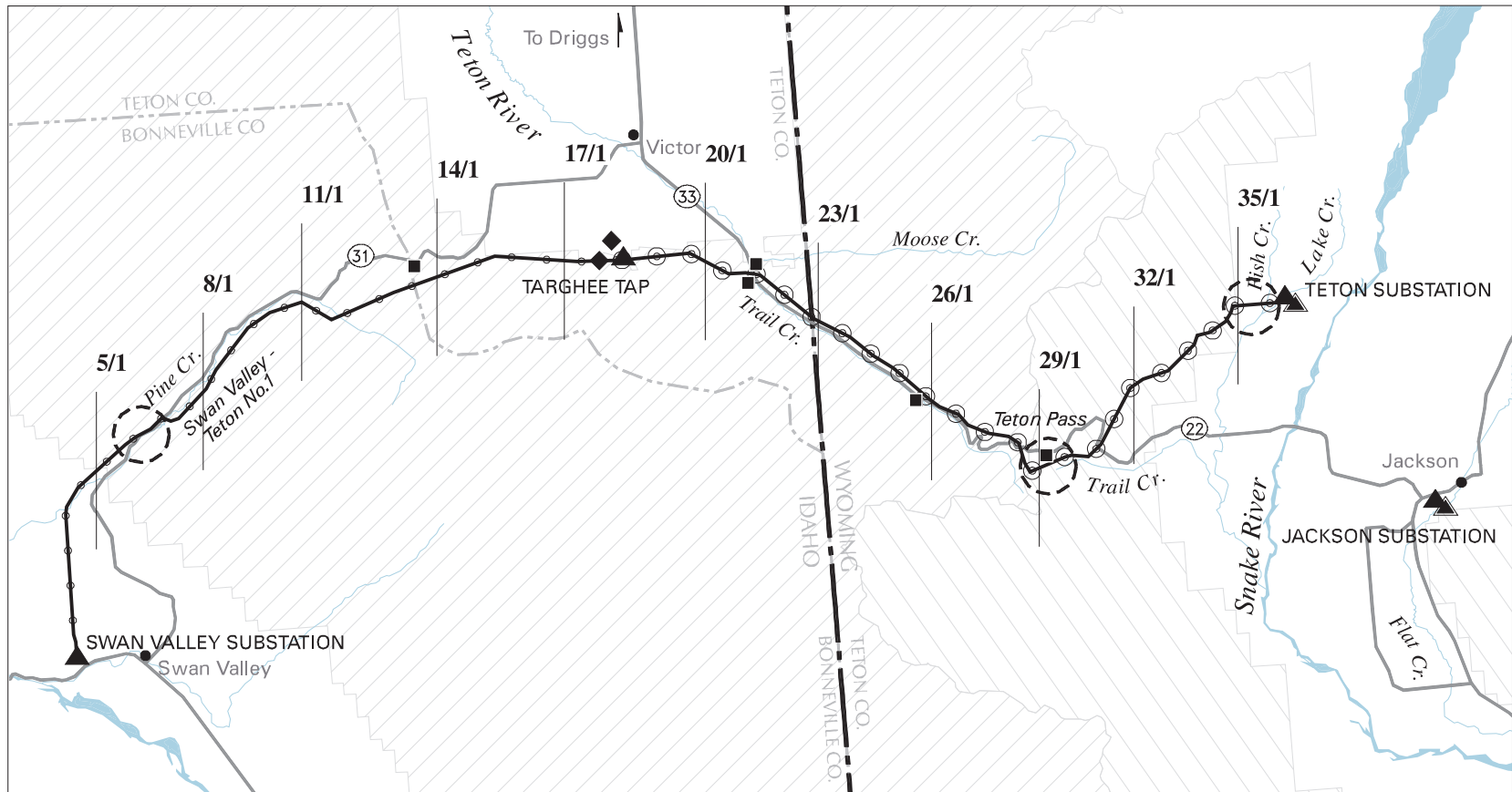


Source: BPA Regional GIS Database, Lower Valley Power and Light.

- |  |  |  |  |
|--|--|--|--|
|  | Facility   |  | Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative |
|  | SVC Alternative  |  | County Boundary  |
|  | Switching Station Locations                                |  | State Boundary   |
|  | Staging Area Locations                                     |  | Highway  |
|  | LVPL Transmission Line                                     |  | Double-Circuit Structures  |
|  | Agency Proposed Action and Single-Circuit Line Alternative |  |  |



# BPA / LOWER VALLEY TRANSMISSION PROJECT - SAMPLE STRUCTURE LOCATIONS (for reference)

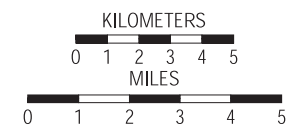


Source: Structure Locations from BPA Regional Database.

