

**Bonneville Power Administration
Schultz-Hanford Area Transmission Line Project
Record of Decision**

Decision

The Bonneville Power Administration (BPA) has decided to construct the proposed Schultz-Hanford Area Transmission Line Project in Benton, Douglas, Grant, Kittitas, and Yakima Counties, Washington. BPA has decided to implement the Agency Preferred Alternative identified in the Schultz-Hanford Area Transmission Line Project Final Environmental Impact Statement (DOE/EIS-0325, January 2003), with the exception of Option 1 of the Sickler-Schultz Reroute. Due to landowner concerns, BPA will now implement Option 2 of the Sickler-Schultz Reroute.

The Agency Preferred Alternative consists of constructing a new 500-kilovolt (kV) transmission line between the Schultz Substation north of Ellensburg, Washington, and a new substation, Wautoma Substation, 2 miles south of Highway 24 in Benton County, Washington, a distance of about 64 miles. The Agency Preferred Alternative will primarily use 500-kV single-circuit steel lattice structures. Through an agricultural area near Mattawa, for approximately 9 miles, 500-kV double-circuit lattice structures will be used to hold the new 500-kV line and the existing Midway-Vantage 230-kV line. New right-of-way of 150 to 180 feet will be needed for the new line. As part of the Agency Preferred Alternative, BPA has decided to construct new and upgrade existing access roads; construct a new bay within the existing fenced yard of the Schultz Substation; re-route the existing Sickler-Schultz 500-kV transmission line; construct a new substation called Wautoma Substation, in Benton County; loop the existing Hanford-Ostrander 500-kV and Hanford-John Day 500-kV transmission lines through the Wautoma Substation; and install fiber optic cable between the Vantage Substation and the new Wautoma Substation and the Vantage Substation and the Columbia Substation.

Background

BPA owns and operates a system of transmission lines that move electricity through central Washington. Since the mid-1990's, the transmission lines that move electricity in a north-to-south direction on the east side of the Cascades, north of the U.S. Department of Energy Hanford Reservation (Hanford Site), have grown increasingly constrained. During spring and early summer months, the amount of power that needs to move through this area exceeds the carrying capacity of the existing transmission lines. Not having enough transmission capacity can compromise the region's safety and decrease transmission system reliability.

In the event of an outage, additional power cannot be moved through the existing transmission system because the lines would overheat and sag below acceptable levels, potentially causing fires and further equipment failure. This can lead to brownouts or, under certain conditions, a blackout. Therefore, BPA needs to increase transmission capacity north of Hanford to move additional power through this area.

BPA has limited transmission capacity north of Hanford primarily because of two reasons: wholesale power deregulation and obligations to threatened and endangered species (fish).

Wholesale power deregulation started in 1992, causing BPA to cut costs in many ways in order to stay competitive in an open market. One of the costs BPA reduced was construction of major transmission lines. Investments in the transmission system (including maintenance) were small, inexpensive, and quickly energized compared to building expensive transmission lines. This allowed BPA to squeeze more performance out of the existing transmission system and continue to meet growing load. Over the past 5 years, there has been an increase in the usage of the transmission system due to an increase in regional power transfers. The increased transmission usage in the Northwest has outrun the capacity of the existing transmission system.

During this same period, 12 distinct populations of salmon species have been listed as threatened or endangered under the Endangered Species Act within the Columbia River Basin. Federal agencies that operate the dams in the Northwest are required to take specific actions to help salmon survive. During the spring run-off, water in the Lower Snake and Columbia Rivers that had previously been used to generate electricity at dams (Lower Granite to Bonneville) is now used to help transport juvenile salmon downriver to the ocean. Spilling water over these dams causes less water to go through the turbines which results in less power being generated. To make up for the loss of generation, dams along the mid- and upper-Columbia River in northern Washington (e.g., Grand Coulee and Chief Joseph), need to generate additional power to meet market demands during the spring and summer months. This is in addition to power coming from Canada.

As electricity is generated at the mid- and upper-Columbia River dams, it moves south through central Washington to load centers like Portland and Seattle, and to the Southern Intertie. It also flows west over the Cascade Mountains and then south through the Seattle area. The transmission capacity across the north-of-Hanford area cannot accommodate the amount of electricity needing to flow through the area to the south.

Rationale for Decision

BPA has analyzed the environmental impacts of the Agency Preferred Alternative (Alternative 2), Alternatives 1, 3, and 1A, and the No Action Alternative, and has considered public comments received on the Draft EIS. In making its decision, BPA considered how well the various alternatives would meet the following project purposes (i.e., objectives) identified for this project in the Final EIS:

- Maintain transmission system reliability;
- Optimize transmission system usage;
- Minimize environmental impacts;
- Minimize costs; and
- Meet energization date of late 2004.

BPA believes that implementation of the Agency Preferred Alternative would best meet these objectives.

The Agency Preferred Alternative will provide another line north of the Hanford Substation, will connect two existing 500-kV lines and the new line to Wautoma Substation to reduce transmission system impacts resulting from the potential loss of two existing lines south of the Hanford Substation, and will create a new switching station for the 500-kV transmission grid.

