

**Bonneville Power Administration's  
Central Ferry-Lower Monumental 500-kilovolt Transmission Line Project  
Record of Decision  
March 2011**

## **Decision**

The Bonneville Power Administration (BPA) has decided to construct the proposed Central Ferry-Lower Monumental 500-kilovolt (kV) Transmission Line Project in Garfield, Columbia, and Walla Walla counties, Washington. BPA has decided to implement the Combination A Alternative identified in the Central Ferry-Lower Monumental 500-kV Transmission Line Project Final Environmental Impact Statement (DOE/EIS-0422, February 2011). The Combination A Alternative consists of constructing a new 500-kV transmission line from BPA's new Central Ferry Substation near the Port of Central Ferry in Garfield County generally west through Garfield, Columbia, and Walla Walla counties to BPA's existing Lower Monumental Substation in Walla Walla County, a distance of about 38 miles.

## **Background**

BPA is a federal agency in the Pacific Northwest that owns and operates about three-fourths of the high-voltage transmission lines in the region. Consistent with BPA's Open Access Transmission Tariff, BPA accepts requests for transmission service in a transmission service request queue. BPA has an obligation to ensure it has sufficient capability to serve its customers through a safe and reliable transmission system. The Federal Columbia River Transmission Act directs BPA to construct improvements, additions, and replacements to its transmission system that the BPA Administrator determines are necessary to provide service to BPA's customers, integrate and transmit power, and maintain electrical stability and reliability (16 U.S.C. § 838b).

Construction of the Central Ferry-Lower Monumental transmission line is needed to increase the electrical capacity of the transmission system in the Lower Snake area of southeast Washington in response to requests that BPA has received for use of the system. In 2008, BPA received requests for about 1,100 megawatts (MW) of new long-term firm transmission service with a point of receipt (POR) on BPA's transmission system between BPA's existing Lower Granite and Little Goose substations in southeast Washington. These requests were received as a result of a Federal Energy Regulatory Commission (FERC)-approved Network Open Season (NOS) process conducted by BPA, through which utilities, power generators (including wind generators), power marketers, and others could submit requests for use of BPA's transmission system to transmit their power.

There is insufficient existing available transmission capacity (ATC) on BPA's transmission system in the Lower Snake area to reliably accommodate all of the long-term firm transmission service requests BPA has received. Most of the ATC in this area is already committed to local generation and transfers of electric power from Montana and Idaho to the Northwest. If BPA's existing transmission system in the Lower Snake area alone was used to respond to the service requests that BPA has received, it is likely that BPA's system would become overloaded at certain times of the year. This could lead to outages of not only existing BPA and other utility transmission lines in the Lower Snake area, but also other portions of the regional transmission system through cascading outages. Technical study by BPA of the "cluster" of service requests in the Lower Snake area found that a new 500-kV transmission line from BPA's new Central

Ferry Substation in Garfield County, Washington, to BPA's existing Lower Monumental Substation in Walla Walla County, Washington, would allow BPA to accommodate these requests for firm transmission service while maintaining electrical stability and reliability.

## **Alternatives Considered**

BPA has considered in detail four routing alternatives for the proposed transmission line – a North Alternative, a South Alternative, a Combination A Alternative, and a Combination B Alternative – and the No Action Alternative. BPA identified the Combination A Alternative as the Agency Preferred Alternative in the Final EIS for the proposed project. The following further describes the alternative that BPA has selected in this ROD (i.e., the Combination A Alternative), as well as the other alternatives that were considered.

### ***Combination A Alternative***

The Combination A Alternative includes construction of about 38 miles of 500-kV single-circuit transmission line. The transmission line route begins at BPA's Central Ferry Substation approximately 2 miles south of the Snake River, and runs southwest for about 11 miles mostly parallel to and about 1,200 to 2,500 feet (about ¼ mile to ½ mile) south of BPA's two existing Little Goose-Lower Granite 500-kV steel lattice transmission lines. The route then angles away from the existing lines and proceeds southwest for about 6 miles before crossing the Tucannon River directly north of the town of Starbuck. The route then proceeds west for about 20 miles from the Tucannon River crossing to BPA's existing Lower Monumental Substation.

As is standard practice for new 500-kV transmission lines, BPA will acquire new 150-foot-wide right-of-way for the entire length of the new line. BPA will install approximately 161 new lattice steel transmission towers in this right-of-way, with an average span length between towers of about 1,200 feet. The new towers will range in height from about 104 to 189 feet. The conductor and overhead ground wire for the new transmission line will be placed on these towers, and counterpoise (which takes any lightning charge from the overhead ground wire and dissipates it into the earth) will be buried in the ground at selected towers. Construction of the new line also will include the upgrade of about 5 miles of existing access roads, and the construction of about 38 miles of new access roads. Power circuit breakers, disconnect switches, and other electrical equipment will be installed at Lower Monumental Substation. In the vicinity of the Lower Monumental Substation, six existing steel lattice towers that support existing transmission lines in this area will be relocated to allow entry of the Central Ferry-Lower Monumental transmission line into the substation. Fiber optic cable will be installed along a portion of the new line.

### ***North Alternative***

The North Alternative would have followed the same route as the Combination A Alternative for about 20 miles to just west of the Tucannon River crossing. The North Alternative route would then have angled northwest for about 5 miles to a point approximately 1,500 feet south of BPA's two existing Lower Monumental-Little Goose 500-kV steel lattice transmission lines. The route then would have continued west for about 14 miles to Lower Monumental Substation. Much of this latter segment of the route would have run parallel to and approximately 1,500 feet south of the existing lines. This alternative would have been about 40 miles long. The main components of this alternative would generally have been similar to the Combination A Alternative.