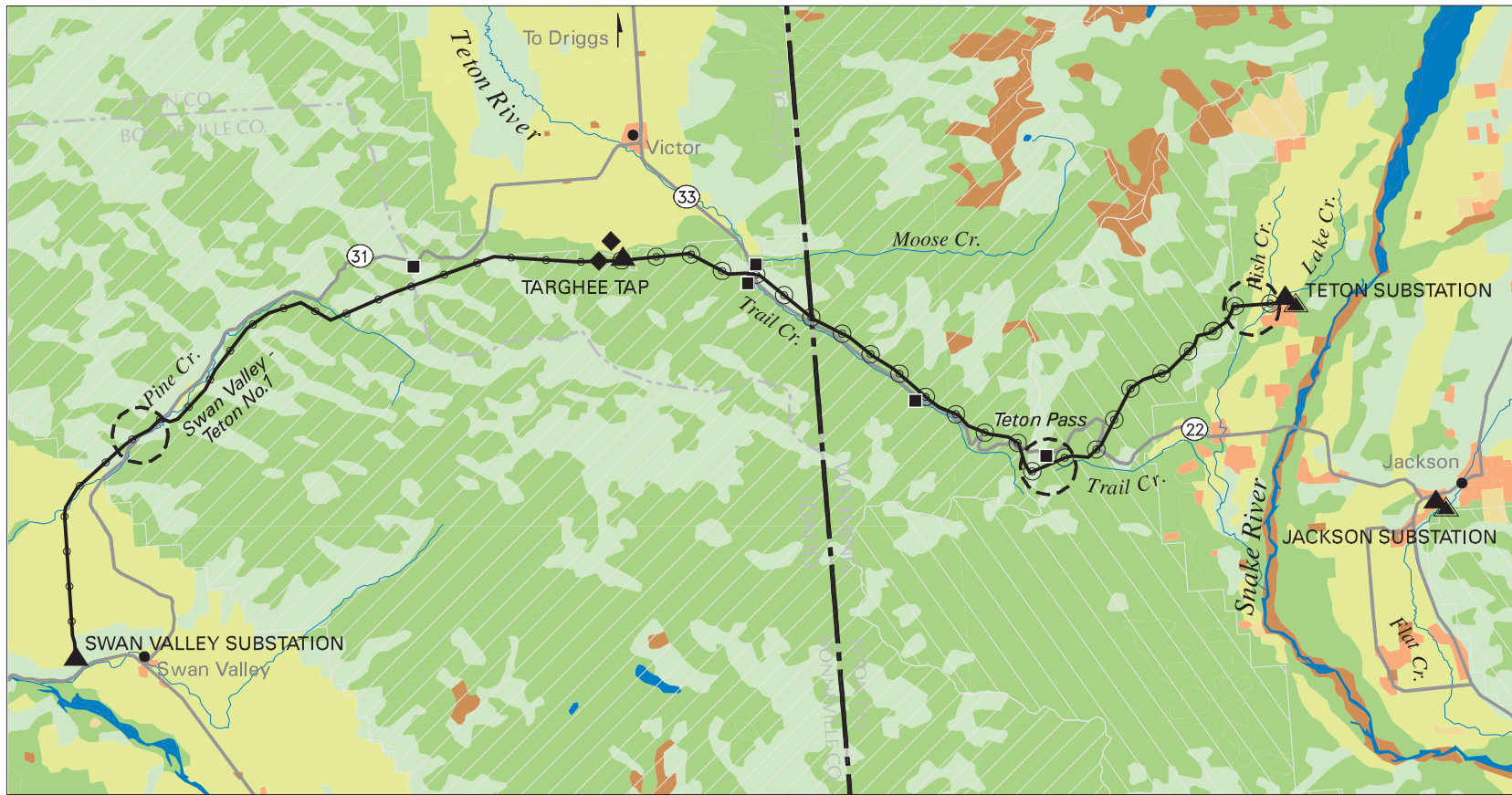
Map 2



- Facility
- SVC Alternative
- Switching Station Locations
- Staging Area Locations
- Agency Proposed Action and Single-Circuit Line Alternative
- Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative
- County Boundary
- State Boundary
- Highway
- Targhee N.F.
- Bridger-Teton N.F.
- 5/1** Existing Structure Number
- Double-Circuit Structures



# BPA / LOWER VALLEY TRANSMISSION PROJECT - LAND USE

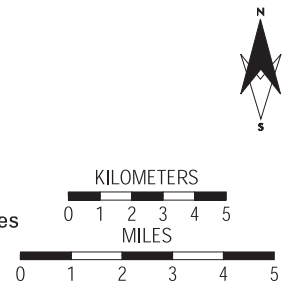


Source: GIRAS Land Use data from USGS, 1980s.

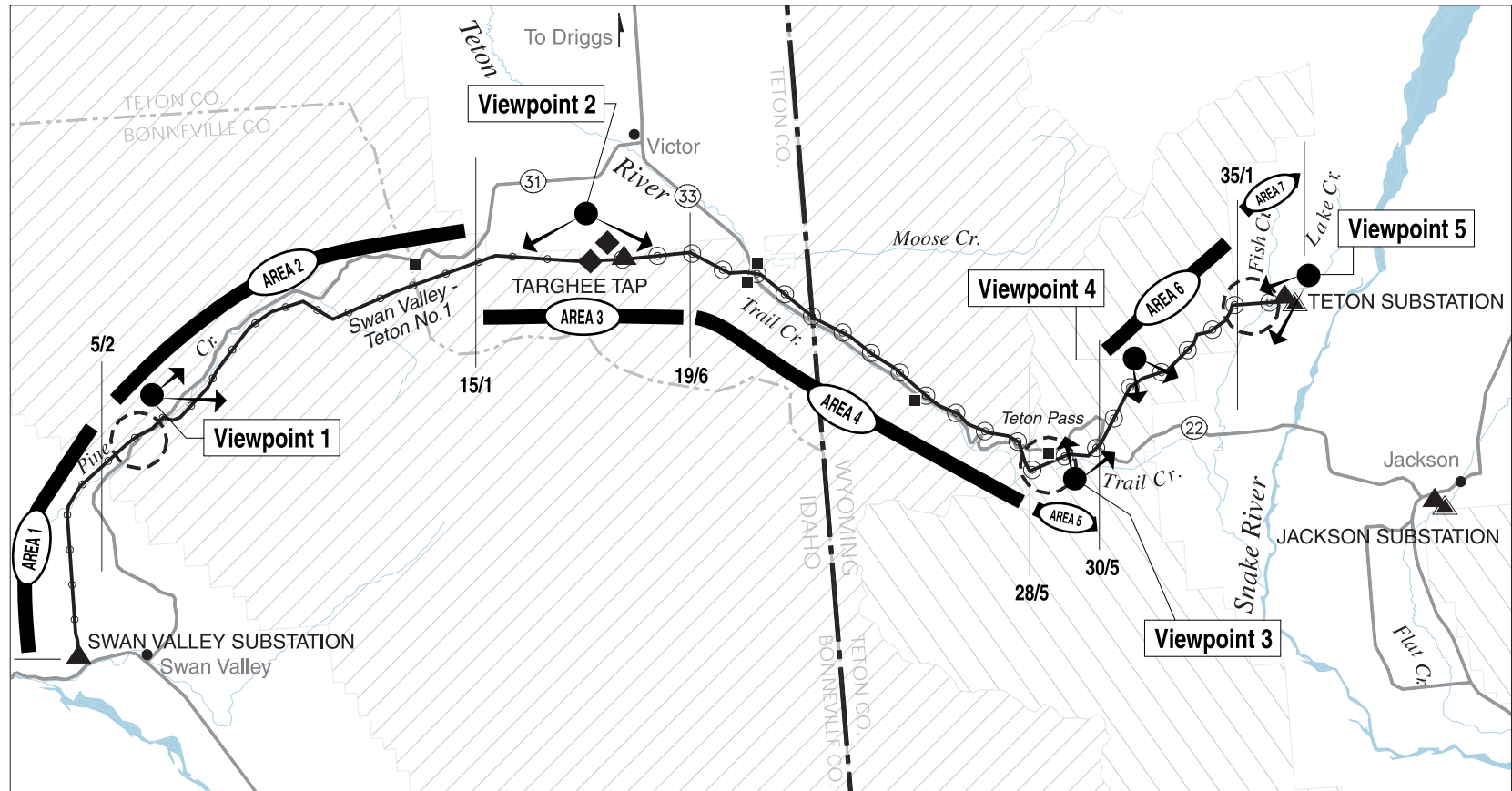
Map 3



- |   |  |     |                           |   |                            |
|---|--|-----|---------------------------|---|----------------------------|
| ▲ | Facility   | --- | County Boundary           | ■ | Rangeland                  |
| ▲ | SVC Alternative  | ⊖   | State Boundary            | ■ | Timberland                 |
| ◆ | Switching Station Locations  | ⚡   | Highway                   | ■ | Barren Land / Exposed Rock |
| ■ | Staging Area Locations   | ⚡   | Residential / Commercial  | ■ | Targhee N.F.               |
| ⚡ | Agency Proposed Action and Single-Circuit Line Alternative                         | ⚡   | Mixed Urban Built-up Land | ■ | Bridger-Teton N.F.         |
| ⚡ | Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | ⚡   | Agricultural Land         | ○ | Double-Circuit Structures  |



# BPA / LOWER VALLEY TRANSMISSION PROJECT - VISUAL ASSESSMENT AND VIEWPOINT LOCATIONS

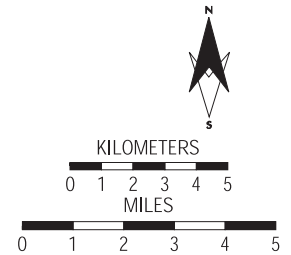


Source: Visual Assessment information from Jones and Stokes Associates, Inc.

