Alvey-Fairview Transmission Line Rebuild Project
Mitigation Action Plan

Bonneville Power Administration
DOE/EA-1891

Mitigation Action Plan

This Mitigation Action Plan (MAP) is part of the Finding of No Significant Impact (FONSI) for the Alvey-Fairview Transmission Line Rebuild Project. The project would rebuild the aging 97.5-mile-long 230- kilovolt (kV) Alvey-Fairview transmission line in Lane, Douglas, and Coos counties, Oregon.

This MAP is for the Proposed Action and includes all of the integral elements and commitments made in the Environmental Assessment (EA) to mitigate any potential adverse environmental impacts.

BPA and its contractor are responsible for implementing the mitigation measures during various phases of project construction. Relevant portions of this MAP will be included in the construction contract specifications. This will obligate the contractor to implement the mitigation measures identified in the MAP that relate to contractor responsibilities during and after construction.

If you have any general questions about the project, contact the Project Manager, Richard Heredia: toll-free telephone 800-282-3713, direct telephone 360-619-6398, or e-mail rhheredia@bpa.gov.

If you have questions about the MAP, contact the BPA lead for the environmental review, Doug Corkran: toll-free telephone 800-282-3713, direct telephone 503-230-7646, or e-mail dfcorkran@bpa.gov.

If you have questions about the MAP during implementation, contact the BPA environmental lead for project implementation, Oden Jahn: toll-free telephone 800-282-3713, direct telephone 503-230-7501, or e-mail owjahn@bpa.gov.

This MAP may be amended if revisions are needed due to new information or if there are any significant project changes.

Mitigation Measures

Minimization and mitigation measures have been identified to reduce potential impacts associated with the Proposed Action, and are provided in the Mitigation Action Plan Table.

Mitigation Action Plan Table

Land use and recreation
Provide a construction schedule to all potentially affected landowners.
Post a construction schedule in affected recreational areas.
Maintain existing access to residences and other areas during construction.
Schedule construction during periods when active farms along the corridor are likely to be fallow, to the extent practicable, to minimize the potential for crop damage.
Leave gates as they were found to avoid disturbances to livestock.
Limit construction activities to the existing right-of-way and easements to minimize impacts to crops.
Coordinate with individual landowners to ensure that new or temporary access roads and gates and construction and maintenance activities would minimize disruptions to agricultural and commercial operations.
Compensate landowners for the value of commercial crops damaged or destroyed by construction activities.
Coordinate with local agencies to avoid construction activities that could conflict with their own construction activities.
Install permanent gates at selected locations to minimize unauthorized use of BPA access roads and unauthorized entry to BPA right-of-way as part of project construction.
Geology and soils
Place new structures in existing structure holes to the maximum extent practicable to reduce ground disturbance.
Conduct project construction, including tree removal, during the dry season when rainfall, runoff and stream flow are low to minimize erosion, compaction, and sedimentation, to the extent practicable.
Follow *Landslide Investigation and Mitigation* guidance or other current geotechnical engineering guidance to minimize impacts from structure replacement and road work in known landslide hazard areas (Transportation Research Board, 1996[1]).
Contact BPA geotechnical specialists if geotechnical issues, such as new landslides, arise during construction.
Install sediment barriers and other appropriate erosion-control devices where needed to minimize sediment transport.
Retain vegetative buffers where possible to prevent sediment from entering waterbodies.
Control runoff and prevent erosion on access road improvements by using low grades, water bars, and drain dips.
Properly space and size culverts on access roads.
Use water trucks on an as-needed basis to minimize dust and reduce erosion due to wind.
Till or scarify compacted soil at structure sites prior to reseeding.
Reseed disturbed areas with a native seed mix as soon as work in that area is completed.
Inspect reseeded and revegetated areas to verify adequate growth; implement contingency measures as needed.
Conduct construction activities in coordination with agricultural activities to the extent practicable.
Assist farm operators in restoring productivity of compacted soils for structure sites on agricultural lands.
Allow agricultural activities to resume on temporarily disturbed lands as soon as construction is complete.
Stabilize permanently disturbed areas for new access roads with a top layer of pavement or gravel for the roadway and revegetate the roadway shoulders.
Inspect and maintain facilities to ensure proper function and nominal erosion levels after construction.
Vegetation
Demarcate vegetation clearing limits prior to disturbance.

[1] See Chapter 7 (*References*) of the Alvey Fairview Transmission Line Rebuild Project Draft or Final Environmental Assessment for citations used in the Mitigation Action Plan.

