

**Bonneville Power Administration
Kangley-Echo Lake Transmission Line Project
Record of Decision**

Decision

The Bonneville Power Administration (BPA) has decided to construct the proposed Kangley-Echo Lake Transmission Line Project in King County, Washington. BPA has decided to implement the Proposed Action (Alternative 1) identified in the Kangley-Echo Lake Transmission Line Project Final Environmental Impact Statement (DOE/EIS-0317-S1, June 2003). This decision is made thirty (30) days after publication of the notice for a final EIS (June 20, 2003) in the Federal Register.

The Proposed Action consists of constructing a new 500-kilovolt (kV) transmission line from a tap point on an existing 500-kV line near Kangley, Washington, to BPA's Echo Lake Substation. The route is about 9 miles long and will be constructed next to an existing 500-kV line. Five miles of the route will go through the Cedar River Municipal Watershed (CRW). In addition, Echo Lake Substation will be expanded about three acres to the east and new equipment will be installed to accommodate the new line.

The Proposed Action will primarily use 500-kV single-circuit steel lattice structures averaging about 135 feet high. In the CRW, where the line crosses the Cedar River, two 500-kV double-circuit lattice structures will be used to hold the new 500-kV line and the existing 500-kV line. BPA will purchase easements for a new 150-foot-wide right-of-way (ROW) for the new line (except at the Cedar River crossing where BPA will use its existing ROW). Clearing of tall-growing vegetation within the ROW will be required to insure reliable transmission service. As part of the Proposed Action, BPA has decided to construct new spur roads, upgrade existing access roads, and remove from service some existing roads; and install fiber optic cable on the new line and part of the existing 500-kV line into Raver Substation. The Proposed Action also includes a commitment to a variety of mitigation measures described in the mitigation section.

Background

BPA's existing transmission system in the Puget Sound area provides reliable power to customers throughout the Northwest, and to other regions and Canada. As population grows, however, the need for electrical energy correspondingly increases. Winter loads in the Puget Sound area alone are forecasted to increase 150-200 megawatts per year over the next decade, an average annual growth rate of 1.6 percent.

BPA is required to ensure its transmission system can reliably serve customer power needs under all operating conditions, including times of peak use (maximum demand). BPA system planners now anticipate peak use could exceed existing system capacity. When system capacity is exceeded, the voltage on transmission lines could drop below acceptable levels, causing brownouts, or can cause automatic devices to disconnect lines and cut off power entirely, causing a blackout. To avoid these unplanned outages, system operators may selectively drop or shed

loads, purposefully disconnecting customers to prevent equipment damage or widespread loss of load. Whether planned or unplanned, electrical outages can be inconvenient, costly, and even dangerous to customers, especially during a winter cold snap.

Consequently, BPA needs to improve its transmission system to ensure continued reliable electrical power for Puget Sound area customers and others within the Northwest.

Besides meeting this need for system reliability, this project will enhance the United States' ability to deliver power to Canada as required under the Columbia River Treaty of 1961.

Rationale for Decision

BPA has analyzed the environmental impacts of the Proposed Action (Alternative 1), Alternatives 2, 3, 4A, 4B, A, B, C, D, the Non-Transmission Alternative, and the No Action Alternative, and has considered public comments received on the Draft EIS and the Supplemental Draft EIS. In making its decision, BPA considered how well the various alternatives would meet the following project purposes (i.e., objectives):

- Facilitate the orderly planning of the region's power system [Pacific Northwest Electric Power Planning and Conservation Act (16 USC section 839(3)(B))];
- Increase BPA system capacity to meet growing customer demand for electricity [(Pacific Northwest Electric Power Planning and Conservation Act, 16 USC section 839(4) and 16 USC 839a(4)(A)(i))];
- Maintain BPA transmission system reliability [Federal Columbia River Transmission Act (16 USC 838b(d)); Pacific Northwest Electric Power Planning and Conservation Act, 16 USC section 839(2) and 16 USC 839a(4)(A)(i))];
- Maintain environmental quality [Pacific Northwest Electric Power Planning and Conservation Act, 16 USC 839(3)(C)];
- Minimize impacts to the human environment through site selection and transmission line design (National Environmental Policy Act, 42 USC 4321 et seq., and Endangered Species Act, 16 USC 1531 et seq.);
- Minimize costs to BPA's ratepayers [Pacific Northwest Electric Power Planning and Conservation Act, 16 USC 839(2) and 16 USC 839a(4)(A)(ii)] while meeting BPA's long-term transmission system objectives for the area.