The Agency Preferred Alternative will reduce loading of existing transmission lines west of the Cascades by 170 megawatts and will facilitate the integration of new generation.

The Agency Preferred Alternative creates the least environmental impacts of all build alternatives. Segment D essentially expands existing right-of-way, reducing impacts to areas presently unaffected by transmission lines. BPA minimized potential environmental and social impacts through project design and development of mitigation measures. Cultural resources and historic properties discovered along the line will be avoided, protected, or further evaluated as necessary. Removal and/or fill in wetlands that cannot be avoided will be permitted through the U.S. Army Corps of Engineers and other regulating agencies and all permit conditions will be met. Fish impacts will be minimized by spanning all fish-bearing streams, doing in-water construction during Washington Department of Fish and Wildlife construction work windows, preserving riparian vegetation to the extent possible, and providing erosion-control measures at construction sites. Wildlife impacts will be lessened by minimizing vegetation disturbance, scheduling construction so as not to disturb wintering bald eagles, and providing bird diverters on overhead ground wires and/or fiber optic cables in areas of high flyway use. Vegetation and wildlife habitat impacts will be mitigated through reseeding disturbed areas and avoiding construction in sensitive plant species populations. BPA will also continue to work with public agencies to either identify pristine properties for purchase or to restore, protect, or enhance other off-site properties. Additional incremental visual impacts will occur from another transmission line adjacent to or within existing corridors. BPA has attempted to minimize this impact by locating the proposed line next to existing lines to the greatest extent possible and using a lower structure design in some areas. BPA will continue to work with landowners in efforts to lessen impacts as much as possible to irrigation systems, orchards, vineyards, and other crops. Marker balls will be installed on transmission line conductors across the Yakima Training Center to minimize aircraft collision risk. In addition, aircraft warning lights may be installed at the top of towers. Following strict procedures for disposal will minimize impacts from construction-related materials. Vehicles will carry fire-suppression equipment to minimize the threat of fires. Construction crews will also supply additional suppression equipment if construction occurs on Federal property that requires more caution, or if the chance of fire is high. Short-term impacts of construction on socioeconomics, air quality, recreation, floodplains, water resources, soils and geology, and noise will be lessened through the use of mitigation measures. A complete list of mitigation measures adopted for the project is attached.

The Agency Preferred Alternative would cost about \$107 million. While the Agency Preferred Alternative is not the cheapest alternative, these are reasonable costs for the construction of a new substation, about 64 miles of 500-kV line, and associated work.

The Agency Preferred Alternative would meet the energization date of late 2004; also meeting the requirements of the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, 2000 Biological Opinion on operation of the Federal Columbia River Power System.

Alternatives

BPA considered the Agency Preferred Alternative (Alternative 2), Alternatives 1, 3, and 1A, and the No Action Alternative. The alternatives were divided into segments. Segment A was common to all construction alternatives. Segment B had two route options, B_{NORTH} and B_{SOUTH}. The remaining segments were C, D, E, and F.

The Agency Preferred Alternative is made up of Segments A (including Option 2 of the Sickler-Schultz Reroute), B_{SOUTH}, and D. It does not include the Segment A Reroute.

Segments

Segment A

Common to all alternatives, Segment A will start at BPA's Schultz Substation and go southeast, following the existing Schultz-Vantage 500-kV transmission line. BPA will redesign the existing lines that currently exit the Schultz Substation to the east, to make room for the new line and improve the configuration of the existing lines. This redesign is referred to as the Sickler-Schultz Reroute. BPA will relocate the first mile of the existing Sickler-Schultz 500-kV transmission line from its current location to a new bay on the north side of the substation.

From the substation, the Sickler-Schultz Reroute (Option 2) will head east along the main corridor for approximately 3,350 feet before turning northeast for approximately ½ mile to intersect with the existing Rocky Reach-Maple Valley 345-kV line. The new line will follow the Rocky Reach-Maple Valley line for approximately 1½ miles to the northeast. At this point, the relocated Sickler-Schultz line will reconnect with the existing Sickler-Schultz line and continue to the northeast. Option 1 followed approximately the same alignment as Option 2, but turned to the northeast about 1,200 feet west of Option 2.

The existing Schultz-Vantage 500-kV line from Schultz Substation to the Naneum crossing will be rebuilt. The line will then be connected with the new transmission line running parallel to the existing Schultz-Vantage line to the southeast. The existing Schultz-Vantage line will be connected to the vacated portion of the Sickler-Schultz line running into the Schultz Substation. The portion of the Sickler-Schultz line that runs due north from the Naneum crossing will be removed because it will no longer be needed.

Southeast of Naneum crossing the new transmission line will be constructed roughly parallel to the existing Schultz-Vantage line. The new line will be located on the north side of the existing line starting with a 200-foot separation for approximately 6 miles and then a 400-foot separation for approximately 4 miles. The remaining 13 miles will have a variable separation ranging from 500 feet to 1,375 feet. Segment A is about 28 miles long, including 2¼ miles of relocated Sickler-Schultz line and 2 miles of rebuilt line between Schultz Substation and the Naneum crossing.

