

Chapter 32 Glossary and Acronyms

32.1 Glossary

access roads – Roads constructed to each tower site first to build the tower and line, and later to maintain and repair it.

agriculture – Land cover category used in the land analysis of this EIS. The agriculture category represents large tracts of herbaceous vegetation or plowed areas associated with agricultural activities. These include pasture, crops, and orchards. These areas often coincide with the rural land cover type, but were digitized separately when it was appropriate to isolate building clusters/compounds as discreet polygons during the digitizing process.

albedo – Solar reflectivity of the earth's surface.

alluvial fan deposits – Sediment deposited in alluvial fans; alluvial fans are a low, outspread, relatively flat to gently sloping mass of loose rock material deposited by streams at the place where the stream issues from a narrow valley upon a plain or broad valley.

alluvium – A general term for clay, silt, sand, and gravel deposited by a stream or other body of running water.

ambient – Surrounding natural conditions or environment of a given place at a given time.

amperes (A) – A unit of measurement of electric current produced in a circuit by 1 volt acting through a resistance of 1 ohm, which is the rate electrons flow in a wire.

anadromous fish – Fish that hatch and rear in fresh water, migrate to the ocean (salt water) to grow and mature, and migrate back to fresh water to spawn and reproduce.

anthropogenic – Caused or produced by humans.

aquatic bed – Vegetation community with submerged and floating-leaved aquatic plants.

archaeological resources – Any material remains of human life or activities that are at least 100 years of age, and are of archaeological interest.

archaeology – The scientific study of material remains (artifacts, e.g., stone tools, fish hooks) of past human life and activities.

area of potential effect (APE) – The area that may be affected by the proposed project, including direct and indirect impacts.

attenuation – Reduction of the size, strength, or density of something, such as a signal or noise source.

bedrock – A general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material.

Best Management Practices (BMPs) – Practices or combination of practices that are employed to ensure development is conducted in an environmentally responsible manner, protecting sensitive receptors such as wildlife, air quality and landscapes.

blackout – The disconnection of the source of electricity from all electrical loads (users) in a certain geographical area.

blasting – The controlled use of explosives to excavate or remove rock.

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

candidate species – Federal or Washington State listing status of a plant or wildlife species under the ESA as determined by the USFWS. Candidate species are those species (or subspecies, variety, or evolutionarily significant units of a species) for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA. Candidate species receive no statutory protection under the ESA. However, the USFWS encourages cooperative conservation efforts for these species to prevent further decline and possibly eliminate the need for listing in the future.

capital – The stock of resources used to produce other goods and services now and in the future. Natural capital refers to the stock of natural resources—e.g., water, air, soil—that yield a flow of ecosystem goods and services. Social capital refers to the stock of human relationships, shared norms and values, and other connections that yield benefits through social cohesion and cooperation.

capacity – The maximum load that a generator, piece of equipment, substation, transmission line, or system can carry under existing service conditions.

channel avulsions – The rapid abandonment of a river channel and the formation of a new river channel. Avulsions occur from channel slopes that are much lower than the slope that the river could travel if it took a new course.

Class A weeds – Non-native noxious weeds whose distribution is still limited in Washington State, as designated by the WSNWCB. Eradication of all Class A plants is required by law; eradicating existing infestations and preventing new infestations are the highest priorities.

Class B weeds – Non-native noxious weeds whose distribution is limited to portions of Washington State, as designated by the WSNWCB. Species are designated for control in state regions where they are not yet widespread; in these areas prevention of new infestations is the primary goal. In regions where a Class B species is already abundant, control is decided at the local level and containment is the goal.

Class C weeds – Non-native noxious weed species that are either already widespread in Washington or are of special interest to the agricultural industry, as designated by the WSNWCB. Class C status allows a county to enforce control if it is beneficial to that county; other counties may choose to provide education or technical support for the removal or control of these weeds.