BPA believes that implementation of the Proposed Action will best meet these objectives.

- The Proposed Action meets the overall system planning needs best because it can be energized sooner.
- The Proposed Action will increase system capacity and will solve the system needs for the longest period of time.
- The Proposed Action will parallel an existing 500-kV line for its entire length. This design reduces the potential environmental impacts and, though not as reliable as another alternative (Alternative 3), it is within acceptable reliability standards.

- The Proposed Action is one of the least expensive alternatives.
- The Proposed Action will create the least environmental impacts of all build alternatives.

The U.S. Fish and Wildlife Service (USFWS) has completed its biological opinion on the project, and has issued a non-jeopardy opinion, which concludes that only minimal, unquantifiable take of one listed species (northern spotted owl) will occur. However, BPA's proposed mitigation was more than adequate to offset the project's impacts to the spotted owl, and no direct take is expected from construction activities. The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) concluded there were no adverse impacts affecting any listed anadromous fish species. The USFWS and NOAA Fisheries will be notified of BPA's decision to proceed with the project.

BPA submitted a Consistency Determination for Washington's Coastal Zone Management Program to the Washington State Department of Ecology stating that it believed the proposed project was consistent to the maximum extent practicable with Washington's approved coastal zone management program. On February 14, 2002, the Washington Department of Ecology sent a letter to BPA concurring with BPA's determination.

The Proposed Action will have no direct impacts to floodplains.

Mitigation

BPA minimized potential short-term and long-term environmental and social impacts of the Proposed Action through project design and development of mitigation measures. The Proposed Action will cost about \$43 million, including mitigation. Mitigation measures presented in the Supplemental Draft EIS and updated in the Final EIS (except as noted) for the selected alternative have been adopted. A complete list of these measures follows.

Land Conservation and Transfers

- BPA will acquire and transfer ownership of about 600 acres of land adjacent to the CRW to the City of Seattle (City). The land will be protected under a conservation easement and managed to improve water quality protection, enhance security, and benefit fish and wildlife habitat. These properties include about 110 acres immediately north of the CRW (part of property BPA currently owns), another 363 acres south of the CRW in the Selleck, Washington, area, and another 100 acres on the eastern edge of the CRW at Yakima Pass.
- In addition to the land being transferred to the City, BPA will protect over 500 additional acres of forestland that is now available for development. This includes 242 acres immediately north of the CRW (part of the previously mentioned BPA property) and 277 acres south of the CRW in the Selleck, Washington, area. BPA will retain a conservation easement on these acres that will prevent commercial or residential development, but will allow for timber management and wildlife habitat.
- BPA is committed to help finance and negotiate to protect approximately 400 acres of forest on riparian lands along the Raging River by purchasing lands or easements that will preclude commercial logging along segments of the river near the BPA line. This land will grow into late-successional forest and provide enhanced habitat for spawning

salmon and other endangered species. The goal is to protect about 600 feet on either side of the Raging River for about 2 miles. Funds for this purchase will come from the sale of the portion of the acreage BPA owns north of the CRW that will not be transferred to the City. The actual amount of acreage protected will depend on the proceeds of the exchange or sale of this property. BPA will coordinate with King County and other stakeholders regarding the details of this riparian protection plan for the Raging River.

No Future Right-of-Way Expansion within the Cedar River Municipal Watershed

BPA has agreed not to expand its ROWs beyond that which is needed for this project, and to not exercise its condemnation authority within the CRW in the future.