### ***South Alternative***

The South Alternative would have extended southwest from Central Ferry Substation for about 3 miles mostly parallel to and approximately 1,200 to 2,500 feet south of BPA's two existing Little Goose-Lower Granite 500-kV steel lattice transmission lines. The route then would have diverged from these existing lines and continued southwest and then west for about 15 miles before crossing the Tucannon River directly north of the town of Starbuck. From the Tucannon River crossing, the South Alternative route would have proceeded west along the same route as the Combination A Alternative for about 20 miles to Lower Monumental Substation. This alternative would have been about 38 miles long. The main components of this alternative would generally have been similar to the Combination A Alternative.

### ***Combination B Alternative***

The Combination B Alternative would have followed the South Alternative route from Central Ferry Substation until it reached the Tucannon River where it then would have followed the North Alternative route to Lower Monumental Substation. This alternative would have been about 40 miles long. The main components of this alternative would generally have been similar to the Combination A Alternative.

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

The No Action Alternative assumes that no transmission line is built. Without building the new line, BPA would not be able to offer long-term firm transmission service for all of the service requests that it has received. However, the No Action Alternative also would not cause impacts to the natural environment (land uses, vegetation, wildlife, cultural resources, visual resources, etc.) that the construction and operation of the transmission line will have. BPA thus considers the No Action Alternative to be the environmentally preferred alternative.

## **Public Comments on the EIS**

BPA issued the Draft EIS for the Central Ferry-Lower Monumental 500-kV Transmission Line Project in July 2010. The comment period for the Draft EIS officially began on July 2, 2010 with publication of a Draft EIS Notice of Availability in the Federal Register (Volume 75, No. 127), and closed on August 16, 2010. A total of nine comment forms, emails, and letters were received by the close of the Draft EIS comment period or shortly thereafter. All of these comments were addressed in BPA's Final EIS for the proposed project, which was issued in February 2011. A Notice of Availability for the Final EIS was published in the Federal Register (Volume 76, No. 34) on February 18, 2011.

Well after the close of the Draft EIS comment period, BPA received a request in November 2010 for detailed project location information from Steve Hair who owns property in Walla Walla County along the route of the Combination A Alternative. BPA representatives met with members of the Hair family in November and December 2010 to discuss the project and concerns of the Hair family. In December 2010, BPA also received two e-mails from Ms. Elizabeth Hair, wife of Steve Hair, concerning the proposed project. The following summarizes the issues raised in Ms. Hair's emails. BPA representatives will continue to coordinate with Mr. and Ms. Hair through the easement acquisition process.

Ms. Hair's first email stated her disagreement with the assessment of the level of environmental impacts of the proposed project described in the Draft EIS, and asked for information about minimum distances between 500-kV transmission lines, minimum safe distances between 500-kV lines and homes or barns, why angle structures will be used at tower locations 22/5, 23/4, 30/2, and 32/2, and why visual simulations at certain locations were not included in the Draft EIS. Section 3.1.2 of the Final EIS describes how BPA determines the appropriate minimum physical separation between 500-kV transmission lines. Appendix D of the EIS is a document entitled "Living and Working Safely Around High-Voltage Power Lines," which provides information on minimum vertical clearance distances, minimum horizontal distance requirements, and other safety considerations for people who live and work near power lines. Concerning the angle structures that will be constructed, the primary influence for using these structures is the proximity of the line to two residences in this area. Without the use of angle structures and the associated southerly jog in the route at this location, the westerly of the two residences would be approximately 700 feet from the proposed transmission centerline; with the use of angle structures, this distance increases to approximately 2,300 feet. Additionally, two private airstrips influenced the specific location of the line angles at towers 30/2 and 32/2. Regarding visual simulations, Appendix C of the EIS displays 9 visual simulations from key viewing points within the project area. Viewpoints 1, 2, 4, 6, and 7 show views of rolling hills and wheat fields in the project area. BPA believes that the selected viewpoints reasonably represent the general setting within the project area, that the EIS text adequately describes potential views of the new line from varying distances, and that additional visual simulations thus are not necessary.

Ms. Hair's second email suggested that a route for the new line following the Snake River be considered. Ms. Hair stated that soil conditions north of the North Alternative and closer to the breaks of the Snake River, are rocky, less productive, and that this alternative would have fewer impacts on croplands. However, the North Alternative represents the most northerly routing alternative that avoids creating a common corridor with existing 500-kV lines. Additionally, a line placed closer to the Snake River would have required multiple crossings of the existing 500-kV lines and the Snake River. Because multiple crossings would lessen reliability and reduce available transmission capacity, an alternative along the Snake River was considered but eliminated from detailed study.