- Clean Water Act (CWA)** – A federal law intended to protect water quality and to maintain the physical and biological integrity of the nation’s waters.
- CO₂e** – CO₂e is a unit of measure used by the Intergovernmental Panel on Climate Change that takes into account the global warming potential of each of the emitted GHGs using global warming potential factors.
- community park** – A community park is a minimum of 10 to 25 acres in size, serves the broad community, and includes facilities for active and passive recreation.
- compaction (soils)** – Compression of soil pores from rolling, tamping, or use of heavy equipment on soil. Soils become hardened, difficult to cultivate, and impermeable to air and water.
- concrete shaft footings** – Used at river crossings or in areas where the tower must sustain a higher load and requires additional support. Concrete shaft footings can be built on solid bedrock or in soils unfavorable for grillage footings. Concrete shaft footings are engineered columns of concrete reinforced by steel rods about 4 to 10 feet in diameter. Footing depth depends on site-specific engineering requirements.
- conditional firm transmission service** – Long-term transmission service that BPA may be able to provide when there is not enough firm transmission service, but conditional firm service has constraints that give BPA additional curtailment rights when granting the service. This service has a lower priority than firm service, but is a higher priority than non-firm service.
- conductors** – The wires that carry the electrical current on the transmission line.
- contrast rating** – A systematic process used to determine the degree of visual contrast created between the proposed projects and activity and the existing landscape.
- control house** – The substation building that contains electrical panels, meters, relays and other equipment needed to control the transmission line operation.
- corona** – Corona occurs in regions of high electric field strength on conductors, insulators, and hardware when sufficient energy is imparted to charged particles to cause ionization (molecular breakdown) of the air.
- counterpoise** – A buried wire system connected to the footings of towers or poles supporting a transmission line. Used to establish a low-resistance path to earth, usually for lightning protection.
- Critical Aquifer Recharge Area (CARA)** – Area designated by the Washington Administrative Code that is determined to have a critical recharging effect on aquifers used for potable water (as defined by WAC 365-190-030[2]).
- Critical Habitat** – An area or areas designated by USFWS as essential for the conservation of a federally listed species.
- cultural resources** – Nonrenewable resources associated with human occupation or activity related to history, architecture, archaeology, engineering, and culture.

cumulative impacts – Impacts created by the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions.

current – The flow of electric charge through a wire.

culvert – A corrugated metal or concrete pipe used to carry or divert runoff water from a drainage; usually installed under roads to prevent washouts or erosion.

cut-and-fill – Process of constructing road or canal whereby the amount of materials from cuts roughly matches the amount of fill needed to make nearby embankments.

danger tree – A tree that occurs adjacent to the cleared right-of-way and is hazardous to the transmission line. These trees are removed to prevent any such tree from falling on to or otherwise interfering with a conductor. A tree would be identified as a danger tree if it could fall into, bend into, or grow into the conductor or close enough to cause a "flashover" of current from the conductor. Further, a swing-into danger tree is one that is likely to experience contact or "flashover" from the swing displacement of the conductor. See Transmission Line Maintenance Standards and Guides Section VII.B.1.

dead-end towers – Heavy towers designed for use where the transmission line loads the tower primarily in tension (pull) rather than compression (downward push), such as in turning large angles along a line or bringing a line into a substation.

debris flow – Rapid movement of water-charged mixtures of soil, rock, and organic debris down steep stream channels.

decibel (dB) – A unit of sound measurement. In general, a sound doubles in perceived loudness for every increase of 10 decibels.

decrease – Where bolded in Chapter 11, Socioeconomics this term reflects decreases in the amount or value of a resource, as defined in Section 11.2.1.

demand side management – The strategies that focus on influencing when and how customers use electricity, with an emphasis on reducing or leveling load peaks, such as conservation measures and rate incentives for shifting peak loads, and energy storage schemes for reducing, redistributing, shifting, or shaping electrical loads.

distinct population units – the smallest division of a taxonomic species permitted to be protected under the U.S. Endangered Species Act.

distributed generation – Placing small amounts of generation located on a distribution system for the purpose of meeting local peak loads, and/or displacing the need to build/upgrade larger-scale, centralized generation facilities.

dewatering – To divert or remove water from an excavated area, stream or river channel to construct or rebuild dams and related hydroelectric facilities.

digitize – The process in GIS by which aerial photographs (and other geospatial data) are used as references to "draw" polygons encompassing features of interest (or vegetation types in the case of this study), to characterize different geographic areas in a visual way so that they can be easily classified on a map.

double-circuit – Two separate electrical circuits (for alternating current, each circuit consists of three separate conductors or bundles of conductors) on the same transmission towers.

drain dip – A wide, shallow depression placed in a road surface to divert water off the road into a stable drainage to prevent erosion.