Advanced Construction Practices

BPA will construct the proposed Kangley-Echo Lake 500-kV Transmission Line Project using a variety of advanced construction practices, best management practices (BMPs), and other techniques that avoid and minimize impacts to the CRW and the entire project area. Examples of such practices include:

- The proposed line will be adjacent to BPA's existing Raver-Echo Lake 500-kV line in the CRW.
- BPA will use micropile footings for the towers in the CRW instead of conventional plate and grillage footings. The micropile footings create less soil disturbance. BPA may use concrete shaft footings at three towers in the CRW to reduce costs.
- To eliminate clearing and minimize disturbance within the Cedar River riparian corridor and canyon, BPA will replace two existing single-circuit towers with double-circuit towers. The double-circuit span will be entirely within the existing ROW, thereby eliminating the need to clear vegetation near the Cedar River, which will reduce sedimentation and runoff into the river. From a reliability perspective, the single span of double-circuit towers across the river is allowable by industry standards. The two new double-circuit towers will be farther away from the Cedar River than the existing towers and there will only be a single crossing of the Cedar River.
- To minimize soil disturbance, erosion, and sedimentation, helicopter construction will be used for tower erection within the CRW with the following exception. A large crane will be needed to install a portion of the two double-circuit towers at the Cedar River crossing since these towers are too heavy for helicopters to lift. By using the helicopter, no crane will be needed for the other towers, eliminating the need for wider roads and clearing/leveling of crane pads at these tower sites. To get to the two double-circuit towers, the crane can use existing roads for access.
- BPA will use minimal clearing techniques for areas outside the new ROW in the CRW: only those trees that can fall into the line or represent a threat because they are leaning, dead, or diseased will be taken.
- Within the CRW, logs will be removed by helicopter north of the Cedar River except in areas where the City has approved other removal methods. This will minimize soil disturbance. (See Vegetation for logging plans and slash removal.)

- BPA will conduct most ground-disturbing construction activities during the dry season (May through September). After September 30, construction activities will continue in the CRW, but the focus will shift to areas outside the CRW, and all construction activities will operate under more stringent wet season construction requirements.
- BPA will work with the City in all aspects of construction within the CRW.
- BPA will retain an independent third party environmental monitor with ‘stop work’ authority to monitor construction in the CRW.

Right-of-Way Management in the CRW

- BPA has prepared a ROW and road maintenance agreement with the City that addresses existing and new ROWs.
- The City will have rights of access to the ROW and its roads within the CRW.
- In the future if BPA were to cease using the transmission line and abandon the ROW, the ROW will revert to the City.
- The City can manage the ROW, providing their management actions do not interfere with the safe and reliable operation of the transmission lines within the ROWs.
- BPA will allow low- to medium-growing vegetation within the ROW.
- BPA will minimize clearing for construction and during maintenance period at river and creek crossings.
- BPA will clear tall-growing species on a rotation basis such that more tall trees stay within the ROW for a longer period to provide a variety of vegetation heights.
- BPA will suppress non-native plants.
- BPA will seed/plant native type vegetation in disturbed areas for the new ROW.
- BPA will not use herbicides in the CRW; herbicides will not be used on lands transferred to the City as a result of this project.

Protection of the Habitat Conservation Plan

- The USFWS and NOAA Fisheries have issued letters stating that the proposed project does not adversely affect the City’s Cedar River Habitat Conservation Plan (HCP).
- To assure that the City’s interests under the HCP are protected, BPA agrees that it will pay up to \$10 million toward additional mitigation requirements, if they are imposed upon the City to maintain its Incidental Take Permit issued in connection with the HCP. BPA shall make payment for such mitigation ordered by a court of competent jurisdiction or imposed administratively by NOAA Fisheries or USFWS as an additional Incidental Take Permit condition, but only to the extent such order or administrative requirement results from the construction, operation, or maintenance of the project. These funds shall

be available for seven years following the execution of the Memorandum of Agreement between the City and BPA.