Ms. Hair's second email also raised concerns about the routing of project alternatives across fragile farm soils; the potential soil, air quality, and visual impacts from the new line; impacts to aerial spraying of cropland; dangers to farmers from using agricultural equipment under the new transmission line; and potential electrical system imbalance from integrating wind energy. The EIS acknowledges the potential impacts to farmland soils from the routing of project alternatives, and mitigation measures are described in the EIS to minimize and reduce these potential impacts. Sections 3.1.2 and 3.1.9 of the Final EIS discuss the reasons why alternatives that would route the new transmission line adjacent to existing BPA transmission lines were considered but eliminated from detailed study in the EIS. The EIS also discusses impacts to soils, air quality, and views from project implementation, and BPA believes that the levels of these potential impacts have been adequately and appropriately characterized, given their short-term nature and mitigation measures, such as use of water trucks to control dust and reseeding disturbed areas, that will reduce impacts. The potential effect of the presence of the transmission line on aerial spray methods to treat weeds on cropland is discussed in Section 2.3.2 of the Final EIS, and will

be addressed with individual landowners as part of BPA's easement acquisition process. Regarding dangers to farmers from equipment use under the new line, Appendix D of the Draft EIS identifies the potential hazards to farmers and others from using equipment or placing themselves higher than 14 feet tall under BPA's transmission lines. Regarding potential electrical system imbalance, BPA is investigating and implementing methods and procedures to ensure that increases in wind energy on BPA's transmission system do not create hydropower operational issues.

## **Rationale for Decision**

BPA has analyzed the environmental impacts of the four action alternatives and the No Action Alternative, and has considered public comments received on the Draft EIS. In making its decision, BPA also considered how well the alternatives would meet the following project purposes (i.e., objectives) identified for this project in the Final EIS:

- Optimize electrical capacity/performance of the proposed new line
- Maintain reliability of BPA's transmission system to BPA and industry standards
- Meet BPA's contractual and statutory obligations
- Minimize project costs where possible
- Minimize impacts to the human environment

While all four action alternatives meet these objectives roughly equally, BPA believes that, overall and on balance, implementation of the Combination A Alternative would best meet these objectives.

### ***Electrical Capacity/Performance***

All four action alternatives, in contrast to the No Action Alternative, allow BPA to relieve transmission constraints in southeast Washington and to fulfill requests for long-term firm transmission service that it has received in the Lower Snake area. Separating the new line from BPA's two existing 500-kV transmission lines in the project vicinity by 1,200 to 2,500 feet lessens the risk of simultaneous outages of these important lines thereby optimizing the electrical capacity and performance of the new transmission line. Also, because the Combination A Alternative is shorter than the North and Combination B alternatives, there will be less electrical losses. Electrical losses from the South Alternative would have been similar to the Combination A Alternative because the lines are the same length.

### ***System Reliability***

All four action alternatives, in contrast to the No Action Alternative, equally allow BPA to reliably accommodate all of the long-term firm transmission service requests it has received. All four action alternatives also equally help maintain the reliability of the electrical grid in the region by providing an additional transmission line for power should there be an interruption in the operation of one of the other transmission lines in the area.

### ***Contractual and Statutory Obligations***

All four action alternatives, in contrast to the No Action Alternative, equally allow BPA to meet its statutory and contractual obligations. While BPA has no express statutory obligation to build the new transmission line, the new line will help BPA further its statutory mandates that direct BPA to construct additions to the transmission system to integrate and transmit electric power and maintain system stability and reliability, as appropriate. The new line also will allow BPA to provide the eligible service requests it has received with requested access to the BPA transmission system, consistent with provisions of its Open Access Transmission Tariff. Finally, the new line will allow BPA to implement transmission service agreements with its transmission customers that requested service with a POR between Lower Granite and Little Goose substations in southeast Washington through the 2008 NOS, as described above and in Section 1.1 of the EIS.

### ***Cost***

The Combination A Alternative will cost about \$99 million. This is a reasonable cost for the construction of 38 miles of 500-kV line and associated substation work. The cost for the Combination A Alternative is similar to the South Alternative and slightly less than the North and Combination B alternatives.

### ***Environmental Impacts***

In designing each of the four action alternatives, BPA attempted to minimize potential environmental impacts where possible. BPA also identified mitigation measures in the EIS that would be applicable to any of the four action alternatives and that would further minimize or avoid potential environmental impacts. On balance, however, BPA believes the Combination A Alternative best achieves the objective of minimizing impacts to the environment.

Of the four action alternatives, the Combination A Alternative is the shortest in overall length with the fewest transmission towers. As compared to the Combination B Alternative, the Combination A Alternative is about two miles shorter in length and has 20 fewer towers. As compared to the North Alternative, the Combination A Alternative is about one mile shorter in length and has 14 fewer towers. While the South and Combination A Alternatives are about the same length, the Combination A Alternative has 6 fewer towers than the South Alternative. Similar miles of new road construction will be required for the Combination A Alternative as compared to the other action alternatives, although miles of access road improvement is slightly less for the Combination A Alternative and North Alternative. The Combination A Alternative will have the least amount of total temporary ground disturbance, and permanent ground disturbance from the Combination A Alternative will be similar to the other action alternatives. Overall, these differences translate to a lower impact of the Combination A Alternative than the other action alternatives for a whole host of environmental considerations, including surface and soil disturbance, vegetation removal, air emissions, and visual quality.

Temporary construction impacts to land use from the Combination A Alternative will be less as compared to other action alternatives. East of the Tucannon River, the Combination A Alternative will have fewer impacts to agricultural uses and possible future wind development because the more northerly route will mostly avoid these areas. West of the Tucannon River, the Combination A Alternative will have less impact on land use than the North and Combination B

alternatives because the line length is shorter with fewer towers. The South Alternative would have been similar to the Combination A Alternative in land use impacts west of the Tucannon River.