Segment A Reroute

There was a potential reroute within Segment A, the Segment A Reroute. This reroute was introduced when BPA identified potential difficulty in acquiring the rights to build the new line parallel to the existing Schultz-Vantage line across a large parcel northwest of Colockum Road. The Segment A Reroute would have been located around the land parcel in question. BPA's

right to keep the existing Schultz-Vantage line on the property was also in question; therefore, the Segment A Reroute included the relocation of the existing line.

The existing Schultz-Vantage line and the new transmission line would have been rerouted in a southeasterly direction approximately ½ mile southeast of Coleman Road. Approximately 200 feet would have separated the two lines. At the crossing of Cooke Canyon Road, the lines would have been directed east. The rerouted lines would have then intersected with the original alignment just west of Colockum Road and the new line would have remained on the north. The Segment A Reroute would have been approximately 1¼ mile long.

Had the Segment A Reroute been chosen, a little more than a mile of the existing Schultz-Vantage line would have been removed.

Segment B

Segment B begins where the new transmission line crosses to the south side of the existing Schultz-Vantage line, approximately 5 miles south of where the Schultz-Vantage transmission line crosses Interstate 90.

Segment B had two route options, B_{NORTH} and B_{SOUTH}. The original route was B_{NORTH}, which would have followed the existing line at the planned separation of 1,200 feet. Representatives from the Yakima Training Center (YTC) requested another route where the new line would parallel other transmission lines farther to the south than the Schultz-Vantage line. These other transmission lines are less than 500-kV, thus enabling BPA to group the lines closer together and reduce the aerial training concerns. B_{NORTH} would have run to the east, parallel to and 1,200 feet south of the Schultz-Vantage line. This route option followed the existing line across the Columbia River and ended at the BPA Vantage Substation. B_{NORTH} was about 9 miles long.

B_{SOUTH} will initially run to the southeast, then cross two other transmission lines and turn almost due east. The new line will parallel an existing 230-kV wood pole transmission line on the south side of the John Wayne Trail for approximately 5 miles. Just before the Columbia River, B_{SOUTH} will angle slightly to the north towards the Schultz-Vantage line. The two lines will parallel one another with a 300-foot separation and will cross the Columbia River. B_{SOUTH} will end at the south end of the BPA Vantage Substation and is approximately 9½ miles long.

Segment C

Segment C started in the same place as Segment B (where the new line crosses the existing Schultz-Vantage line). The segment would have turned south, crossing the YTC. This segment would not have paralleled an existing line. The segment would have angled southeast, leaving the YTC, crossing Highway 24, and ending where it intersected the existing Hanford-Ostrander and Hanford-John Day 500-kV transmission lines. This intersection of lines will be the site of a new substation, called Wautoma Substation. Segment C was about 30 miles long.

Segment D

Segment D will begin in the area just south of Vantage Substation. The new line will not enter the substation. Segment D will head in a southeasterly direction, running parallel approximately 125 feet to the west of the existing Midway-Vantage 230-kV line. This separation will continue for approximately 4 miles and across Crab Creek.

While climbing the Saddle Mountains, the separation between the new and existing lines will increase, with the widest point (approximately 400 feet wide) at the top of the mountain. The separation will slowly decrease on the south side of the Saddle Mountains and the lines will be immediately adjacent to one another approximately 9 miles south of Vantage Substation.

Northeast of Mattawa, the existing Midway-Vantage line structures will be removed and replaced with double-circuit structures carrying the new line and the Midway-Vantage 230-kV line through irrigated areas. This double-circuit section will be about 8 miles long. The conductors on the east side of the double-circuit structures will operate at 230-kV (existing Midway-Vantage line), and the west side would operate at 500-kV (new line). The right-of-way on the east side will extend 50 feet from centerline and on the west side it will extend 75 feet from centerline. Beyond the irrigated areas, just north of the Columbia River, Segment D will again parallel the Midway-Vantage line on the west side and cross the Columbia River. Segment D will pass the BPA Midway Substation on the west side and continue south up the Umtanum Ridge. The new line will parallel the existing Midway-Big Eddy 230-kV line 125 feet to the west. South of State Route 24, the new line will cross to the east side of the Midway-Big Eddy where it crosses two other lines. The new line will angle away from the existing lines as it climbs and descends the Yakima Ridge, terminating in the new Wautoma Substation. Segment D is approximately 27 miles long.

Segment E

Segment E began at the Vantage Substation and headed south, paralleling the existing Vantage-Hanford 500-kV line 1,200 feet to the north. It would have crossed Crab Creek, climbed the Saddle Mountains, and headed southeast, crossing the Saddle Mountain Unit of the Hanford Reach National Monument. After crossing the Columbia River, Segment E would have ended at the existing BPA Hanford Substation. Segment E was approximately 25 miles long.

Segment F

Segment F began at the Vantage Substation and headed east, then south crossing Crab Creek and climbing the Saddle Mountains. It would have then followed the Vantage-Hanford line for a short length before turning due east. Segment F would have traversed about 14 miles along the south slope of the Saddle Mountains, and then intersected the Grand Coulee-Hanford 500-kV transmission line. It would have then turned south and paralleled the existing Grand Coulee-Hanford line 1,200 feet to the east across the Wahluke Slope. After crossing the Columbia River, the segment would have ended at the Hanford Substation. Segment F was about 33 miles long.