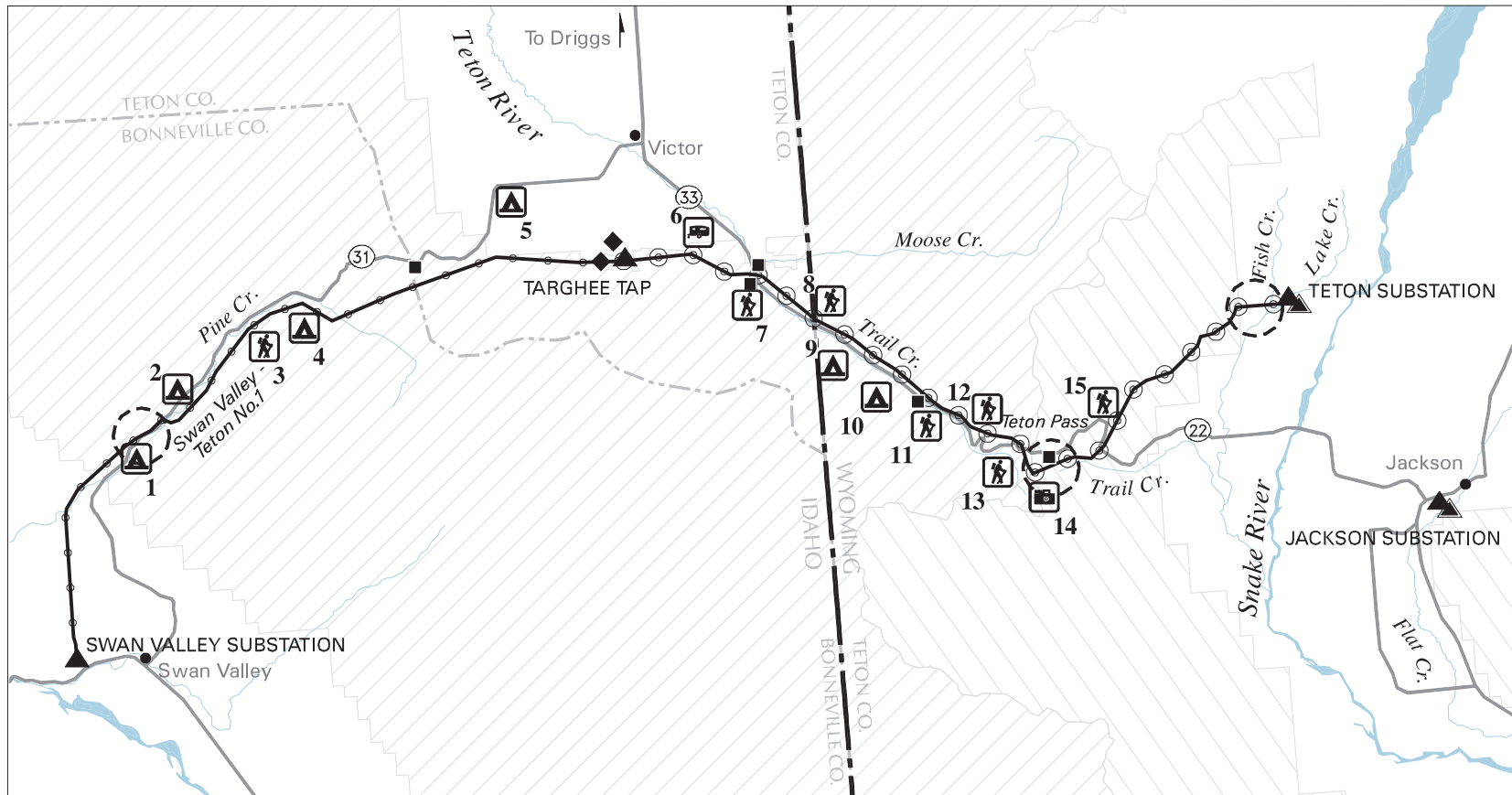
Map 4



- |  |                    |  |
|--|--------------------|--|
| Facility   | County Boundary    | Double-Circuit Structures                        |
| SVC Alternative  | State Boundary     | Viewpoint Location (Location of Photosimulation) |
| Switching Station Locations  | Highway            | Structure Number                                 |
| Agency Proposed Action and Single-Circuit Line Alternative                         | Targhee N.F.       | Visual Assessment Area                           |
| Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | Bridger-Teton N.F. | Staging Area Locations                           |



# BPA / LOWER VALLEY TRANSMISSION PROJECT - RECREATION SITES

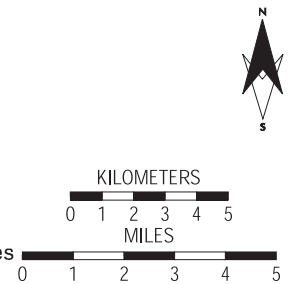


Source: Recreation information from Targhee and Bridger - Teton National Forests.