electric and magnetic fields (EMF) – The two kinds of fields (electric and magnetic) produced around the electric wire or conductor when an electric transmission line or any electric wiring is in operation.

emergent – Vegetation that is rooted below water but grows above the surface.

emigration – In fish, emigration is movement out of natal (i.e., birth place) and or rearing areas toward the ocean.

encroachment – Land use along a powerline right-of-way that may not be compatible or allowed within the existing right-of-way, depending on existing easements and land use agreements. Examples of encroachments are tall-growing landscaped vegetation; unauthorized recreation; storage of RVs, cars and boats; buildings such as garages or sheds; and fences through tower legs.

endangered species – A federal or state listing of a plant or wildlife species. Under federal listing (as determined by the USFWS under the ESA), these species (or subspecies, variety, or evolutionarily significant units of a species) are determined to be in danger of extinction through all or a significant portion of their range. The ESA protects endangered species and their habitats by prohibiting “take” (harassment, disturbance, removal, hunting, etc.) of listed animals or plants, except under Federal permit. The ESA also regulates the designation of “critical habitat” for listed species, which may include areas not currently occupied by the species but essential to its conservation. Under state listing (by the WDFW), these species are defined as a species native to the state that is seriously threatened with extinction throughout all or a significant portion of its range throughout the state.

ephemeral stream – A stream that only exists for a short period of time during or following precipitation or snowmelt. EPA also defines ephemeral streams as having channels that are above the groundwater reservoir at all times (see intermittent stream).

estuarine – Related to the wide lower course of a river where it flows into the sea. Estuaries experience tidal flows and their water is a changing mixture of fresh and salt.

ethnography (ethnographic, adj.) – The branch of anthropology that deals with the scientific description of specific human cultures.

evapotranspiration – The transport of water into the atmosphere from surfaces, including soil (soil evaporation), and from vegetation (transpiration). Other contributors to evapotranspiration may include evaporation from wet canopy surface (wet-canopy evaporation), and evaporation from vegetation-covered water surface in wetlands.

evolutionarily significant unit – Population of a species that is considered distinct for purposes of conservation. Delineating ESUs is important when considering conservation actions.

experiential – Relating to, derived from, or providing experience.

Farmland of Statewide Importance – Land, in addition to prime farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Unlike prime farmland, criteria for defining and delineating this land are determined by the appropriate state agency or agencies. Farmland of statewide importance typically includes land that is nearly prime farmland and could economically produce high yields of crops.

fault – A discrete surface or zone of discrete surfaces separating two rock masses across which one mass has slid past the other.

federally listed – Species listed as threatened or endangered by the USFWS.

fiber optic cable – Special wire installed on the transmission line that is used for communication between one location and another. Fiber optic technology uses light pulses instead of radio or electrical signals to transmit messages.

firm transmission service – Transmission service that is reserved or scheduled for a specific term (usually a year or longer) that is of the same priority as that of BPA's use of the transmission system.

fish window – A period of calendar time suggested by state or federal fisheries agencies where in-water construction work is preferred; and where such work is prohibited before or after such period.

fish-bearing stream – Streams that are known to be used by fish, or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal.

flashover – A disruptive discharge through the air around or over the surface of an insulator produced by the application of a voltage of sufficient magnitude to cause the breakdown path to become ionized and result in an electric arc or fault. A flashover can be caused by lightning surges on a transmission line.

floodplain hydraulic roughness – The presence of anything in the floodplain that could slow the flow of water through the floodplain. A mowed pasture would be low in hydraulic roughness compared to a forested floodplain. Tall grass would provide more roughness than mowed grass or sparse vegetation.

floodplains – Areas adjacent to rivers and streams that might be flooded during high water; those that have a 1 percent chance of being flooded in a given year are 100-year floodplains.

footings – An assembly of metal in the ground at each of the four tower corners.

forb – A broadleaf non-woody plant that is not a grass, sedge, or rush.

foreground and middle-ground view – The area visible from a travel route, use area, or other observation point to a distance of 3 to 5 miles. The outer boundary of this zone is

defined as the point where the texture and form of individual plants are no longer apparent in the landscape.

freshet – A sudden rise or overflow of a stream resulting from a heavy rain or melting snow.