Agency Preferred Alternative (Alternative 2)

The Agency Preferred Alternative consists of constructing a new 500-kV transmission line between the Schultz Substation north of Ellensburg, Washington, and a new substation (Wautoma Substation) two miles south of Highway 24 in Benton County, Washington, a distance of about 64 miles.

The Agency Preferred Alternative will primarily use 500-kV single-circuit steel lattice structures. More than half of the structures will be delta configuration. Flat configuration will be used in three selected areas (across the YTC, across U. S. Bureau of Land Management land on the Saddle Mountains, and across Hanford Monument at Umtanum Ridge). New right-of-way will

be needed for the new structures and line. The new right-of-way will be 150 feet wide for the delta configuration structures and 180 feet wide for flat configuration. Construction will include the upgrade of existing access roads and the construction of new access roads.

A new bay will be constructed within the existing fenced yard of the Schultz Substation. The first couple of miles of the Sickler-Schultz 500-kV transmission line will be re-routed to the northeast. The new Wautoma Substation will be constructed in Benton County, 2 miles south of Highway 24. Approximately 47 acres will be purchased for the new substation although the fenced area of the substation will be about 780 feet by 490 feet. An access road will be built between State Route 241 and the substation.

Also, as part of the Agency Preferred Alternative, BPA will install fiber optic cable on a combination of new and existing transmission lines between the Vantage Substation and the new Wautoma Substation (approximately 27 miles) and on an existing transmission line from the Vantage Substation north to the Columbia Substation (approximately 32 miles).

Alternative 1

Alternative 1 would have started at the Schultz Substation and followed Segments A and B_{SOUTH}. It did not include the Segment A Reroute. The line would have entered the Vantage Substation in order to pass to the east side of existing lines. It would have then followed the existing Vantage-Hanford 500-kV line 1,200 feet to the north along Segment E, and would have been about 62 miles long. The new line would have ended at the existing Hanford Substation.

Alternative 3

Alternative 3 would have started at the Schultz Substation and followed Segment A. It would not have included the Segment A Reroute. It would have then turned south and followed Segment C through the YTC. South of the YTC in Benton County, the line would have terminated at the new Wautoma Substation. It would have been approximately 58 miles long.

Alternative 1A

Alternative 1A would have started at the Schultz Substation and followed Segments A and B_{SOUTH}. It would not have included the Segment A Reroute. The new line would have entered the Vantage Substation and crossed to the east side of the existing transmission lines. The line would have then followed Segment F into Hanford Substation. The line would have been approximately 70 miles long.

No Action

The No Action Alternative is traditionally defined as the no-build alternative and, for this project, was selected as the Environmentally Preferred Alternative. This alternative would have meant that a new transmission line would not have been built, and no other equipment would have been added to the transmission system. Maintenance and operation of the existing transmission line and substations would have continued unchanged.

Mitigation

All mitigation measures presented in the Draft EIS and updated in the Final EIS have been adopted. A complete list of these measures is attached. A Mitigation Action Plan (which will provide further detail on some measures) will be prepared to be included in the construction specifications to ensure mitigation measures are implemented.

Issued in Portland, Oregon.

/s/ Stephen J. Wright
Stephen J. Wright
Administrator and
Chief Executive Officer

March 17, 2003
Date

Attachment:
Mitigation Measures

**Mitigation Measures Adopted
for the
Schultz-Hanford Area Transmission Line Project**

Water Resources, Soils, and Geology

- Properly space and size culverts. Design access roads with crossdrains; water bars; rolling the grade; and armoring of ditches, drain inlets and outlets as needed to control runoff and erosion.
- All appropriate permits for culvert and ford installations with the COE and other appropriate state agencies will be obtained.
- Preserve existing vegetation where possible, and stabilize disturbed portions of the site. As soon as practicable, stabilization measures will be started where construction activities have temporarily or permanently ceased. Prior to restoration on private lands, landowners will be contacted to coordinate seed requirements.
- Seed disturbed sites at the appropriate times to minimize the invasion of non-native species using a native herbaceous seed mixture suited to the site. Work with BLM, BOR, USDOA, and USFWS to determine appropriate seed mixture, planting times, and methods.
- Use vegetative buffers and sediment barriers to prevent sediment from moving off site and into water bodies.
- Work with farm operators to restore soil productivity.
- Schedule regular maintenance operations during periods when precipitation and runoff possibilities are at a minimum, in order to reduce the risk of erosion, sedimentation, and soil compaction.
- The Contractor will make all necessary repairs to construction equipment (i.e. fluid leaks, weak hydraulic lines, etc.) prior to mobilization on site. All vehicles and heavy equipment are to be visually inspected daily for evidence of spills and leaks. Any maintenance required while on site will be conducted in a manner that protects the ground from possible fuel, lubricant, etc. spills. Based on the type of maintenance activity to be conducted, appropriate spill equipment to perform immediate response actions will be positioned at the maintenance site.
- Substation facilities will be designed to meet regional seismic criteria.
- Erosion and sediment control Best Management Practices (BMPs) will be used to prevent degradation of surface waters (i.e. streams, wetlands, and other water bodies) BMP selection will be from the WADOE Draft "Stormwater Management Manual for Eastern Washington, Chapter 7, September 2002, Construction Stormwater Pollution Prevention, Publication #02-10-040C).
- Restrict road construction to the minimum needed and restore all areas used for temporary access.
- Roads will be designed and maintained to prevent road surface drainage from impacting live streams, ponds, lakes, or impoundments. Stream crossings will be designed to avoid adverse impacts to stream hydraulics and deterioration of stream bank and bed characteristics.
- BPA will obtain a National Pollutant Discharge Elimination System (NPDES) General permit. This permit will require BPA to prepare and implement a site specific Stormwater Pollution Prevention (SWPP) Plan. This plan will specify soil stabilization controls, fuel and hazardous/construction materials management, restoration activities, inspection and record keeping, emergency response and spill notification.
- Avoid refueling and/or mixing hazardous materials where accidental spills could enter surface or groundwater. All equipment fueling operations shall utilize pumps and funnels and absorbent pads. Fueling will not take place within 500 feet of any natural or manmade drainage conveyance including ditches, catch basins, ponds, wetlands, and pipes. All fueling will be restricted to designated fueling areas.
- Herbicide use to control vegetation near waterways will be used in accordance with the Transmission System Vegetation Management Program, to limit impacts to water quality.