Water Quality Protections and Assurances

BPA will purchase insurance and provide other assurances (as per Federal laws) to the City associated with environmental harm from the transmission project. Elements include:

- A three-year contractor pollution liability insurance policy with a maximum coverage of \$105 million to address potential requirements to provide filtration to the Cedar River water supply, or other environmental harm that might arise as a result of the construction of BPA's project.
- Increased general liability limits required of and maintained by the general contractor.
- Additional financial assurance to acquire mitigation under certain circumstances to maintain the City's Environmental Species Act incidental take permit.
- Assurances to comply with applicable environmental laws.
- A contractor pollution liability insurance policy, with a term of three years, that names both the City and BPA as insureds. The insurance policy will provide coverage for a broad range of losses (not just water quality) that the City or BPA may become legally obligated to pay as a result of a claim for bodily injury, property damage, or environmental damage caused by a pollution incident resulting from project construction or maintenance activities. Covered activities include construction, operation, and maintenance of the power transmission line; clearing of the new ROW; construction and improvement of access roads; removal and replacement of culverts; roads removed from service; construction of steel lattice structures with foundations, conductors, fiber optics, and grounding; and environmental mitigation requirements.
- An automated water quality monitoring system funded and installed by BPA for the Cedar River and for Rock Creek to monitor water quality impacts due to construction of the project. During construction activities within the CRW, BPA will require daily water turbidity sampling by an independent environmental monitor.

Environmental Protection

BPA will also take additional steps to protect and improve water quality in the CRW by:

- Not using existing roads within wetlands and removing certain existing roads from service.
- Minimizing construction of roads and designing new roads to minimize erosion.
- Monitoring the Cedar River and Rock Creek for turbidity.

Hazardous Materials Plan

BPA developed a hazardous materials plan that includes these elements:

- Stringent fueling requirements within the CRW.
- Use sorbent mats under equipment while parked inside the CRW to catch any potential oil leaks.
- In the very unlikely event of a fuel spill, have a plan in place to capture the fuel.
- Prohibit fuel storage in the CRW.
- Replace hydraulic fluid with vegetable-based oil in heavy construction equipment used in the CRW.

Financial Compensation

- BPA will pay for timber removal costs, but the City will receive the revenues from sales of the timber removed from the CRW. The City will decide whether to retain or sell individual trees.
- In addition, BPA will pay the City \$6 million to be used by the City to fund watershed restoration and watershed security projects for a net benefit to the CRW. This amount will be made in two payments: \$3 million in October 2003 and \$3 million at the end of construction or October 2004 (the second payment may be delayed only if and to the extent that the City unreasonably causes delay in completion of construction). Any moneys the City obtains from the project will be used for development of wildlife habitat within the CRW or City drinking water projects.
- BPA has agreed to reimburse the City for its involvement with the Kangley-Echo Lake Transmission Project, including time spent on analysis, reviews, negotiations, and construction inspection.

Land Use

- BPA will compensate private landowners for the market value of the easement area, and any severed property, together with market value for any timber off the ROW.
- BPA will provide relocation services and benefits pursuant to the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended, and Federal regulations to eligible owner occupants, tenants, and businesses, ensuring that the eligible parties have a good understanding of the relocation process. BPA will assist these parties in filing claims for relocation benefits.
- Equipment operators and the construction crews will be instructed to leave gates as they are found, open or closed, to avoid disturbances to livestock, and to stay within the transmission line or access road ROW to minimize impacts to land productivity.