In addition to this overall lower impact from among the action alternatives, the Combination A Alternative will be implemented to minimize its environmental impact, either by design or through implementation of identified mitigation measures. Construction sites will be kept to the minimum size necessary to reduce soil disturbance and interference with adjacent land uses. Erosion-control measures will be used at construction sites to further reduce potential for sediment runoff. Landowners will be compensated for any new land rights required for new right-of-way easements and access roads. Permanent disturbance around towers and along roads will be minimized. During construction, the number of vehicles working within croplands and native habitats will be limited to the minimum necessary to perform the work. Construction vehicles and equipment will use designated access roads and stay within construction boundaries. Access road location, construction timing restrictions, temporary road removal and subsequent restoration of cultivated soil will be coordinated with land owners. Croplands impacted during construction will be restored to pre-construction conditions. Wetlands located along the Tucannon River will be spanned and avoided. Fish impacts will be minimal because work will not occur in or near the Tucannon River and riparian vegetation will not be removed. Wildlife impacts will be lessened by avoiding mule deer winter range habitat, conducting further surveys for raptors to determine if nests are being used, scheduling construction so as not to disturb birds, and providing bird diverters in areas of high flyway use. Vegetation and habitat impacts will be mitigated through reseeding disturbed areas, minimizing disturbance area in Conservation Reserve Program (CRP) lands, avoiding native grasslands and croplands where possible, and minimizing the spread of weeds in native and cropland vegetation. Visual impacts will be reduced by using non-reflective materials for the conductors and insulators and locating staging areas and roads in previously disturbed and non-visually sensitive areas to the extent possible. Air emissions will be minimized by locating staging areas close to construction areas, limiting idling time for trucks and heavy equipment, and requiring that all vehicles comply with federal and state air quality regulations for tailpipe emissions. Archaeological resources eligible for inclusion in the National Register of Historic Places were not identified within the Combination A Alternative corridor. Effects to potentially eligible Traditional Cultural Properties (TCPs) identified by local tribes will be addressed through a mitigation agreement developed and implemented through consultation with the Washington Department of Archaeology and Historic Preservation and affected tribes. No construction activities will occur in the area of the potentially eligible TCPs until the mitigation agreement is completed. Mitigation efforts could include measures to enhance cultural resources in areas not affected by the project.

BPA is continuing to work with landowners in efforts to lessen impacts as much as possible to soils, CRP lands, croplands, and agricultural harvest activities. Additionally, vehicles will carry fire-suppression equipment to minimize the threat of fires during the summer harvest season when the chance of fire is high. Short-term impacts of construction on recreation, socioeconomics, transportation, air quality, and noise will be lessened through the use of mitigation measures. For Washington Department of Natural Resources (WDNR) lands crossed by the new line, BPA and WDNR will negotiate and execute a Washington Statewide Rights-of-

Way Memorandum of Agreement (MOA) with the goal of addressing BPA transmission line operations and maintenance compatibility with WDNR trust land management.

Potential cumulative impacts from this project in combination with past, present, and reasonably foreseeable actions were analyzed and used to inform this ROD. Impacts from the new line on geology and soils, land use, vegetation, recreation, wildlife, transportation, air quality, and greenhouse gas emissions in the project area will contribute incrementally, though in a relatively minor way, to potential cumulative impacts. The new line would not contribute to potential cumulative impacts to water resources and fish, noise, public services or facilities, environmental justice-related issues, and EMF exposure. The new line, when combined with views of wind turbines, lower Snake River dams, and existing BPA lines will contribute incrementally to the adverse cumulative impacts to visual resources and the viewsheds of TCPs in the project area.

## **Mitigation**

All the mitigation measures described in the Draft EIS and updated in the Final EIS have been adopted. A complete list of these measures is in the attached Mitigation Action Plan. Also included as part of the Mitigation Action Plan are possible measures to be implemented on WDNR lands as negotiated by the Washington Statewide Rights-of-Way MOA or other agreements. BPA will be responsible for the execution of all mitigation measures.

## **Public Availability**

This ROD will be available to all interested parties and affected persons and agencies. It is being sent to all stakeholders who requested a copy. Copies of the Central Ferry – Lower Monumental 500-kilovolt Transmission Line Project Draft and Final EISs, and additional copies of this ROD are available from BPA’s Public Information Center, P.O. Box 3621, Portland, Oregon, 97208-3621. Copies of these documents may also be obtained by using BPA’s nationwide toll-free document request line: 1-800-622-4520, or by accessing BPA’s project Web site:

*[http://efw.bpa.gov/environmental\\_services/Document\\_Library/Central\\_Ferry-Lower\\_Monumental/](http://efw.bpa.gov/environmental_services/Document_Library/Central_Ferry-Lower_Monumental/)*

Issued in Portland, Oregon.