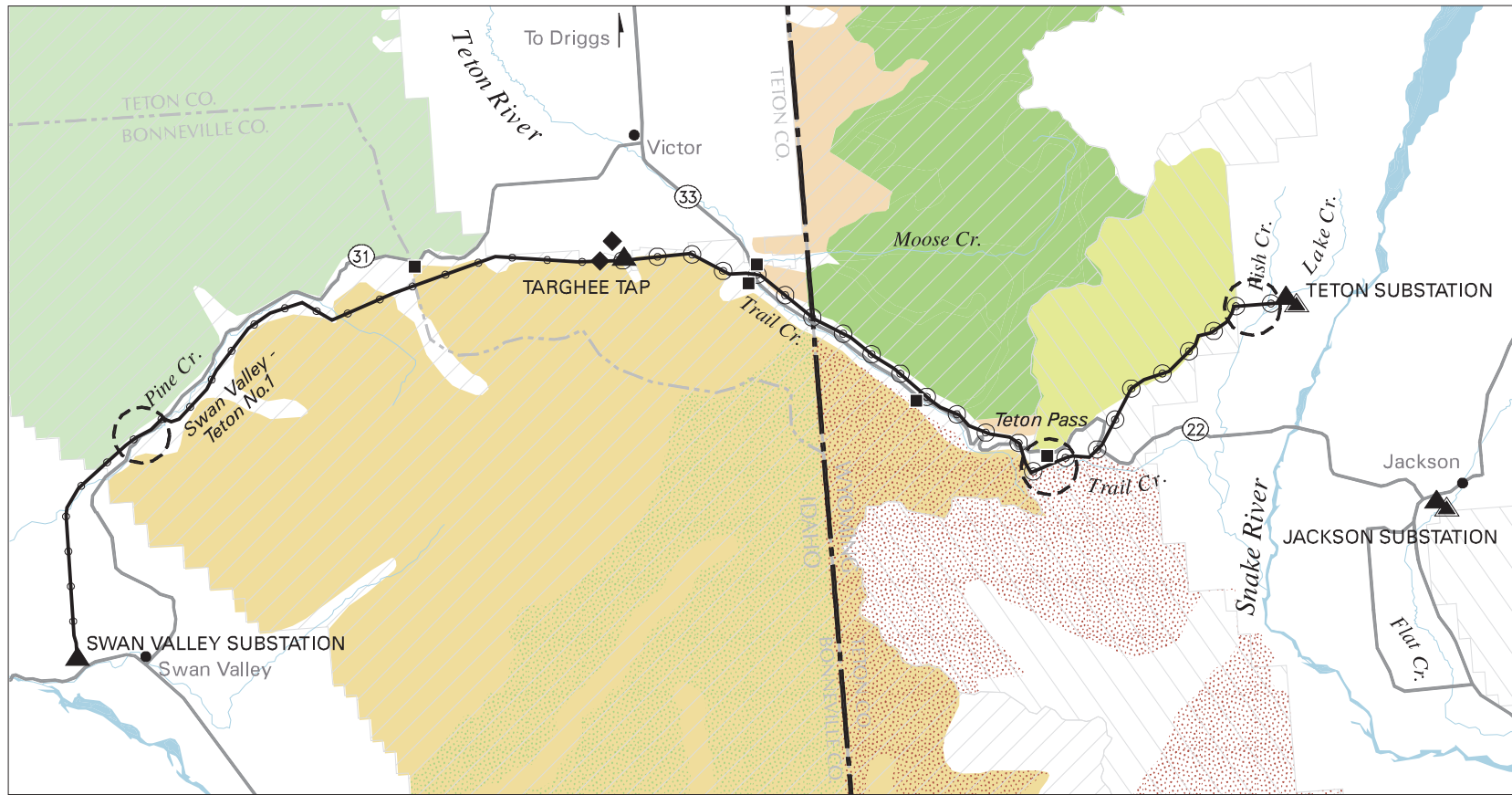
Map 5



- |  |                 |  |  |  |                           |
|--|-----------------|--|--|--|---------------------------|
|  | Campground      |  | Switching Station Locations  |  | County Boundary           |
|  | Hiking Trail    |  | Staging Area Locations   |  | State Boundary            |
|  | RV Camping      |  | Agency Proposed Action and Single-Circuit Line Alternative                         |  | Highway                   |
|  | Viewing Area    |  | Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative |  | Targhee N.F.              |
|  | Facility        |  |  |  | Bridger-Teton N.F.        |
|  | SVC Alternative |  |  |  | Double-Circuit Structures |



# BPA / LOWER VALLEY TRANSMISSION PROJECT - USFS WILDERNESS AND ROADLESS AREAS

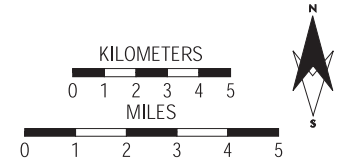


Source: Wilderness and Roadless information from Targhee and Bridger - Teton National Forests.

Map 6

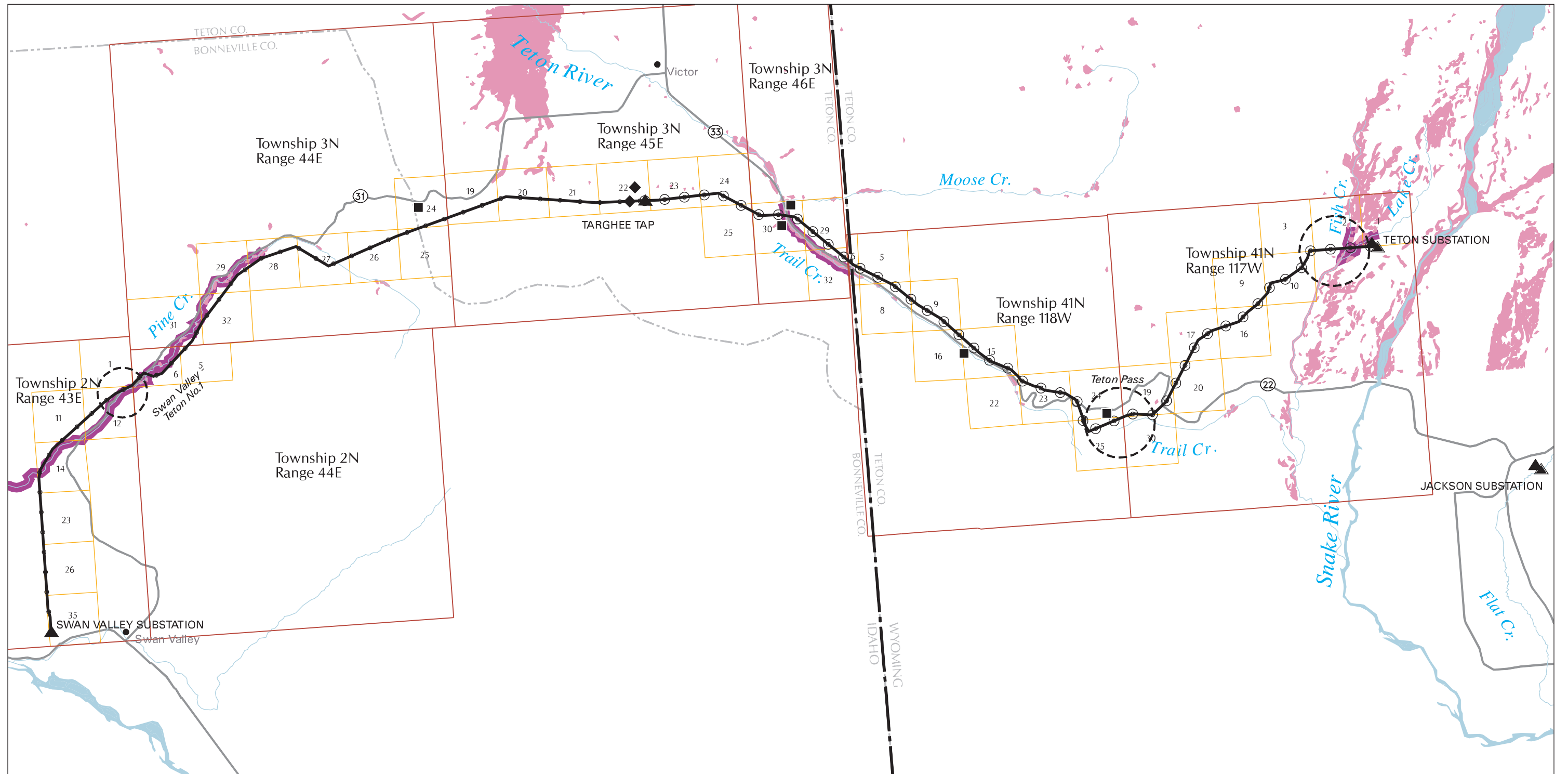


- |  |  |  |                             |
|--|--|--|-----------------------------|
| ▲ Facility   | --- County Boundary  | ■ Phillips Ridge Roadless Area               | ▨ Bridger-Teton N.F.        |
| ▲ SVC Alternative  | ~ State Boundary   | ■ Jedediah Smith Designated Wilderness       | ○ Double-Circuit Structures |
| ◆ Switching Station Locations  | ⦿ Highway  | ■ Palisades Recommended Wilderness           |                             |
| ■ Staging Area Locations   | ⦿ Agency Proposed Action and Single-Circuit Line Alternative | ■ Palisades Designated Wilderness Study Area |                             |
| ~ Agency Proposed Action and Single-Circuit Line Alternative                         | ■ West Slope Tetons Roadless Area                            | ▨ Targhee N.F.                               |                             |
| ~ Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative |  |  |                             |