Clearly mark trees identified for removal and demarcate tree removal disturbance limits and staging areas.
Use existing road systems (including forest/farm access roads), where practicable, to access structure locations.
Minimize the construction area (footprint) to the extent practicable, especially within wetlands and adjacent waterbody crossings.
In sensitive vegetation areas, install construction "envelopes" of silt fencing, weed free straw wattles, or other barrier materials around construction sites to prevent vehicle turnaround, materials storage, or other disturbance outside designated construction areas.
Place materials storage and staging areas in upland areas (away from wetland/waterbodies).
Implement appropriate measures to minimize the introduction and broadcast of weed seeds/propagules, including inspection of vehicles before entering construction areas and appropriate equipment cleaning measures.
Conduct as much work as possible during the dry season when stream flow, rainfall, and runoff are low to minimize erosion, sedimentation, and soil compaction.
Return temporarily disturbed areas to the original (pre-construction) contours and conduct site restoration and revegetation measures as soon as practicable following construction.
Reseed disturbed areas with native grasses and forbs to ensure appropriate vegetation coverage and soil stabilization prior to the beginning of the rainy season (November 1).
Inspect seeded sites to verify adequate growth and implement contingency measures as needed.
Conduct a noxious weed survey within the transmission line right-of-way prior to construction to more specifically identify existing infestations of noxious weeds.
Visit existing noxious weed infestations and conduct preemptive measures to minimize transport and expansion of weed occurrences during construction; flag infestations for avoidance (as practicable) during construction.
Minimize ground disturbance in proximity to existing noxious weed populations during construction.
Install and use weed wash stations at selected locations along the transmission line right-of-way.
Minimize disturbance to vegetation; only remove vegetation that would interfere with the proposed construction activities.
Return temporarily disturbed areas to their original (pre-construction) contours and conduct site restoration and revegetation measures before or at the beginning of the first growing season following construction.
Restore all temporarily disturbed soils resulting from roadwork (e.g., spoil areas, cut/fill slopes, staging areas, etc.) according to BLM requirements and agency Biological Opinions for seeding and mulching.
Replant native riparian species at specified bridge/culvert replacement locations during the dormant season (November 1 to February 1).
Salvage and stockpile selected topsoil for replacement on cut/fill slopes to improve site restoration and plant establishment.
Conduct a weed survey prior to construction to identify infestation areas. BPA would target existing infestation areas on BLM land for BLM-approved treatment prior to construction; BPA would perform follow-up monitoring and treat infestation areas after construction if needed.
Install and use weed wash stations at selected locations along the transmission line right-of-way.
Conduct post-construction site restoration monitoring with at least three field visits per year until site stabilization is achieved.
Streams and fish
Conduct in-water work in the Coast Fork Willamette River subbasin between July 1 and September 30, or during ODFW biologist-approved extensions.
Conduct in-water work in the Umpqua, South Umpqua, and Coquille subbasins between July 1 and September 15, or during ODFW biologist-approved extensions.
Conduct fish salvage according to National Marine Fisheries Service (NMFS)/ODFW requirements (NMFS/NOAA , 2000; ODFW, 2014).
Divert stream flow around the work area and maintain downstream flow during construction.
Isolate in-water work areas prior to culvert and bridge installations. Dewater work area as necessary for construction and to