fry – In trout and salmon, this is an early life history stage, after fertilized eggs hatch and deplete their yolk-sac, when juveniles emerge from their redd to actively search for food.

fugitive dust – Any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of people.

functions and values – The special benefits provided by wetlands that are considered valuable to society and to the environment, and are the result of the inherent and unique natural characteristics of wetlands, such as protecting and improving water quality and providing habitat for fish and wildlife.

gauss – A unit of magnetic induction.

generation redispatch – Management of generation patterns to overcome cut plane or outage problems.

genetic reserve – Conservation area intended to maintain and protect the genetic diversity and integrity of a target species.

glacial till – Till or glacial till is unsorted glacial sediment. Glacial drift is a general term for the coarsely graded and extremely heterogeneous sediments of glacial origin. Glacial till is that part of glacial drift which was deposited directly by the glacier.

grillage footings – Used for dead-end towers. They consist of a 15-foot by 15-foot assembly of steel I-beams that have been welded together and buried 14 to 16 feet deep for each tower foot.

ground wire – A protective wire strung above the conductors on a transmission line to shield the conductors from lightning; also called shield wire or overhead ground wire.

guard structure – Structure similar to an 115-kV H-frame wood structure usually installed within the right-of-way on either side of the road, highway, water, etc. during construction to protect an area during construction stringing. These structures are removed once conductor stringing is complete.

habitat fragmentation – A process by which human development divides a habitat into smaller areas, hindering the spread or movement of plants and animals from one area to another and increasing the vulnerability of the habitat to disturbance.

hazardous substance – Hazardous substances are substances that are considered severely harmful to human health and the environment and include hazardous substances as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

hazardous waste – Hazardous waste is defined under the Resource Conservation and Recovery Act (RCRA) as a solid waste (or combination of solid wastes) that, because of its

quantity, concentration, or physical, chemical, or infectious characteristics, may do the following: (1) cause or contribute to an increase in mortality or an increase in serious irreversible, or incapacitating illness, or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

herbaceous balds – Patchy grass and forb areas located on shallow soils over bedrock often on steep slopes that are commonly fringed by forest or woodland. Dominant flora includes herbaceous vegetation, dwarf shrubs, mosses, and lichens.

high impact – This rating represents conditions unique to each resource. It is defined in each chapter's section on impact levels.

historic properties – Are a subset of cultural resources that are eligible for inclusion in the National Register of Historic Places.

historic resources – Are defined as extant buildings, structures and objects that are at least 50 years old.

historic-period sites – Sites from after the arrival of Europeans.

Holocene – The epoch between about 10,000 years ago and the present.

hydric soil – Soil that is saturated, flooded, or inundated long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic (water loving) vegetation.

hydrogeomorphic – A wetland classification identifying wetlands according to their position within the landscape (e.g., slope, riverine) and the functions they perform as a result of that landscape position.

hydrology – The science of the properties, distribution, and circulation of water.

Hydrologically immature – In forest, areas with less than 10 percent total crown closure and/or more than 75 percent of the tree crown in hardwoods. Non-forested areas are also considered hydrologically immature.

hydrophytic (vegetation) – Describes plants that have adapted to living in aquatic environments. These plants require special adaptations for living submerged in water, or at the water's surface.

hydrology – Hydrology addresses properties, distribution, and circulation of water.

igneous – Rocks or minerals that solidified from molten or partly material (i.e., magma).

increase – Where bolded in Chapter 11, Socioeconomics this term reflects increases in the amount or value of a resource, as defined in Section 11.2.1.

intermittent stream – A stream where portions flow continuously only at certain types of year, for example when receiving water from a spring, groundwater source, or surface-water