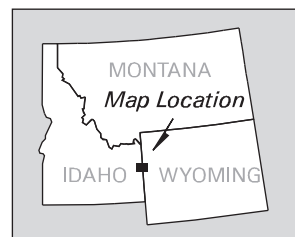




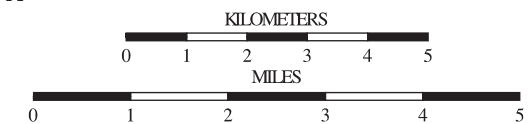
# BPA / LOWER VALLEY TRANSMISSION PROJECT - FLOODPLAINS and WETLANDS



Source: Wetlands information from U.S. Fish and Wildlife National Wetlands Inventory. 100-Year Floodplain from FEMA maps, May 1989 and November 1981.



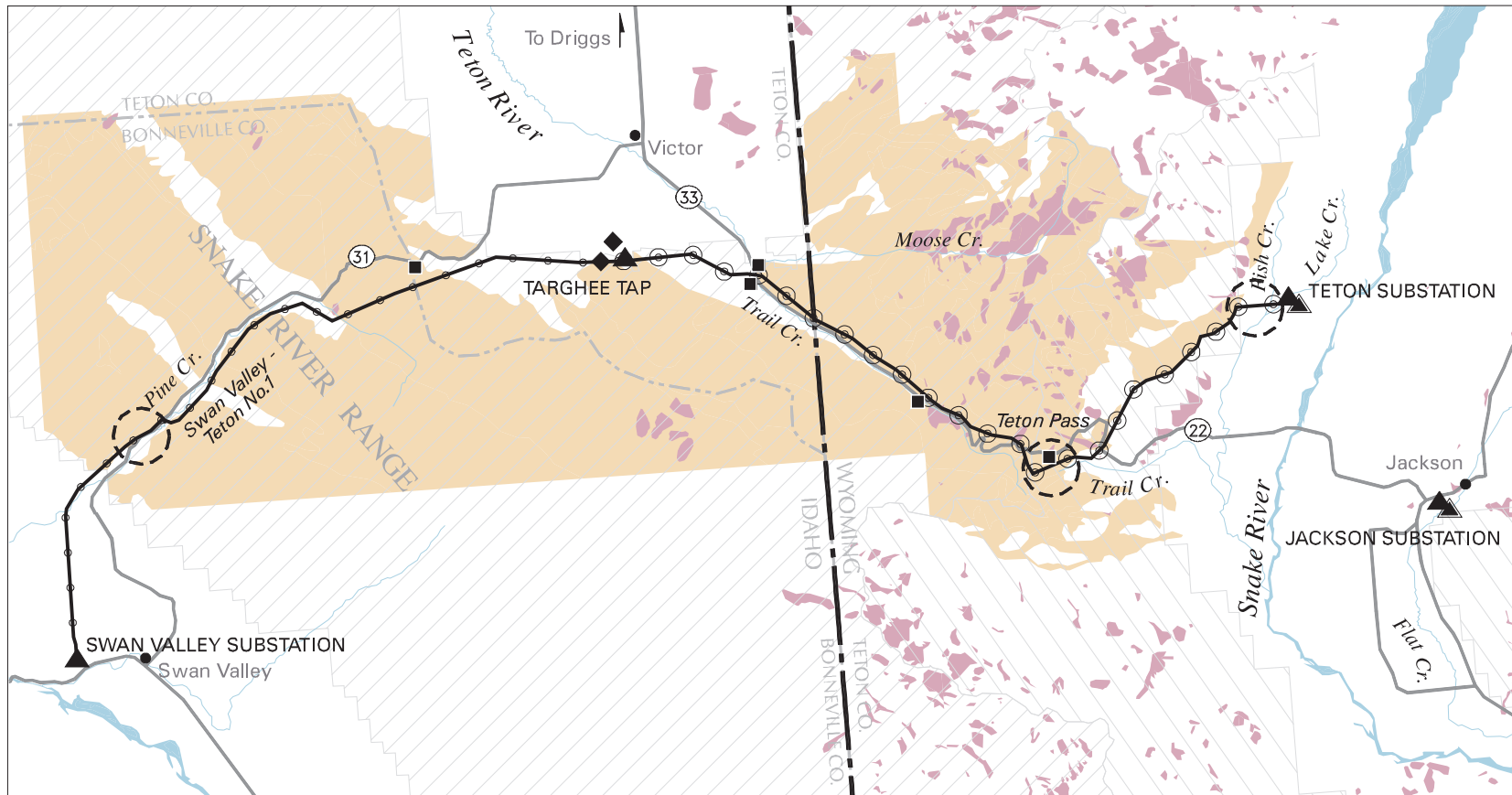
- |                               |  |                   |                                     |                             |
|-------------------------------|--|-------------------|-------------------------------------|-----------------------------|
| ▲ Facility                    | ⚡ Agency Proposed Action and Single-Circuit Line Alternative                         | ⚡ County Boundary | ⚡ Township Boundary                 | 16 Section Number           |
| ▲ SVC Alternative             | ⚡ Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | ⚡ State Boundary  | 🌸 USFWS National Wetlands Inventory | ⊖ Double-Circuit Structures |
| ◆ Switching Station Locations |  | ⚡ Highway         | 🟪 100-Year Floodplain               |                             |
| ■ Staging Area Locations      |  | ⚡ Section Line    |                                     |                             |



Map 7

Map 7

# BPA / LOWER VALLEY TRANSMISSION PROJECT - SOIL LIMITATIONS



Source: Soils and Landslide information from Targhee and Bridger - Teton National Forests.