Soils and Water Quality

- To minimize erosion, all disturbed areas other than tower sites and roads will be prepared and promptly seeded with a seed mixture suited to the site and approved by the landowner.
- Construction staging areas will not be located within the CRW.
- Within the CRW, site-specific plans for clearing, placing large woody debris (LWD), leaving stumps, and creating snags will be developed in consultation with the City. LWD will be placed under the direction of the City within the CRW. The City will be responsible for any water quality problems resulting from LWD placement within the CRW.
- Disturbance and removal of existing vegetation will be minimized to that needed for maintaining reliability, safety, and access. Understory vegetation in the ROW will be preserved to the extent practicable, and all disturbed areas will be stabilized as soon as possible after construction.
- To prevent bank erosion and sedimentation, riparian vegetation will be preserved to the extent possible while still maintaining transmission line reliability and safety standards.
- Within wetlands and riparian areas, only tall-growing species that present a current or future threat to transmission line reliability and safety will be cut. Trees to be cut will be identified and clearly marked in the field.
- A Storm Water Pollution Prevention (SWPP) plan will outline the BMPs for erosion prevention and sediment control.
- As part of the SWPP plan, BPA has prepared a Spill Prevention, Control, and Countermeasure (SPCC) plan to minimize the potential for spills of hazardous materials and their transport to streams and other water bodies.
- When practical, to reduce soil compaction, rutting, and the resultant loss of soil productivity, construction activities occurring outside of access roads and tower sites will be avoided when the soil is too wet to support equipment and vehicles without causing excessive rutting or compaction. Track mounted vehicles or vehicles with flotation tires could be used to minimize wet soil impacts.
- The need for new BPA access roads within the CRW will be minimized by building and designing the project so that it may take advantage of existing access and service roads. Existing access roads within the CRW will be upgraded to control erosion, run-off, and off-site transport of sediment. Where new access and service roads will be constructed, BPA shall construct them in a manner that erosion, run-off, and sedimentation are reduced and controlled.
- BPA will design and locate roads and use sediment-reduction practices to prevent degradation of aquatic resources.

- BPA will not construct any new roads through jurisdictional wetlands. Where construction vehicles must cross a wetland, construction mats will be used to cover the wetlands to reduce damage to vegetation and soil. Once construction activities are completed, the construction mats will be removed.
- To reduce disturbance to soils and vegetation, vehicle use will be restricted to access roads and immediate work areas.
- Access road drainage structures shall be kept functional and the road surface will be maintained to minimize erosion, run-off, and sedimentation.
- Construction equipment will be kept out of all wetlands, streams, and ditches.
- Debris from road construction will be diverted or removed to avoid deposition in stream channels or wetlands. Excess materials within the CRW will be removed from the CRW for disposal.
- BPA will use adaptive vegetation management techniques, including using live vegetation and appropriate drainage measures to maintain slope stability in areas susceptible to mass movement.
- BPA will monitor the Cedar River and Rock Creek for turbidity.
- Water trucks will be used on an as-needed basis to minimize dust.

Vegetation

- The project will be located adjacent to the existing Raver-Echo Lake ROW to minimize clearing and avoid additional fragmentation of habitat within the CRW.
- A timber harvest plan will be developed through cooperative efforts by BPA and the City that will address snag and tall stump creation, LWD, post-construction revegetation, and other related issues.
- Vegetation clearing will be kept to the minimum needed to maintain safety and operational standards. Clearing limits will be clearly described and marked in the field.
- To encourage growth and development of desirable low-growing shrubs and herbaceous cover, tree removal for clearing will be done in a manner that will minimally disrupt the understory, including low-growing shrubs.
- Within the CRW, BPA will work with the City to develop specific plans for replanting impacted wetlands, riparian areas, and replanting conifers in impacted areas outside the ROW.

Noxious Weeds

- BPA has identified and will evaluate existing weed populations within the present ROW to help determine the most effective treatment for eradication or control.

- No herbicides will be used in the CRW.
- BPA will work to remove existing undesirable vegetation and establish native species where there is a high probability of successful eradication without herbicides and the treatment will be cost effective.
- To inhibit weeds from becoming established on the new ROW, disturbed areas will be stabilized and replanted as soon as practicable with a seed mix approved by the landowner and/or county and agreed to by BPA.
- Equipment and vehicles used in weed control efforts will be thoroughly cleaned before moving to non-infested areas.
- All vehicles and heavy equipment will be cleaned prior to entry to the construction areas of the project to prevent weed transfer. BPA's contractor will establish a daily inspection, cleaning, and monitoring program for vehicles and heavy equipment entering the CRW. Outside the CRW, if a vehicle has traveled to an infested area, it will not be allowed to operate in project construction areas until it has been cleaned, inspected, and approved for entry to the construction area.