Water Resources, Soils, and Geology (continued)

- Application of fertilizers will be done according to the manufacturer's recommendations.
- After pouring concrete, clean out concrete shoots into pits or locations where runoff will not impact or enter any drainage conveyances. Waste material will be collected when dry and disposed of.

Floodplains and Wetlands

- All wetlands and riparian areas will be mapped to avoid direct and indirect impacts.
- Workers will receive instruction in construction practices that avoid or minimize wetland impacts. Workers will be informed of sensitive resources and the work restrictions that apply to these areas.
- Boundaries of sensitive resources, (i.e. wetland and riparian areas) near construction sites will be clearly marked prior to construction to restrict wetland access.
- Impacts to wetlands and waterways from erosion and sedimentation will be minimized by using appropriate erosion and sediment control BMPs where construction activities could impact wetlands or other surface waterbodies.
- Temporary wetland impacts at Naneum Creek will be minimized by: Constraining construction work boundaries; providing a stabilized construction platform for construction equipment to operate, placing excavated materials in upland locations, and managing spoils and water by using appropriate erosion and sediment control BMPs. to avoid wetland and surface water impacts. All temporary construction areas and access within the wetland will be removed and restored
- Herbicide use to control vegetation near waterways will be used in accordance with the Transmission System Vegetation Management Program, to limit impacts to water quality.
- All conditions of the Joint Aquatic Resources Permit Application (JARPA) will be met.

Vegetation

Native Plant Communities

- Construction activities will be restricted to the areas needed to work and access roads. Construction crews will be instructed to restrict vehicles to designated areas only.
- Designated staging and storage areas will be determined by the contractor and approved by BPA.
- In areas identified by the project botanist as supporting populations of state or federal listed sensitive species, topsoil will be stockpiled during footing excavation and replaced on top during backfilling to restore the original ground surface.
- After construction, disturbed areas not needed for ongoing access or maintenance will be reseeded.
- Construction specifications will designate which species are appropriate for reseeding in certain areas. Inquiries have been made to determine which commercially available native seed has been used with some success, and recommended strategies will be followed.
- Continue to coordinate with state and federal agencies on providing cumulative mitigation for permanent impacts to shrub-steppe habitat.

Rare Plant Species

- Boundaries of rare species populations near construction activities would be flagged in the field with an appropriate buffer, to ensure they are not impacted during construction.

Vegetation (continued)

Rare Plant Species (continued)

- Information on rare plant species occurrences will be given to BPA maintenance personnel to be considered during the planning and implementation of future maintenance activities. The location of rare plant occurrences will be placed on BPA maps and documents so that maintenance personnel are aware of their location. A written description of restrictions, precautions, or special procedures within rare plant habitat will be attached to maps and documents for that area.
- On state and federal land where rare plants are known to occur, the procedures used to control weeds will be restricted to those that minimize harm to rare plant species. The decision on the best actions to take to control weeds will be made on a case-by-case basis with consultation with the respective state or federal land manager.

Umtanum Desert Buckwheat

- Construction fencing will be installed along the access road closest to the Umtanum Desert buckwheat population to discourage travel through the population.
- At least three permanent signs between the access road and the population of Umtanum Desert buckwheat will be placed that say "Sensitive Ecological Area. Please Do Not Enter."
- Approximately 1500 feet of three-strand fencing will be installed and maintained along the access road near Midway Substation to prevent unauthorized access to the Hanford Monument.
- A tubular style gate will be installed on the access road intersection near Midway Substation. This gate will be closed at all times and locked with a security chain when not in use.
- A tubular style gate will be installed on the access road at the southern border of Hanford Monument lands. This gate will be closed at all times and locked with a security chain when not in use.
- Construction activities on the Hanford Monument land south of the Columbia River will take place primarily in winter or early spring when fire danger is lowest. Construction at other times will follow fire control measures.
- During extremely wet conditions, in areas susceptible to severe rutting (i.e. ruts greater than four inches deep), vehicle or equipment travel will be curtailed until conditions improve or the area is sufficiently stabilized to alleviate rutting.
- Additional plant surveys will be conducted on the Hanford Monument in spring 2003. These surveys will help determine locations for reeling stations, tower assembly areas, and staging areas.
- Weed management on access roads and other mitigation measures mentioned above on Hanford Monument will be coordinated with Monument staff to minimize effects to Umtanum Wild Buckwheat and other rare plant species.
- Vehicle wash stations will be placed at all road entrances that will be used to access Umtanum Ridge to remove weed seeds from vehicles and equipment.