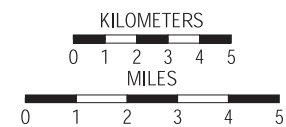
Map 8



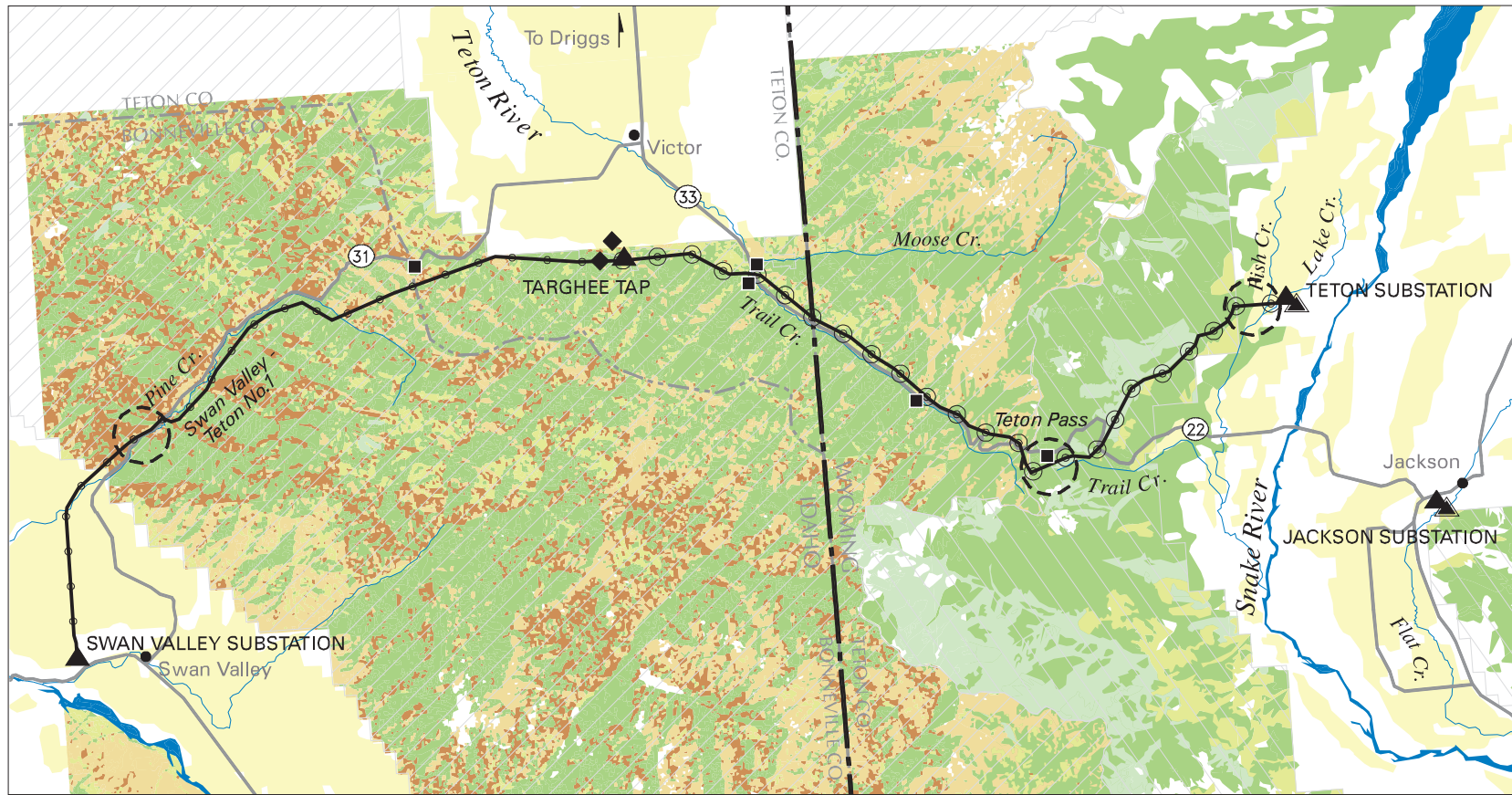
- ▲ Facility
- ▲ SVC Alternative
- ◆ Switching Station Locations
- Staging Area Locations
- Agency Proposed Action and Single-Circuit Line Alternative
- Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative

- County Boundary
- State Boundary
- ③ Highway
- ▨ Targhee N.F.
- ▨ Bridger-Teton N.F.
- Soil Map Units With High Erosion Hazard, Poor Revegetation Potential, and Discernable Evidence of Past Mass Movement

- Mapped Landslides
- Double-Circuit Structures



# BPA / LOWER VALLEY TRANSMISSION PROJECT - VEGETATION

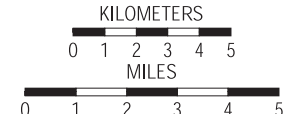


Source: GIRAS Land Cover data from USGS, 1980s, for lands outside of National Forest Boundaries. Targhee and Bridger - Teton National Forests.