Fish and Wildlife

BPA will manage the ROWs for wildlife habitat where feasible by:

- Allowing low- to medium-growing vegetation within the ROW.
- Minimizing clearing for construction and maintenance at river and creek crossings.
- Clearing tall-growing species on a rotation basis that provides a variety of vegetation heights within the ROW in the CRW.
- Suppressing non-native vegetative species.
- Seed/plant native vegetation in disturbed areas for the new ROW.
- Although not part of this project, an existing culvert at Rock Creek and two culverts at Deep Creek may be replaced (pending permit approval) with pipe-arch culverts to allow for fish passage.
- All culverts on access roads to be constructed by BPA will be installed following approved guidelines and standards. Culverts will be installed following Washington State Forest Practices standards for forest roads or King County standards, whichever are the most protective of the resource.
- Leaving LWD and creating wildlife snags where determined to be beneficial to habitat. As per the terms and conditions of the USFWS biological opinion, all remnant old growth trees, snags, and large trees 20 inches or greater in diameter at breast height (dbh) that do not pose a safety hazard to the operation and maintenance of the line will be retained. A minimum of two large downed logs per acre will be retained within the

ROW within the CRW. Additionally, within the CRW, BPA will work with the City to develop specific plans for clearing, LWD, and snag creation. LWD will be left in all riparian corridors but, to avoid water quality impacts from sedimentation, trees will not be felled directly into streams (as was proposed in the Supplemental Draft EIS) except where the City has identified specific trees to be felled into Rock Creek. These trees will be felled prior to project construction by City personnel and left in place.

- BPA will locate the new transmission line ROW immediately adjacent to the existing ROW to avoid additional fragmentation of forest habitat and increase the amount of contiguous non-forest habitat.
- BPA will minimize vegetation disturbance in riparian areas and will leave low-growing shrubs in riparian and wetland areas to provide bank stability and shade. Tall-growing species will be left in deep drainages where clearance to the transmission line allows.
- BPA will site transmission structures, to the extent practicable, to minimize clearing of riparian vegetation. For example, the tower on the south side of the Raging River will be raised 40 feet to its maximum to minimize clearing.
- Fish impacts will be minimized by spanning all fish-bearing streams, observing Washington Department of Fish and Wildlife construction work windows when blasting near fish bearing streams, preserving riparian vegetation to the extent possible, and providing erosion-control measures at construction sites.
- Roads presently within riparian or wetland areas will be moved outside of such areas where practicable.
- Wildlife impacts will be reduced by minimizing vegetation disturbance, scheduling construction so that listed species, if found, are not disturbed; providing bird diverters on the overhead ground wire in areas of high flyway use (over the Cedar and Raging Rivers), and leaving large woody debris within the cleared ROW.
- Before construction, BPA will verify that no new bald eagle or spotted owl nests, or marbled murrelet occupied sites, have been found within one mile of the proposed ROW. If any are found, BPA will avoid blasting within one mile and construction within half mile of bald eagle nests and a quarter mile of spotted owl and marbled murrelet sites during nesting periods (January 1 through August 15, March 1 through September 30, and April 1 through September 15, respectively). Survey techniques will follow available protocols. No nests have been found to date.
- Before construction, BPA will verify that no other special status raptor nests occur within one mile of the proposed ROW. If any are found, BPA will avoid construction within a quarter mile of the nest during nesting season (varies by species), or within one mile for blasting.
- If any bald eagle winter roost sites are found during the roosting season (November 1 through April 1) within one half mile of the project, BPA will avoid construction

activities that would cause noise above ambient levels within 0.5 mile of the roost site(s) during the one hour period following sunrise and the one hour period prior to sunset between November 1 and April 1. No roosting sites are known to exist in the project vicinity.