Minimize the Introduction and Spread of Weeds

- To determine the extent of the weed problems along the Preferred Alternative, a pre-construction weed survey was undertaken to document current conditions.
- Some weed control and eradication activities will occur prior to construction in selected areas if construction will exacerbate an existing weed problem.
- A post construction weed survey will be done so that pre- and post-construction weed distributions can be compared. If weed problems exist or are increasing over pre-construction conditions, BPA will cooperate with county weed boards or federal land management agencies to eradicate or control any species that invade disturbed areas.

Vegetation (continued)

Minimize the Introduction and Spread of Weeds (continued)

- To control weeds, BPA will use the procedures outlined in the BPA's Transmission System Vegetation Management Program Record of Decision (August 2000) to address weed problems in subsequent maintenance activities.
- Off-road travel will be minimized to that necessary for turning equipment and vehicles around or parking and staging equipment. In these areas, construction crews will be instructed to crush vegetation in place to accomplish vehicle turnaround, rather than clearing it with equipment. This will help avoid soil compaction, reduce the area requiring revegetation, and reduce the potential for noxious weed spread.
- Prior to equipment being used on the project it will be cleaned and inspected to prevent introduction or spread of invasive species seeds on-site.
- To prevent the spread of weeds by unauthorized vehicles using the BPA access road system, BPA will restrict entry, where possible, by using gates.
- Vehicles will be inspected for noxious weeds prior to entering the Columbia National Wildlife Refuge and, if any are found, will be removed prior to entry.

Wildlife

Big Game Disturbance

- Construction on Segment A will be coordinated with WDFW during extreme winter weather or unusually heavy snow accumulations, when big game species are less mobile and more vulnerable to disturbance to ensure that construction activities will not significantly interfere with big game wintering.
- New or existing roads may be gated and signed to prevent human encroachment into big game wintering areas or significant migration corridors.

Avian Collision Mitigation

- Where possible, new structures will be lined up with immediately adjacent existing structures to minimize vertical separation between sets of transmission lines.
- Appropriate line markers will be installed in high-risk areas, such as crossings of the Columbia River, Lower Crab Creek, the Cold Creek migration corridor, and on Hanford Reach National Monument lands. Spiral markers will be used on the overhead ground wires and/or fiber optic line in high-risk areas, because these are the parts of the transmission line structure most often struck by birds (conductors are generally big enough to be seen). Spiral markers strung along these wires will make them more visible to passing birds and easier to avoid.

Raptor Disturbance Mitigation

- Project construction will be timed, when possible, to avoid disturbing wintering bald eagles in areas of suitable winter habitat. Known eagle wintering locations include Wilson and Naneum Creeks. If construction within ½ mile of the edge of the riparian areas associated with Wilson or Naneum Creek is necessary during the critical wintering period (November 1 through April 1) the following mitigation measures will be implemented:
 - A qualified monitor will be onsite during all construction activities to monitor bald eagle use. The monitor will have basic knowledge of eagle biology and life history, be able to identify bald eagles (juveniles and adults) on sight, and be able to determine the type of behavior the bald eagles are exhibiting.
 - Before construction begins each day, the monitor will determine if any eagles were actively using or intending to use the area within ½ mile (line of sight) of any active construction sites.

Wildlife (continued)

Raptor Disturbance Mitigation (continued)

- If, in the professional opinion of the monitor, bald eagles are found to be actively using or intending to use the area within ½ mile (line of sight) of the active construction site prior to construction, construction will not commence until the eagle(s) have voluntarily moved out of the area. Equipment will remain shut down until the monitor has determined that the bald eagles have left the area and construction may begin.
- If, in the professional opinion of the monitor, bald eagles are observed trying to find a place to roost or forage within ½ mile (line of sight) of the active construction area during construction, the monitor will require all construction to halt and all equipment to be shut down until the bald eagle(s) voluntarily leaves the area.
- Bald eagles soaring high overhead or flying to or from an area outside a ½ mile (line of sight) radius from the active construction area will not require halting construction unless, in the monitor's professional opinion, the eagle was trying to find a place to roost or forage within ½ mile (line of sight) of the active construction area.
- All construction will be halted one hour before nightfall, so as not to disturb bald eagles returning to their nightly roosting areas.
- No bald eagles will be disturbed or otherwise encouraged to leave during work shut down periods.