minimize turbidity. Do not discharge turbid water to streams.
Install culverts, bridge crossings in accordance with NMFS/ODFW fish passage requirements.
Restrict construction vehicles and equipment access to access roads and existing work areas only. Return temporary disturbance areas for bridge, culvert, and road work to pre-existing contours and seed.
Dispose of waste material generated from access road work in a stable upland site approved by a geotechnical engineer or other qualified personnel, smooth to match adjacent grades, and seed for stability.
Conduct soil disturbing activities during dry conditions to the greatest extent practicable.
Outslope access roads (e.g., 2 to 5%), maintaining natural drainage patterns and minimizing interceptions and concentration of upgradient runoff when practicable (e.g., less than 7%slopes).
Utilize minimum of 18 inch diameter pipes for replacements and installation of additional cross-drains.
Install cross-drains at a slope steeper than road slope and skew approximately 30 degrees from perpendicular to the road to help with self-cleaning.
Install cross-drains long enough so that outlets extend beyond road fill.
Excavate cross-drain inlets to allow for initial sediment influx after construction.
Armor first 25 feet of ditch upgradient from cross-drain and catch basin with rock (e.g., pit-run/jaw rock or equivalent) to decrease the water's energy and slow flow.
Armor cross-drain outlets (e.g., pit run/jaw rock, slash, or equivalent) to decrease the water's energy and slow flows.
Design headwaters culverts (non-fish drainages) for the 100-year storm event and include a blockage allowance when sizing culverts to minimize future maintenance needs.
Size non-fish culverts to provide a free flow condition for the 100-year storm event.
Develop a spill prevention and spill response plan prior to rebuild construction.
Maintain emergency spill control materials, such as oil booms and spill response kits, on-site at each bridge/culvert replacement site at all times and ready for immediate deployment.
Include small sorbent booms (sausage booms), sorbent sheets/pads and socks, vermiculite/kitty litter, duct tape, heavy duty garbage bags, zip ties, and nitrile gloves in spill kits. Restock materials within 24 hours if used.
Outfit heavy machinery (e.g., excavators) with fire extinguisher, shovel, first aid kits, and caps and plugs for machine hydraulic lines and associated attachments (e.g., hammer/plate compactor, etc.).
Stockpile and make available large sorbent booms, straw bales, straw wattles, and turbidity curtains at each specified bridge/culvert replacement site to quickly respond to any spills or turbidity and erosion concerns during construction.
Store, fuel, and maintain all vehicles and other heavy equipment (when not in use) in a designated upland staging area located a minimum of 150 feet away from any stream, waterbody, or wetland or where any spilled material cannot enter natural or manmade drainage conveyances.
Confirm equipment is clean (e.g., power-washed) and that it does not have fluid leaks prior to contractor mobilization of heavy equipment to site. Inspect equipment and tanks for drips or leaks daily and make necessary repairs within 24 hours.
In the event of a spill, immediately contain the spill, eliminate the source and deploy appropriate measures to clean and dispose of spilled materials in accordance with federal, state, and local regulations.
Wetlands, floodplains, and ground water
Avoid and minimize wetland/waters impacts where possible by re-routing access roads, decreasing road width, or only crossing wetlands during the dry season.
Obtain and comply with applicable Corps of Engineers Clean Water Act and State of Oregon Removal/Fill permits for all work in wetlands or streams.
Identify and flag wetland boundaries before construction.
Install erosion-control measures prior to work in or near wetlands (e.g., silt fences, straw wattles, and other sediment control measures) and reseed disturbed areas as required.
Place new poles installed in wetlands inside a four-foot diameter corrugated metal pipe. This measure would help prevent

leaching of wood preservative to surrounding wetlands or waters.
Deposit and stabilize all excavated material not reused in an upland area outside of wetlands.
Avoid construction within wetlands to protect wetland functions and values, where possible. Avoid using these areas for construction staging, equipment or materials storage, or fueling of vehicles.
Use existing road systems, where possible, to access structure locations.
Remove all temporary fill and geotextile fabric and revegetate temporary roads built in wetlands after use.
Restore all temporary disturbance areas to original contours and decompact, if necessary.
Replant all temporary disturbance areas within wetlands with native species and remove or control invasive plants until native plants are well-established. Monitor revegetated wetland areas for three years. Use herbicides to control vegetation near wetlands in accordance with *BPA's Transmission System Vegetation Management Program Final Environmental Impact Statement /Record of Decision* (BPA 2000) to limit impacts to water quality.
Purchase wetland mitigation bank credits and/or in-lieu fee program mitigation credits, and/or participate in payment-in-lieu programs as mitigation for 264,905 square feet (6.08 acres) of permanent wetland impacts.
Purchase 3.2 credits at the Coyote Prairie North Mitigation Bank to replace lost wetland functions and values for 3.2 acres of wetland impact in the Coast Fork Willamette River watershed.
Purchase 2.40 credits from either the Cow Hollow Mitigation Bank or the Umpqua Interior Foothills In-Lieu Fee Program to replace lost wetland functions and values for the 2.39 acres of wetland impact in the Upper and South Umpqua River watersheds.
Purchase 0.28 credit at either the Cow Hollow Mitigation Bank or the Umpqua Foothills In-Lieu Fee Program to mitigate for 0.49 acre of impacts and purchase of 0.21 credit from the Oregon State Payment-in-Lieu Program.
Deposit and stabilize all excavated material not reused in an upland area outside of floodplains.
Install erosion-control measures prior to work in or near floodplains.
Avoid construction within floodplains to protect floodplain function, where possible.
Prepare and implement a storm water pollution prevention plan.
Inspect and maintain tanks and equipment containing oil, fuel, or chemicals for drips or leaks to prevent spills onto the ground or into waterbodies.
Maintain and repair all equipment and vehicles on impervious surfaces away from all sources of surface water.
Refuel and maintain equipment away from natural or manmade drainage conveyances, including streams, wetlands, ditches, catch basins, ponds, and culverts.
Provide spill containment and cleanup and use pumps, funnels, and absorbent pads for all equipment-fueling operations.
Keep, maintain, and have readily available appropriate spill containment and cleanup materials in construction equipment, in staging areas, and at work sites.
Place sorbent materials or other impervious materials underneath individual wood poles at pole storage and staging areas to contain leaching of preservative materials.
Place poles located in wetlands inside metal culverts backfilled with crushed rock to help prevent leaching of the preservative material into surrounding areas.
Install erosion control measures prior to work in or near floodplains.
Monitor revegetation and site restoration work for adequate growth; implement contingency measures as necessary.
Monitor erosion control BMPs to ensure proper function and nominal erosion levels.
Wildlife
Install bird diverters where the line crosses rivers, wetlands, or other high bird-use areas, and would be technically feasible.
Minimize the construction area to the extent practicable.
Leave a small percentage of cut and felled danger trees as snags in upland and wetland areas within the transmission line as additional habitat/structure for wildlife, particularly small mammals and amphibians.
Top, trim, or girdle a percentage of designated danger trees to create snags (e.g., in higher quality habitat areas) to reduce