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

March 11, 2011  
Date



**Mitigation Action Plan  
for the  
Central Ferry-Lower Monumental 500-kilovolt Transmission Line Project**

Mitigation Measures	Time of Implementation
<b>Geology and Soils</b>	
<ul style="list-style-type: none"> <li>• Prior to construction, conduct a detailed geologic hazard assessment for the selected action alternative. This assessment will include a review of geologic maps and aerial photomaps combined with surface condition assessments at each proposed tower location and surrounding terrain. In addition, subsurface information will be obtained from water well logs, material exposed in existing road and stream-cut slopes, and construction/design information from the existing transmission lines in the project area. Particular attention will be given to on-site evaluation of the slope stability of each proposed tower location. Tower or road locations found to be within previously unidentified active slides, bedrock hollows, or other geologic hazard areas will be relocated outside the limits of these areas.</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to lessen soil erosion and improve water quality of stormwater run-off. SWPPPs are developed to prevent movement of sediment off-site to adjacent water bodies during short term or temporary soil disturbance at construction sites. The SWPPP for this project will address stabilization practices, structural practices, and stormwater management.</li> </ul>	Prior to, during, and after construction
<ul style="list-style-type: none"> <li>• Design access roads to control runoff and prevent erosion by using low grades, outsloping, intercepting dips, water bars, or ditch-outs, or a combination of these methods.</li> </ul>	During design
<ul style="list-style-type: none"> <li>• Minimize construction equipment use within 150 feet of a water body (stream or river).</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Surface all permanent access roads with rock to help prevent erosion and rutting of road surfaces and to support vehicle traffic.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Minimize construction on steep, unstable slopes, if possible.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Save topsoil removed for structure and new access road construction for onsite restoration activities to promote regrowth from the native seed bank in the topsoil. If contaminated, follow-up weed control will be needed.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Cover exposed piles of soil with plastic or similar material to reduce erosion potential from rain or wind.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Cut or crush vegetation, rather than blade, in areas that will remain vegetated in order to maximize the ability of plant roots to keep soil intact and prevent sediment movement offsite.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Revegetate or reseed all disturbed areas with a native plant/grass seed mixture, suited to the site and landowner, to promote vegetation that will hold soil in place.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Till or scarify compacted soils before reseeding where necessary.</li> </ul>	After construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Monitor erosion control Best Management Practices (BMPs) to ensure proper function and nominal erosion levels.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Monitor revegetation and site restoration work for adequate growth; implement contingency measures as necessary.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Mark construction limits within agricultural fields or grasslands to minimize disturbance.</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Inspect and maintain project facilities, including the access roads.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Inspect and maintain tanks and equipment containing oil, fuel, or chemicals for drips or leaks and to prevent spills onto the ground or into state waters.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Maintain and repair all equipment and vehicles on impervious surfaces away from all sources of surface water.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Refuel and maintain equipment at least 25 feet from any natural or manmade drainage conveyance including streams, wetlands, ditches, catch basins, ponds, and pipes, and provide spill containment and cleanup. Utilize pumps, funnels, and absorbent pads for all equipment fueling and maintenance operations.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Provide spill prevention kits at designated locations on the project site and at the hazardous material storage areas.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Minimize the number of road stream crossings.</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Stabilize cut and fill slopes.</li> </ul>	During and after construction
<b>Land Use</b>	
<ul style="list-style-type: none"> <li>• Provide a schedule of construction activities to all landowners who could be affected by construction.</li> </ul>	Prior to and during construction
<ul style="list-style-type: none"> <li>• Compensate landowners for any new land rights required for right-of-way easements, or to construct new, temporary or permanent access roads.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Plan and conduct construction activities to minimize temporary disturbance, displacement of crops, and interference with agricultural activities.</li> </ul>	Prior to and during construction
<ul style="list-style-type: none"> <li>• Use BMPs to limit erosion and the spread of noxious weeds.</li> </ul>	Prior to, during, and after construction
<ul style="list-style-type: none"> <li>• Restore compacted cropland soils to pre-construction conditions.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Compensate landowners for any damage to property including crops during construction and maintenance activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Minimize or eliminate public access to project facilities through postings and installation of gates and barriers at appropriate access points and, at the landowner's request, on private property.</li> </ul>	During and after construction