Shrub-Steppe Habitat Loss Mitigation

- To minimize the impacts to shrub-steppe, a Priority Habitat, construction activities will be confined to designated construction work areas.
- Vegetation will not be cleared outside of designated construction areas; crushing is preferable to removal.
- Vehicle access in steep terrain that is susceptible to rutting will be limited during unusually wet or muddy conditions.
- Noxious weed spread will be prevented by inspecting for and removing noxious weeds from vehicles prior to entry into the project area, revegetating disturbed areas using native seed mix at appropriate planting times as indicated by USFWS, BLM, BOR, and YTC, and selectively applying herbicide as needed.
- Fire fighting equipment will be carried in all vehicles and seasonal fire restrictions on construction will be observed. Vehicles will be parked in areas free from dry grass or other vegetation.

Wildlife Disturbance Mitigation

- New or existing roads may be gated and signed at appropriate locations to prevent human encroachment into areas containing significant wildlife populations or relatively undisturbed wildlife habitat.
- Construction, operation and maintenance activities will be timed to avoid entry into sensitive wildlife habitats during critical breeding or nesting periods (as determined by USFWS and WDFW).
- Vegetation removal will be limited to only the amount required to safely construct new access roads. Riparian vegetation will be removed only where absolutely necessary for line clearance purposes. Large trees may be left where they are felled so as not to remove sources of large woody debris. Small trees and shrubs will be left along stream channels to provide continued stream shading.

Burrowing Owls

- If possible, avoid disturbance within 160 feet of occupied burrows during the non-breeding season of September 1 through January 31 or within 250 feet during the breeding season of February 1 through August 31.

Wildlife (continued)

Sage Grouse Mitigation

- To limit new road construction, existing access roads will be used where possible. Spur roads will be constructed to new tower sites.
- Off-road travel will be minimized to that necessary for turning equipment and vehicles around or parking and staging equipment. In these areas, construction crews will be instructed to crush vegetation in place to accomplish vehicle turnaround, rather than clearing it with equipment. This will help minimize soil compaction, reduce the area requiring revegetation, and reduce the potential for noxious weed spread.
- Disturbed areas will be revegetated using native seed mixes appropriate to the area (seed mixes will be developed specifically for locations in the YTC, the Saddle Mountains, and Umtanum Ridge).
- Line markers will be placed on each span in the YTC to alert low-flying aircraft to the presence of transmission lines. These markers will also allow sage grouse to better see the overhead ground wire and avoid impacting them. Line markers will also be placed on the overhead ground wire on Hanford Reach National Monument lands, which in the project area, may serve as a potential dispersal corridor for sage grouse and other birds and mammals moving between the monument and the YTC.
- Continue to coordinate with state and federal agencies on providing cumulative mitigation for permanent impacts to shrub-steppe habitat.

Fish Resources

- In-water work on Schnebly Creek will be conducted during the time when any fish species that might be present within or below the project area are least likely to be impacted (July 15 – August 31). The culvert replacement at Schnebly Creek will be done when the stream is dry, or if water is present, will utilize a pump-around diversion method during construction to minimize sediment releases downstream. This will involve the placement of temporary sand bag dams upstream and downstream of the work area and a series of pumps (if needed) to move water from above the upstream dam to below the downstream dam. When the culvert is replaced and properly armored, the dams will be removed and water will be allowed to flow through the new culvert. Prior to final dewatering, any resident fish will be captured in nets and placed upstream of the upper dam. The culverts on Schnebly Creek will be constructed to meet WDFW fish passage guidelines and culvert construction will adhere to in-water work guidelines specified in the Hydraulic Project Approval (HPA) for each crossing. Stream banks will be appropriately stabilized.
- Existing access road crossings of streams and riparian areas will be used where possible.
- If blasting, pile driving, or other action producing high-intensity vibrations or shock waves is required within 300 feet of a fish-bearing stream; it will only be conducted during the WDFW-approved work window for protection of eggs and alevins (July 15 – August 31).
- Large rocks or other materials that have been blasted or otherwise introduced into a stream or wetland as a result of tower or road construction will be manually removed so as not to alter stream flow or wetland hydrology (ONLY if doing so will not result in disturbance to the channel, bank, or riparian area).
- Trees in riparian areas that must be felled for line clearance or access road purposes will be left within the riparian area or stream as downed woody debris for fish and wildlife habitat (where appropriate) with land owner approval.
- Small trees such as willows and shrubs will be left uncut in place to provide stream shading.
- The contractor will prepare and follow a Spill Prevention Plan to ensure that any spills of hazardous or other materials are properly contained and cleaned up as soon as they happen to prevent materials from entering streams, wetlands, or riparian areas.

Fish Resources (continued)

- All construction equipment and each active job site will be outfitted with spill containment kits.
- Equipment storage, refueling, and maintenance will not occur within 500 feet of any stream, wetland, or riparian area.
- Construction equipment will be maintained in good working order and will be inspected each day for leaks. If a leak is found, the equipment will be immediately moved to an upland location and repaired. Appropriate drip and spill response materials will be used and readily available.
- Equipment and vehicles used for transport or mixing of concrete will not be rinsed within 500 feet of streams, wetlands, or riparian areas.
- Towers and roads will be located and constructed as far from streams and riparian areas as possible.
- Runoff from construction sites will be minimized by using standard erosion control Best Management Practices (BMPs). BMP selection will be from the WADOE Draft "Stormwater Management Manual for Eastern Washington, Chapter 7, September 2002, Construction Stormwater Pollution Prevention, Publication #02-10-040C).
- Drainage systems on access roads will be designed to control runoff and prevent erosion and sedimentation problems.
- Ground disturbance near streams or riparian areas will be minimized by limiting equipment travel and disturbance using "construction envelopes" (areas where equipment is not allowed are marked off with stakes and ribbon).
- Reseeding of disturbed sites with native vegetation appropriate to the site will occur as soon as possible after construction is complete. Vegetation will be planted only during appropriate local planting seasons as indicated by USFWS and WDFW.