Floodplains and Wetlands

- Boundaries of wetland/riparian areas within the project area will be marked prior to clearing and construction to minimize potential construction impacts.
- No fill will be placed in wetlands.
- No transmission structures or new access roads will be located in floodplains or wetlands.
- Roads presently within riparian or wetland areas will be moved outside of such areas where practicable.
- BPA proposes to purchase about 1100 acres of forestland adjacent to the CRW to mitigate the clearing of approximately 14 acres of forested wetland along the new ROW. These lands contain almost 100 acres of wetlands, in addition to riparian areas, and will be protected from future commercial and residential development.
- Construction mats will be used within wetlands to support equipment used during construction to minimize wetlands soil compaction.
- BPA will limit clearing to the minimum allowed for line reliability and safety.
- There will be no mechanized clearing allowed in wetlands or Riparian Management Zone (RMZ) Core Zones.
- Clearing in wetlands will be done in a manner that minimizes disturbance to the understory. For example, there will be no mechanical clearing and heavy equipment allowed in wetlands.
- Logs felled in wetlands will not be extracted unless this can be done without doing damage to soils. If timber in riparian buffer zones is removed, the timber will be removed by methods that will minimize impact to the understory vegetation and soils. Within the CRW, BPA will work with the City to develop specifications and site-specific plans for clearing, placing LWD, leaving stumps, and snag creation throughout the watershed, including wetlands and riparian areas.

Cultural Resources

- No cultural resources were located.
- In the unlikely event that cultural resources are uncovered during construction, work in the immediate vicinity of the discovery will be halted, and BPA will consult with the Washington State Historic Preservation Officer, the Muckleshoot Tribe, the Snoqualmie

Tribe, and a qualified archaeologist. BPA will also consult with the City for discoveries occurring within the CRW.

Public Health and Safety

- The project will be designed to meet BPA electric and magnetic field standards.
- BPA will require the construction contractor to develop an emergency response plan that includes responding to a potential accidental fire during construction.
- BPA will maintain the ROW to preserve safe clearances between trees and transmission lines to prevent fires and other hazards.
- BPA will design the line to meet Environmental Protection Agency guidelines and Washington State noise requirements.
- BPA will comply with Washington State Industrial Fire Precaution rules, regulations, and restrictions.
- BPA will prepare a traffic control plan to provide for safe passage of all traffic in, around, and through BPA's project area.
- Vehicles will carry fire-suppression equipment to minimize the threat of fires.
- BPA will install gates to prevent unauthorized access to the CRW.

Visual Resources

- No clearing will occur at the Cedar River crossing.
- Clearing of danger trees outside of the ROW will create some indirect feathering and soften the visual edge effect of the cleared ROW.
- BPA will use darkened towers to reduce light reflectivity and overall tower visibility.
- BPA will use non-reflective conductors and non-luminous, non-reflective insulators.

Air Quality

- The construction contractor will use water trucks and/or other suitable dust abatement procedures to control and minimize dust.
- No burning will be allowed in the CRW.
- Construction and maintenance vehicles and equipment will be in good running condition to minimize emissions.
- On-road diesel vehicles will use low sulfur fuel.

Alternatives to the Proposed Action

BPA considered the Proposed Action (Alternative 1), Alternatives 2, 3, 4A, 4B, A, B, C, D, the Non-Transmission Alternative, and the No Action Alternative.

Alternative 2: Alternative 2 would originate from a tap point about 1.5 miles east of the tap point for the Proposed Action and traverse northwest about three miles before continuing north paralleling the existing Raver-Echo Lake Transmission Line into Echo Lake Substation. This alternative would be approximately 9 miles long.

Alternative 3: Alternative 3 would begin at the same tap point as Alternative 2. From this point, it would traverse northeasterly then turn north-northwesterly to Echo Lake Substation. This alternative would be about 10.2 miles long.

Alternative 4A: Alternative 4A would begin at the same tap point as Alternative 2. About one-third of the way along Alternative 2, this alternative turns northwest to connect with the Proposed Action. This alternative would be about 9.5 miles long.