Mitigation Measures	Time of Implementation
<b>Vegetation</b>	
<ul style="list-style-type: none"> <li>• Maintain vegetation within the transmission line corridor as guided by BPA's Transmission System Vegetation Management Program EIS.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Limit ground-disturbing activities to tower sites, access roads, and staging areas; stake or flag native grassland or sensitive cropland areas prior to initiating construction.</li> </ul>	Prior to and during construction
<ul style="list-style-type: none"> <li>• Limit road improvements to the minimum amount necessary to safely move equipment, materials, and personnel into and out of the construction area.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Avoid introduction of non-native seed into areas of native grassland and/or areas where non-native species are not yet well established.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Use an approved native seed mix to re-vegetate areas of native grassland disturbed during construction activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Use an approved mixture of native and non-native species or seed for re-vegetation in areas where non-native species are already well established (i.e., disturbed grassland).</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Use a seed mix approved by the local Farm Service Agency to re-vegetate areas of Conservation Reserve Program land that are disturbed during construction activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Threatened, Endangered, and Sensitive Plant Species (TES) <ul style="list-style-type: none"> <li>➢ Conduct additional surveys for TES plant species in all areas of native grassland, as well as areas classified as potential habitat, during spring/summer 2010.</li> <li>➢ Consult with the US Fish and Wildlife Service concerning any federally listed TES plant species that are identified and implement any mitigation measures to eliminate or reduce adverse impacts to these species.</li> </ul> </li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Noxious Weeds <ul style="list-style-type: none"> <li>➢ Comply with all federal noxious weed control regulations and guidelines, and comply with state and county noxious weed control regulations and guidelines to the extent practicable.</li> <li>➢ Wash all equipment using pressure or steam before entering the project area and when leaving discrete patches of noxious weeds.</li> <li>➢ Map and flag noxious weed populations for construction crews so these populations can be avoided when possible. Clean vehicles after leaving these areas to avoid the spread of noxious weeds.</li> <li>➢ Use seed mixes to revegetate construction areas that meet the requirements of federal, state, and county noxious weed control regulations and guidelines.</li> <li>➢ Use certified weed-free straw for erosion control during construction and restoration activities.</li> <li>➢ Cooperate with private, county, state, and federal landowners to treat noxious weeds along access roads that will be used to bring construction equipment into the project area to reduce the introduction and spread of noxious weeds and noxious weed seeds.</li> </ul> </li> </ul>	Prior to, during, and after construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>➤ Apply herbicides according to labeled rates and recommendations to ensure protection of surface water, ecological integrity, and public health and safety.</li> <li>➤ Conduct a post-construction noxious weed survey to determine whether noxious weeds have been spread within the project area. Take corrective action if needed</li> </ul>	
<b>Recreation</b>	
<p>Impacts to recreational use will largely be associated with changes in viewsheds and the general recreational experience from the presence of the proposed transmission line. Mitigation measures concerning these potential visual effects are identified below under Visual Resources.</p>	Prior to and after construction
<b>Wildlife</b>	
<ul style="list-style-type: none"> <li>• Install bird flight diverters where the project corridor crosses the riparian corridor of the Tucannon River.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Avoid construction activities within 0.6 mile of any active raptor nest during the raptor nesting season (e.g., March 1 to August 15 for ferruginous hawks, February 15 to July 15 for golden eagles), if possible.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Avoid construction activities within Priority Habitats and Species-designated mule deer winter range during the mule deer winter range period from November 1 through March 31, if possible.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• If identified, confirmed Washington ground squirrel colonies will be avoided during peak above-ground activity in the spring</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Maintain all existing BPA gates. Wherever permitted by landowners or land managing agencies, gates will be installed to limit vehicular use of new access roads.</li> </ul>	Prior to, during, and after construction
<ul style="list-style-type: none"> <li>• Use slow speeds when operating vehicles or equipment during construction activities located in grasslands or croplands.</li> </ul>	During construction
<b>Water Resources and Fish</b>	
<ul style="list-style-type: none"> <li>• Design culverts and drainage controls placed in non-fish bearing streams to preserve natural drainage patterns.</li> </ul>	During design
<ul style="list-style-type: none"> <li>• Maintain unobstructed passage for water at all culverts placed in non-fish bearing streams and promptly remove any blockages to protect the roadbed and prevent sedimentation of downstream waterbodies.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Install and maintain water and sediment control measures at all waterbodies (including dry waterbodies) crossed by access roads or otherwise impacted by surface disturbance.</li> </ul>	Prior to and during construction
<ul style="list-style-type: none"> <li>• Regularly inspect and maintain the condition of access roads, culverts, and sediment control measures to prevent long-term impacts during operation and maintenance.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Avoid storing, transferring, or mixing of oils, fuels, or other hazardous materials where accidental spills could enter surface or groundwater. Have spill response and clean-up materials onsite and clean-up all spills immediately.</li> </ul>	During and after construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Maintain, fuel, and repair heavy equipment and vehicles using spill prevention and control measures. Contaminated surfaces will be cleaned immediately following any spill incident.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Use secondary containment for on-site fueling tanks.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Limit fuel tank and truck storage to at least 100 feet from all streams, dry or flowing. Limit vehicle fueling to 25 feet from all streams, dry or flowing.</li> </ul>	During and after construction
<b>Visual Resources</b>	
<ul style="list-style-type: none"> <li>• Preserve vegetation within the 150-foot-wide right-of-way that would not interfere with the conductor or maintenance access needs. Most of the vegetation along the proposed transmission line routes is low-growing sagebrush or agricultural crops, both of which are compatible with transmission line safety and operations.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Locate construction staging areas away from visually sensitive locations. The contractor hired to construct the transmission line will be responsible for determining appropriate staging locations, but potential staging locations include parking lots in Starbuck and Dayton, and possibly Pomeroy.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Use non-reflective conductors.</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Use non-reflective insulators (i.e., non-ceramic or porcelain).</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Locate new access roads within previously disturbed areas wherever possible.</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Revegetate disturbed areas with approved species.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Require that contractors maintain a clean construction site and all related equipment, materials, and litter be removed following completion of construction.</li> </ul>	During construction
<b>Cultural Resources</b>	
<ul style="list-style-type: none"> <li>• Design the transmission line so that tower sites are placed to avoid cultural resources.</li> </ul>	During design
<ul style="list-style-type: none"> <li>• Design new access roads to avoid cultural resources, and minimize the potential for trespassing access, where possible.</li> </ul>	During design
<ul style="list-style-type: none"> <li>• Improve the existing road system in a manner that minimizes new roads and avoids cultural resource sites. If improvements are needed on existing roads that cross through cultural resources sites, such improvements would be constructed in a manner to avoid/minimize impacts, such as using fabric and rock or other mitigation agreed to during the consultation process.</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Consult with the Washington Department of Archaeology and Historic Preservation (DAHP), the Nez Perce Tribe, and the Confederated Tribes of the Umatilla Indian Reservation regarding National Register of Historic Places eligibility of cultural sites and Traditional Cultural Properties(TCPs).</li> </ul>	Prior to construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Develop an Inadvertent Discovery Plan that details crew member responsibilities for reporting in the event of a discovery during construction.</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Ensure tribal monitors from the Nez Perce Tribe and/or the Confederated Tribes of the Umatilla Indian Reservation are present if work within prehistoric sites or TCPs cannot be avoided.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Prevent unauthorized collection of cultural materials by ensuring a professional archaeologist and tribal monitor are present during any excavation within known sites.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Prepare a Mitigation Plan to address adverse effects to potentially eligible TCPs; protect sites in-situ if final placement of project elements results in unavoidable adverse impacts to other significant cultural resources</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Stop work immediately and notify local law enforcement officials, appropriate BPA personnel, Washington DAHP, the Nez Perce Tribe, and the Confederated Tribes of the Umatilla Indian Reservation, if cultural resources, either archaeological or historical materials, are discovered during construction activities. Also contact Washington Department of Natural Resources (WDNR) if on state lands.</li> </ul>	During construction
<b>Socioeconomics and Public Facilities</b>	
<ul style="list-style-type: none"> <li>• Compensate landowners at market value for any new land rights required for corridor easements or acquired for new temporary or permanent access roads on private lands.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Initiate discussions with local fire districts prior to construction and work with the districts and other appropriate emergency response to develop a Fire and Emergency Response Plan that addresses potential wildland fires and other emergencies.</li> </ul>	During and after construction
<b>Transportation</b>	
<ul style="list-style-type: none"> <li>• Obtain a Haul Road Agreement and any additional permits or approvals from state and local agencies prior to construction. These documents will identify any special conditions to be addressed by BPA and their contractors during construction and operation of the project.</li> </ul>	Prior to and during construction
<ul style="list-style-type: none"> <li>• Prepare an erosion control plan that includes measures to stabilize construction entrances and exits to prevent sediments from being transported onto adjacent roadways.</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Route traffic around affected intersections if construction vehicles cause temporary traffic blockages on local roadways.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Employ traffic control flaggers and post warning signs of construction activity and merging traffic when necessary.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Comply with applicable seasonal road restrictions for construction traffic, where practicable.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Restore public roadways to their pre-construction conditions or better upon completion of project construction activities.</li> </ul>	After construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Design and construct new access roads to minimize runoff and soil erosion.</li> </ul>	During design and construction
<ul style="list-style-type: none"> <li>• Reclaim any road-related disturbance areas after construction is completed.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Install gates at the entrances to access roads when required or requested by landowners to reduce unauthorized use. Coordinate gate locks with landowners to ensure that both BPA and the landowner have access.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Work with WDNR concerning a possible cooperative agreement for the control of unauthorized public access and use on state lands that could result from the proposed project. The agreement could address various provisions related to unauthorized access, such as additional measures to be taken to discourage unauthorized use of the project corridor and associated access roads, periodic inspection for unauthorized access and any resulting damage, and repair of any damage from unauthorized access.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Install marker balls on the conductor and lights on towers at the Tucannon River crossing if required by the FAA.</li> </ul>	During construction
<p><b>Noise, Public Health and Safety</b></p>	
<ul style="list-style-type: none"> <li>• Install sound-control devices on all construction equipment.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Muffled exhaust will be installed on all construction equipment and vehicles except helicopters.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Notify landowners directly impacted along the corridor prior to construction activities, including blasting.</li> </ul>	Prior to construction
<ul style="list-style-type: none"> <li>• Hold crew safety meetings during construction at the start of each workday to go over potential safety issues and concerns.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Secure the site at the end of each workday to protect equipment and the general public.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Train employees as necessary, in structure climbing, cardiopulmonary resuscitation, first aid, rescue techniques, and safety equipment inspection.</li> </ul>	Prior to, during, and after construction
<ul style="list-style-type: none"> <li>• Fuel all highway-authorized vehicles off-site to minimize the risk of fire. Fueling of construction equipment that is transported to the site via truck and is not highway authorized will be done in accordance with regulated construction practices and state and local laws. Helicopters will be fueled and housed at local airfields or at staging areas.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Adhere to BPA's specifications for grounding fences and other objects on and near the existing and proposed rights-of-way during construction.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Construct and operate the new transmission line in accordance with the National Electrical Safety Code, as required by law.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Restore reception quality if radio or television interference occurs as a result of the transmission line. Reception needs to be as good or better than before the interference.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Carry fire suppression equipment including (but not limited to) shovels, buckets, and fire extinguishers on all construction, operation and maintenance vehicles.</li> </ul>	During and after construction

Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Use established access roads during routine operation and maintenance activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Clear vegetation according to BPA standards to avoid contact with transmission lines.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Contact the appropriate BPA representative if hazardous materials, toxic substances, or petroleum products are discovered within the project area that would pose an immediate threat to human health or the environment. Other conditions such as large dump sites, drums of unknown substances, suspicious odors, stained soil, etc. must also be reported immediately to BPA.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Limit construction activities to daytime hours (i.e., only between 7:00 a.m. and 7:00 p.m.)</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Prepare and maintain a safety plan in compliance with Washington requirements. This plan will be kept on-site and will detail how to manage hazardous materials such as fuel, and how to respond to emergency situations.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Ensure that helicopter pilots and contractors take into account public safety during flights. For example, flight paths could be established for transport of project components to avoid flying over populated areas or near schools.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Take appropriate safety measures for blasting consistent with state and local codes and regulations. Lock up or remove all explosives from the work site at the end of the workday.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Install implosive fittings used to connect the conductors in a way that minimizes potential health and safety risks.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Stay on established access roads during routine operation and maintenance activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Submit final tower locations and conductor heights to the FAA for review. Install lights or marker balls as required.</li> </ul>	During design and construction
<b>Air Quality</b>	
<ul style="list-style-type: none"> <li>• Use water trucks to control dust during construction operations.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Cover construction materials if they are a source of blowing dust.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Limit the amount of exposed soil, including dirt piles and open pits, to a minimum.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Prevent wind erosion by reseeding disturbed areas with grass or an appropriate seed mixture as soon as reasonably possible following construction activities.</li> </ul>	After construction
<ul style="list-style-type: none"> <li>• Avoid burning during construction activities.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Ensure construction vehicles travel at low speeds on gravel roads and at the construction sites to minimize dust.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Comply with Washington State tailpipe emission standards for all on-road vehicles.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Ensure all vehicle engines are in good operating condition to minimize exhaust emissions.</li> </ul>	During construction