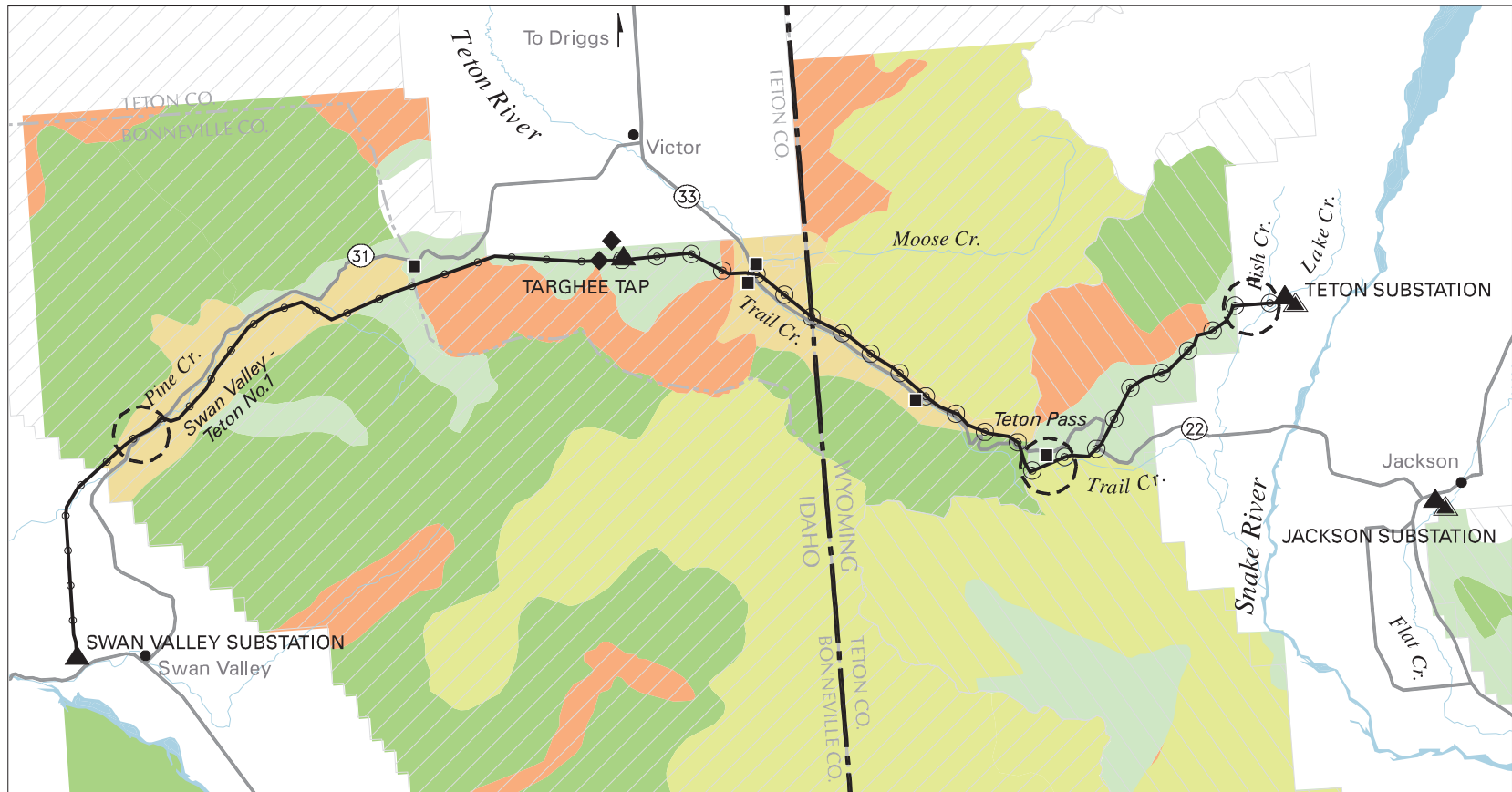
Map 9



- |  |   |                             |
|--|---|-----------------------------|
| ▲ Facility   | ⚡ State Boundary  | □ Unknown or No Vegetation  |
| ▲ SVC Alternative  | ⦿ Highway   | ▨ Targhee N.F.              |
| ◆ Switching Station Locations  | ■ Mountain Brush  | ▨ Bridger-Teton N.F.        |
| ■ Staging Area Locations   | ■ Mixed Conifer (includes Douglas fir and lodgepole pine) | ○ Double-Circuit Structures |
| ⚡ Agency Proposed Action and Single-Circuit Line Alternative                         | ■ Aspen   |                             |
| ⚡ Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | ■ Subalpine Fir and Engelmann Spruce                      |                             |
| ⚡ County Boundary  | ■ Grass, Brush, Forb, Sage                                |                             |
|  | ■ Agricultural Land                                       |                             |

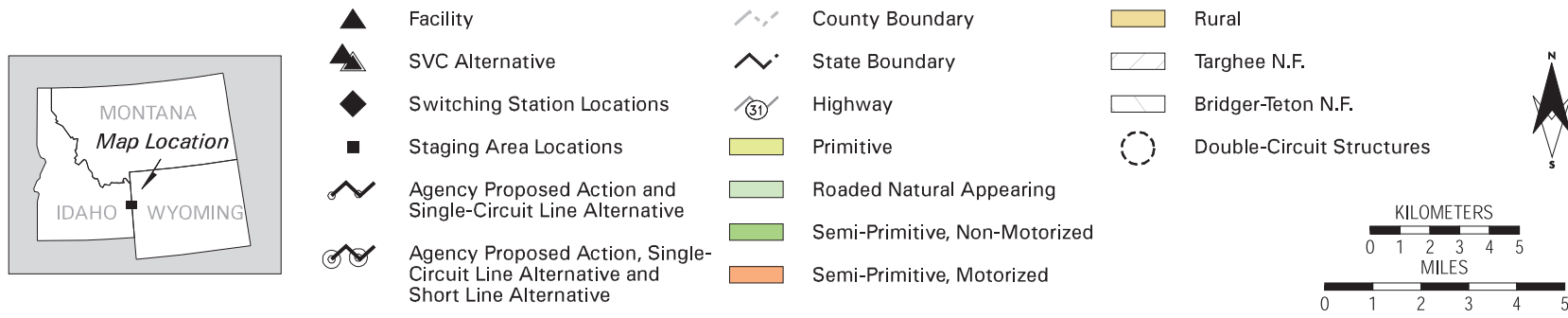


# BPA / LOWER VALLEY TRANSMISSION PROJECT - USFS RECREATION OPPORTUNITY SPECTRUM



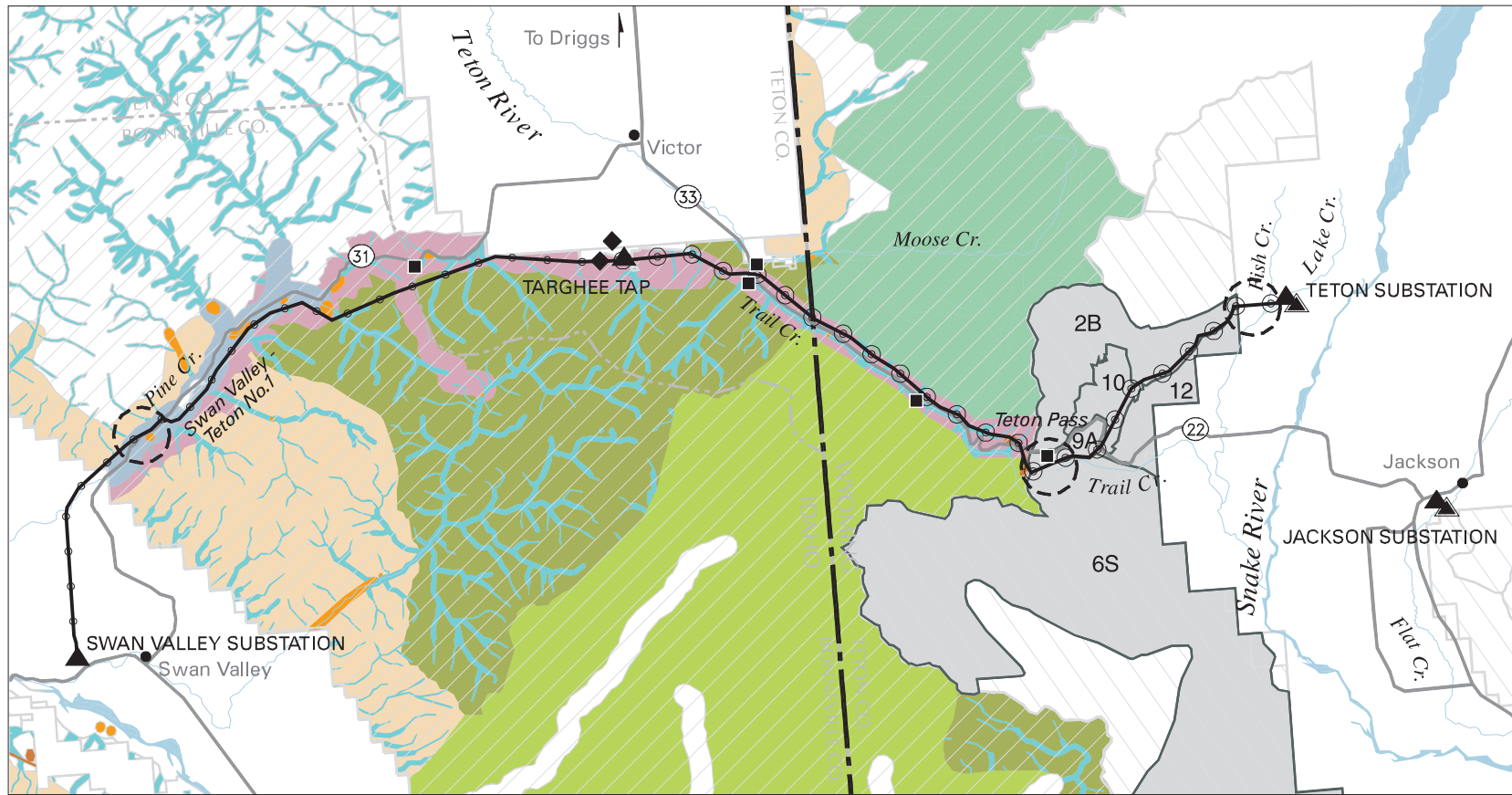
Source: Recreation Opportunity Spectrum information from Targhee and Bridger - Teton National Forests.