impacts to vegetation and wildlife species, such as small mammals and amphibians.
Limit removal of Fender's blue butterfly host or nectar plants to the minimum necessary for construction.
Restore areas cleared for construction to pre-construction condition.
Re-vegetate disturbed areas with weed-free seed mixes and plantings that include nectar plants for Fender's blue butterfly.
Implement the following construction timing restrictions:
Northern spotted owl critical breeding period: No work within established disturbance distance between March 1 and July 7 (See Section 2.1.7 of the Final EA for additional information on wildlife restrictions).
Marbled murrelet MAMU A locations: No work between April 1 and August 5. Between August 6 and September 15, start work two hours after dawn and stop work two hours before dusk. Marbled murrelet MAMU B locations: Start work two hours after dawn and stop work two hours before dusk between April 1 and September 15 (See Section 2.1.7 of the Final EA for additional information on wildlife restrictions and Section 3.6 for more information on MAMU A and B locations).
Fender's blue butterfly adult flight season: No work in line miles 1 and 2 between April 15 and July 7.
Provide support for USFWS's research activities benefiting ESA-listed species.
Cultural resources
Stop work immediately and notify local law enforcement officials, appropriate BPA personnel, the Oregon State Historic Preservation Office (SHPO), and the interested Tribes if cultural resources (either archaeological or historical materials) are discovered during construction activities.
Develop an Inadvertent Discovery Plan that details crew member responsibilities for reporting in the event of a discovery during construction.
Stop construction in the area immediately should human remains or burials be encountered. Secure the area, placing it off limits for anyone but authorized personnel, and immediately notify proper law enforcement, the BPA archaeologist, the Oregon SHPO, and the Tribes.
Implement any additional mitigation measures for cultural resources identified by the Oregon SHPO through the Section 106 consultation process.
Visual quality
Use non-reflective insulators (e.g., non-ceramic insulators or porcelain) to reduce refraction and glare.
Focus construction lighting on work areas to minimize spillover of light and glare.
Require that contractors maintain a clean construction site and remove all construction debris.
Socioeconomics and public services
Maintain access to all businesses, residences, and public facilities during construction.
Coordinate with utility providers that share BPA right-of-way to determine the exact locations of utilities and minimize service disruptions to other utility lines.
Compensate landowners at market value for any new land rights required to acquire new, temporary, or permanent access roads on private lands and apply for applicable permits to obtain new access rights on public lands.
Noise, public health, and safety and electromagnetic fields
Since there would be no significant changes to the noise environment in the vicinity of the line, and no impacts would result from operational activities, no avoidance, minimization, or mitigation measures would be needed.
BPA would implement spill prevention and response BMPs as described earlier in this table under the Streams and Fish section to avoid, minimize, or mitigate impacts to public health and safety from the Proposed Action.
Since there would be no significant changes to the electric and magnetic fields in the vicinity of the line, and no impacts would result from operational activities, no avoidance, minimization, or mitigation measures would be needed.
Transportation
Prepare a notice about construction activities and a proposed schedule for posting on the Oregon Department of Transportation's (ODOT) traffic advisory web site called Trip Check (http://www.tripcheck.com).
Schedule construction activities at transmission line crossings of Interstate 5 and Oregon Route 99 so as to avoid lane

closures during peak travel times, as determined in coordination with ODOT.
Use traffic safety signs and flaggers to inform motorists and manage traffic during construction activities on affected roads.
Repair damage to roads caused by construction.
Keep construction activities and equipment clear of residential driveways to the extent possible.
Air quality and Greenhouse gases
Use water trucks to control dust during construction.
Keep all vehicles in good operating condition to minimize exhaust emissions.
Turn off construction equipment during prolonged periods of non-use.
Drive vehicles at low speeds (less than 5 miles per hour) on access roads and the BPA easement to minimize dust during high dust conditions.