Land Use

- BPA will work closely with the various land managers and landowners to minimize conflicts and inconvenience from construction and maintenance activities.
- BPA will locate structures outside of agricultural fields and on the edges of existing roads where possible or next to existing structures.
- Where possible, BPA will construct new permanent access roads around agricultural fields and in locations that may benefit the landowner.
- When possible, BPA will schedule activities to avoid or minimize crop damage.
- Gates and fences will be kept closed and in good repair to contain livestock.
- BPA will compensate farmers for crop damage, help them control weeds and restore compacted soils.
- BPA will work with landowners at landowners request to allow the growing of ornamental or orchard trees as well as other structure-supported crops under the transmission lines.
- BPA will strive to meet substantive requirements of Benton, Grant, Kittitas, Yakima and Douglas County development regulations.

<p>Socioeconomics</p> <ul style="list-style-type: none"> • BPA will compensate private landowners for the fair market value of any landrights needed. • BPA will work with landowners and land managers to site the new line to minimize impacts and land taken out of production. • BPA could elect to utilize the condemnation process if BPA and the landowner are not able to agree on terms of purchase. • BPA will comply with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act.
<p>Visual Resources</p> <ul style="list-style-type: none"> • Use non-specular conductor and insulators to reduce visual impacts that cannot be avoided in sensitive areas. • Locate facilities in relationship to landforms so that they will screen transmission line features. • Avoid highly erodible soils, where possible. • Revegetate disturbed areas in native plant communities with native plants.
<p>Recreational Resources</p> <ul style="list-style-type: none"> • Coordinate with agencies to inform the public about construction closures. • Inform the YTC Environment and Natural Resources Division, Operations Center, and the guards at the entry points of any planned construction-related closures to the John Wayne Trail so they may inform potential users. • Coordinate locations of new structures, conductor lines, and access roads with land managers and owners in order to avoid sensitive recreation areas. • After consultation with land owners/agencies, install gates and fencing where needed to discourage unauthorized public use of access roads on private lands.
<p>Cultural Resources and Historic Properties</p> <ul style="list-style-type: none"> • Use on-site construction monitors to coordinate with construction contractor, road engineers, and design engineers. • All construction equipment and vehicles will keep on existing roads. • Flagging will be used to restrict ground disturbance activities. • New or upgraded roads and towers will be rerouted or relocated, as needed, to avoid known properties. • Subsurface probes will be conducted, if needed, to determine presence or absence of cultural deposits. • Protective fabric or rock will be placed on roads and ROW as needed. • Subsurface investigations for three properties will be performed to determine the eligibility to meet NRHP criteria. • Conduct additional surveys for any design adjustments needed before construction. • The construction contractor will determine staging area locations before construction. The size of each location may vary. The construction contractor will negotiate with the landowner for the use of staging areas. A pedestrian survey of the staging area will be done by a qualified archaeologist hired by BPA to assure absence of historic properties before staging sites are approved.

Cultural Resources and Historic Properties (continued)

- If previously unknown historic properties are discovered in the course of project activities, work in the immediate area will halt and the area will be secured. The SHPO, affected Native American tribes, and agency archaeologists will be notified immediately, and a professional archaeologist who meets the Secretary of Interior's Qualifications Standards will examine the site and make recommendations for mitigation.
- As required for compliance with Sections 106 and 110 of the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the National Environmental Policy Act (NEPA) and Executive Order 13007, BPA will consult with the following groups concerning discovered historic properties, their management, and potential impacts that the proposed project could have on them: The Washington State Historic Preservation Officer (SHPO) through the Office of Archaeology and Historic Preservation (OAHP); affected Native American tribes; the owning federal agency, if discoveries are made on federal lands.

Public Health and Safety

- Should contaminated media be unexpectedly encountered during construction of the project, work will be stopped, and an environmental specialist will be called in to characterize the nature and extent of the contamination and to determine how the work may safely be completed. Work will proceed only after measures approved by the WDOE are put in place to prevent the spread of contaminated materials and protect the health and safety of workers.
- Vehicles will carry fire suppression equipment, including a shovel, fire extinguisher, and bladder or water supply. Construction crews will supply additional suppression equipment if construction occurs on federal property that requires more caution, or if the chance of fire is high (e.g., dry wheat fields).

Air Quality

- In order to minimize windblown dust, water trucks will be used to spray roadways and construction sites when necessary.
- Dust Control procedures will be included in the construction Storm Water Pollution Prevention (SWPP) Plan and construction specifications.
- No burning will be allowed on site. Lop and scatter will be used to recycle vegetation unless it will present a fire hazard. Vegetative material that cannot be disposed of on-site will be disposed of at an appropriate disposal facility.