Map 10



Map 10

# BPA / LOWER VALLEY TRANSMISSION PROJECT - USFS MANAGEMENT PRESCRIPTIONS



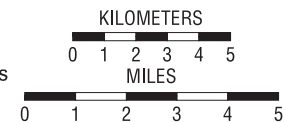
Source: Management Prescription information from Targhee and Bridger - Teton National Forests.

Map 11

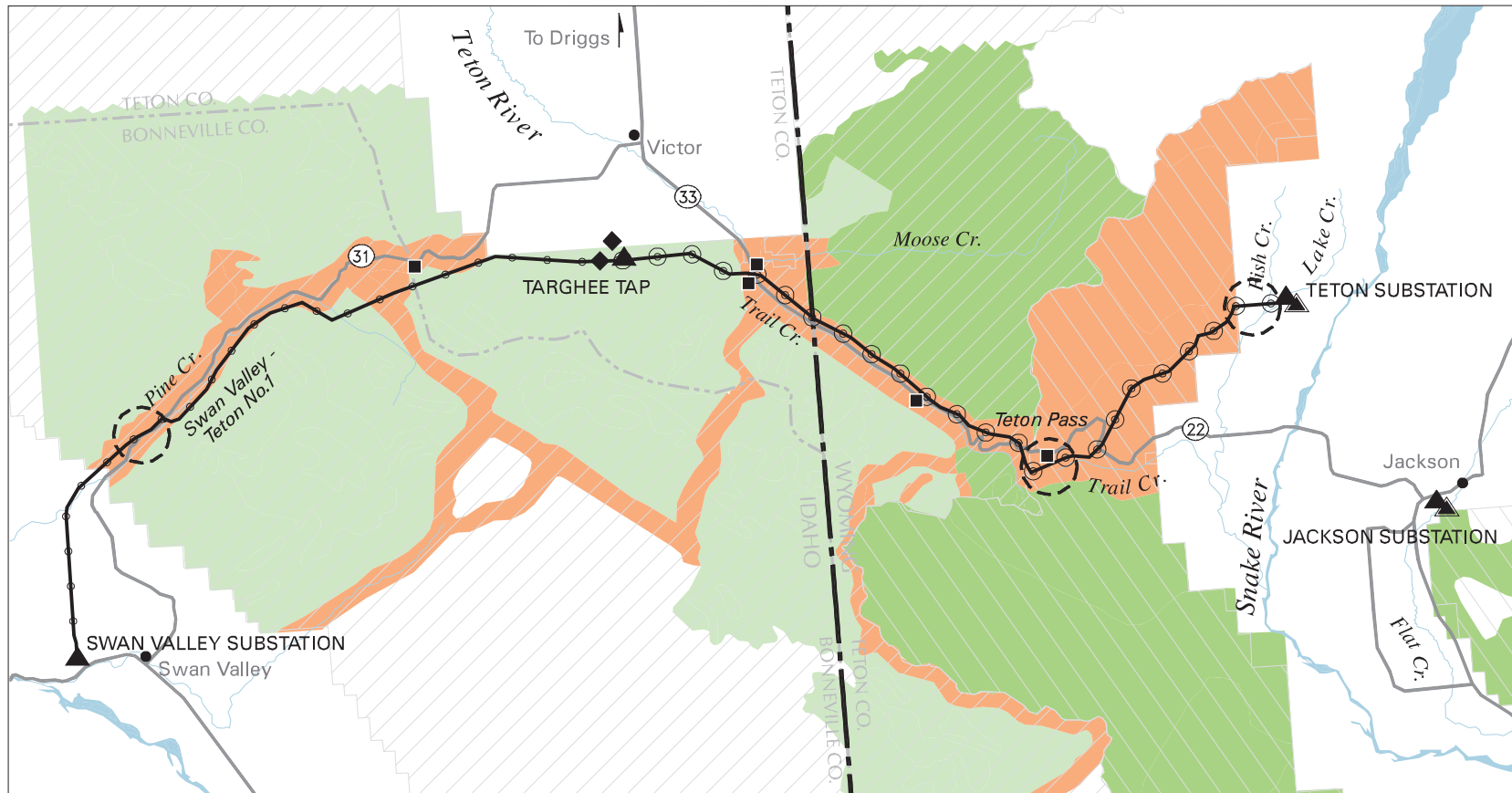


- |  |                     |  |                             |
|--|---------------------|--|-----------------------------|
| ▲ Facility   | --- County Boundary | 2.7(a)   | ▨ Targhee N.F.              |
| ▲ SVC Alternative  | — State Boundary    | 3.2(g & j)   | ▨ Bridger-Teton N.F.        |
| ◆ Switching Station Locations  | Ⓧ Highway           | 4.1, 4.2, 4.3  | ⊖ Double-Circuit Structures |
| ■ Staging Area Locations   | 1.1.6, 1.1.7, 1.1.8 | 8.1 (not visible at this scale, obstructed by line symbol) |                             |
| ⚡ Agency Proposed Action and Single-Circuit Line Alternative                         | 1.2, 1.3            | 2.8.3  |                             |
| ⚡ Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | 2.1.2               | 2.5  |                             |
|  | 2.5                 | ▨ Bridger-Teton Prescriptions                              |                             |

See Table 5-1 and 5-2 for Management Prescriptions.



# BPA / LOWER VALLEY TRANSMISSION PROJECT - USFS VISUAL QUALITY OBJECTIVE BOUNDARIES

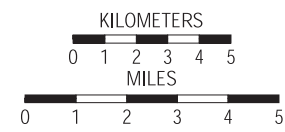


Source: Visual Quality information from Targhee and Bridger - Teton National Forests.

Map 12



- |  |                     |                             |
|--|---------------------|-----------------------------|
| ▲ Facility   | --- County Boundary | ▨ Targhee N.F.              |
| ▲ SVC Alternative  | ~ State Boundary    | ▨ Bridger-Teton N.F.        |
| ◆ Switching Station Locations  | Ⓧ Highway           | ○ Double-Circuit Structures |
| ■ Staging Area Locations   | ■ Preservation      |                             |
| ~ Agency Proposed Action and Single-Circuit Line Alternative                         | ■ Retention         |                             |
| ~ Agency Proposed Action, Single-Circuit Line Alternative and Short Line Alternative | ■ Partial Retention |                             |



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