Mitigation Measures	Time of Implementation
<ul style="list-style-type: none"> <li>• Use low sulfur fuel for on-road diesel vehicles.</li> </ul>	During construction
<p><b>Greenhouse Gases</b></p>	
<ul style="list-style-type: none"> <li>• During construction, operation, and maintenance, trucks and heavy equipment will limit engine idling time and equipment will be shut down when not in use except when activities occur in cold weather. Provide clear signage that posts this requirement for workers at all entrances to the work sites.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• During construction, operation, and maintenance, all vehicles will comply with applicable federal and state air quality regulations for tailpipe emissions. Certification that vehicles meet applicable regulations will be provided to BPA in writing.</li> </ul>	During and after construction
<ul style="list-style-type: none"> <li>• Encourage carpooling and the use of shuttle vans among construction workers to minimize construction-related traffic and associated emissions.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Locate all staging areas as close to construction areas as practicable to minimize driving distances between staging areas and construction sites.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Locate staging areas in previously graded or graveled areas to minimize soil and vegetation disturbance where practicable.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Maintain and certify in writing that all construction equipment is in proper working condition according to manufacturer's specifications.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Train equipment operators in the proper use of equipment.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Use the proper size of equipment for the job.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Use alternative fuels such as propane or solar for generators at construction sites, or use electrical power where practicable.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Reduce electricity use in the construction office by using compact fluorescent bulbs, and powering off computers every night.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Submit a plan for approval to recycle or salvage non-hazardous construction and demolition debris where practicable.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Submit a plan for approval to dispose of wood poles locally where practicable.</li> </ul>	During construction
<ul style="list-style-type: none"> <li>• Use locally sourced rock for road construction.</li> </ul>	During construction

## Possible Measures on WDNR Parcels

Measure	Implementation
Implement the Memorandum of Agreement (MOA) with WDNR that reduces noxious, invasive and undesirable species including tall growing woody plants and works towards compatible and native low growing species vegetation on WDNR lands. The MOA also will provide coordination between WDNR and BPA for the use of herbicides on lands where WDNR uses herbicides and minimizes the use of herbicides on lands where WDNR does not use herbicides.	Washington Statewide Rights-of-Way MOA / Central Ferry-Lower Monumental Easement Documents/Operations and Maintenance Agreement
Commit to developing and complying with mutually agreeable definitions, classifications, and responsibilities for BPA sole and joint use access roads for the proposed project that would be located on WDNR lands, with the goal of addressing operations and maintenance compatibility of the proposed transmission line with WDNR trust land management.	Washington Statewide Rights-of-Way MOA / Central Ferry-Lower Monumental Easement Documents/Operations and Maintenance Agreement
For any noxious weed management plans prepared for proposed weed control and other vegetation maintenance on WDNR managed trust lands as part of future line maintenance activities, coordinate preparation of these management plans with WDNR staff.	Noxious Weed Management Plans
Commit to coordinating with WDNR regarding the 1989 DNR Agricultural and Grazing Lands Policy Plan, Agriculture Business Plan, Strategic Plan, and related Resource Management Plans for affected WDNR parcels during construction and maintenance of the line and access roads over WDNR trust lands. Provide WDNR with notice of potential impacts to affected lands enrolled in the Conservation Reserve Program. Request permission to disturb ground cover as needed to complete the project and agree to restore impacted lands outside of lands developed to tower pads and access roads to the same type of cover at no expense to any applicable WDNR lessee or to WDNR as landowner.	Washington Statewide Rights-of-Way MOA
Implement the Appraisal Memorandum of Understanding (MOU) with WDNR to pay fair market value for any easement conveyances granted to BPA on trust lands.	Appraisal MOU
Utilize the Appraisal MOU with WDNR to assess the value for any reduction in CRP acreage due to construction of access roads or towers.	Appraisal MOU
Work with WDNR concerning a possible cooperative agreement for the control of unauthorized public access and use on state lands that could result from the proposed project. The agreement could address various provisions related to unauthorized access, such as additional measures to be taken to discourage unauthorized use of the project corridor and associated access roads, periodic inspection for unauthorized access and any resulting damage, and repair of any damage from unauthorized access. BPA will strive to design the corridor to prevent trespass and provide signs that discourage unauthorized use of the corridor.	Washington Statewide Rights-of-Way MOA / Central Ferry-Lower Monumental Easement Documents/Operations and Maintenance Agreement
In strategic locations identified by WDNR or BPA, mark the line easement corridor boundary so that BPA, contractors, adjacent landowners, and the public can clearly recognize when they are within the corridor to prevent uncompensated corridor expansion and vegetation management conflicts, and to reduce trespass.	Washington Statewide Rights-of-Way MOA/ Central Ferry-Lower Monumental Easement Documents/Operations and Maintenance Agreement

<b>Measure</b>	<b>Implementation</b>
Develop a mutually agreeable fire prevention and suppression plan with WDNR that addresses managing and controlling the risks associated with wildland fire due to construction, operation, and maintenance of the transmission line.	Washington Statewide Rights-of-Way MOA / Central Ferry-Lower Monumental Easement Documents/Operations and Maintenance Agreement