Alternative 4B: Alternative 4B would begin at the same tap point as Alternative 2. About half way along Alternative 2, this alternative would traverse southwest to connect with the Proposed Action. This alternative would be about 9.2 miles long.

Alternative A: Alternative A would require construction of about 20 miles of new 500-kV transmission line on mostly rural residential land, on mostly existing ROW. The alternative would use a vacant ROW between the tap point along the existing transmission line near Kangley, to a point near Covington Substation, immediately north of a portion of an existing 230-kV transmission line. Some new ROW would need to be acquired around the northeast side of Covington Substation to connect two transmission line ROWs.

BPA considered an option for a portion of this alternative that would impact fewer homes. This option would run through Covington Substation on mostly BPA-owned land.

The existing single-circuit 230-kV line from Covington Substation to the north to a tap point on an existing double-circuit 500-kV transmission line would need to be torn down and replaced with a new double-circuit transmission line. This new transmission line would have a 230-kV line on one side and a 500-kV line on the other. The 500-kV circuit would tap an existing vacant 500-kV circuit on the existing double-circuit 500-kV line coming from the west to take the power into Echo Lake Substation.

Alternative B: For this alternative, 35.6 miles of the existing 345-kV single-circuit transmission line and towers between Stampede Pass and Echo Lake Substation would be torn down and new double-circuit towers erected to accommodate two new 500-kV lines. Using the same design as the Proposed Action, Alternative B would tap an existing 500-kV line just east of Stampede Pass and divert power to Echo Lake Substation. The new double-circuit line would operate on one side at 345 kV (like the existing line) and the other at 500 kV. This alternative crosses the Mt. Baker-Snoqualmie and Okanogan-Wenatchee National Forests.

Alternative C: Alternative C has two options, Option C1 and Option C2. Option C1 is approximately 10.1 miles long and Option C2 is approximately 10.6 miles long. Both would require new ROWs away from existing transmission lines. Option C1 would begin at Raver Substation and proceed 2.5 miles west immediately north of and parallel to an existing double-

circuit 500-kV transmission line on new 150-foot-wide ROW, before turning north and traveling about 7.6 miles on new 150-foot-wide ROW through the rural residential areas of Ravensdale and Hobart. The proposed line would then tap the vacant circuit on an existing double-circuit 500-kV transmission line, west of Echo Lake Substation, just north of State Route 18. Power would be carried by this existing transmission line into Echo Lake Substation, following the completion of a short segment at Echo Lake Substation similar to that described at the north end of Alternative A.

Option C2 would begin at a tap point on an existing 500-kV double-circuit transmission line near Kangley, about 2.8 miles northeast of Raver Substation, and traverse about 4.5 miles west within a vacant transmission line ROW immediately north of a 230-kV transmission line, before turning north and continuing on the same alignment as Option C1 into Echo Lake Substation.

Alternative D: Alternative D would tap an existing 500-kV line just east of Stampede Pass and divert power to Echo Lake Substation over 35.6 miles of new single-circuit 500-kV transmission line.

Alternative D has two options, Option D1 and Option D2. Option D1 is located immediately adjacent to and south of the existing 345-kV line; Option D2 is located immediately adjacent to and north of this line. Either option would entail acquiring and clearing a new 150-foot-wide ROW and building a new 500-kV single-circuit transmission line. Both options cross the Mt. Baker-Snoqualmie and Okanogan-Wenatchee National Forests.

Non-Transmission Alternative: For this Alternative, BPA would use a broad range of alternatives including Demand-Side Management, Distributed Generation, large-scale Generation, and Demand Response and Direct Load Control that might defer the need for a new 500-kV transmission line.

No Action Alternative: No new line would be built.

Availability

This Record of Decision will be made available to those on the project mailing list, to public libraries, and on the BPA Web site. Copies are also available from BPA's document request line.

Issued in Portland, Oregon.

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

July 21, 2003