- source such as melting snow. At low flow there may be dry segments alternating with flowing segments.
- jumper** – A short length of conductor connecting two points in a circuit usually at a tower.
- juvenile** – A young fish that has not reached sexual maturity.
- kilovolt** – One thousand volts (see Volt).
- lahar** – A mudflow composed chiefly of volcanic materials including mud, rocks, and water, on the flanks of a volcano.
- larvae** – An early life history stage of some fish during which they grow for a certain period of time before metamorphosing into adults.
- liquefaction** – The transformation of a solid soil to a liquid state, typically as the result of earthquake shaking.
- List A** – Designation by the ODA for noxious weeds recommended for eradication or intensive control when and where found.
- List B** – Designation by the ODA for noxious weeds recommended for intensive control on a site-specific, case-by-case basis at the state, county, or regional levels.
- List T** – Designation by the ODA for noxious weeds recognized as priority species for prevention and control.
- lithic** – Made of stone.
- lithospheric plate** – A segment of the Earth's crust (lithosphere), which adjoins other plates along zones of seismic activity.
- litterfall** – The transport of leaves, bark, twigs, and other forms of dead organic material and constituent nutrients from trees, shrubs, and other plants to the top layer of soil or to bodies of water.
- load** – The amount of electric power or energy delivered or required at any specified point or points on a system. Load originates primarily at the energy-consuming equipment of customers.
- load curtailment** – A temporary reduction in electric power delivery under emergency conditions, taken after all possible load management measures have been tried.
- long-range view** – The area visible from a travel route, use area, or other observation point to a distance of greater than 5 miles. Also called the background distance zone.
- low impact** – This rating represents conditions unique to each resource. It is defined in each chapter's section on impact levels.
- low-income population** – Groups of people identified using the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on

- Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living close to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect (CEQ 1997).
- maintenance area** – Geographic area that has a history of non-attainment, but now consistently meets the National Ambient Air Quality Standard (NAAQS). See attainment.
- mass wasting** – The downward movement of rock debris.
- megawatt (MW)** – One million watts, or one thousand kilowatts; an electrical unit of power.
- mesic (vegetation)** – Type of habitat with a moderate or well-balanced supply of moisture.
- microclimate** – A local atmospheric zone where the climate differs from the surrounding area (for example, south-facing slopes or areas adjacent to water bodies).
- micropiles** – Steel rods used to strengthen and stabilize the foundation of a building or structure.
- middle-ground view** – See foreground and middle-ground view.
- Milligauss (mG)** – A unit used to measure magnetic field strength; one-thousandth of a gauss.
- mine tailings** – The materials (e.g., ground rock) left over after the desired minerals have been removed.
- mini park** – A mini park is generally 0.25 acre in size, in close proximity to a neighborhood, and serves people within the immediate neighborhood (Cowlitz County 2010b).
- Minimum Vegetation Clearance Distance** – Minimum distance measured from vegetation to a conductor at maximum line sag and swing, for a prescribed kV rating, line temperature, ice load and wind force. Minimum distance is established to ensure a safe clearance from transmission facilities to vegetation.
- minority** – Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (CEQ 1997).
- minority population** – Minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living close to one another, or a dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds (CEQ 1997).

- moderate impact** – This rating represents conditions unique to each resource. It is defined in each chapter’s section on impact levels.
- motorized trail** – A recreation trail that is open to some or all of the following uses: four-wheel drive vehicles, all-terrain vehicles, and motorcycles. These trails are often open to non-motorized uses as well.
- multi-component sites** – Where both pre-contact and historic-period cultural materials are present.
- myth-time stories** – These are stories that detail creation beliefs for the tribes and therefore hold religious significance.
- neighborhood park** – A neighborhood park is a minimum of 5 acres in size and primarily serves residents within one-half mile of the park (Cowlitz County 2010).
- Natural Area Preserve (NAP)** – As defined by Washington State legislature’s Natural Areas Preserve Act in 1972, these areas are designated to preserve the best remaining examples of many ecological communities including rare plant and animal habitat, and are to be used for education, scientific research, and to maintain Washington’s native biological diversity.
- Natural Resources Conservation Area (NRCA)** – As defined by the Natural Resources Conservation Area program established by the Washington State legislature , these areas are established to protect outstanding examples of native ecosystems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. They are to be used for conservation purposes.
- no impact** – This rating represents conditions unique to each resource. It is defined in each resource chapter’s section on impact levels, but generally indicates that current and future conditions would not be affected by the project.
- non-attainment** – An area that does not meet air quality standards set by the Clean Air Act for specified localities and periods.
- non-firm transmission service** – Transmission service that is not guaranteed to be available and is only available after commitments for firm and conditional service have been met.
- non-motorized trail** – A recreation trail typically open to horseback riding, mountain biking, and hiking.
- non-wires measures** – Non-transmission alternatives to transmission line construction that may include pricing strategies, demand reducing strategies, and strategic placement of generators.
- northern spotted owl circles** – The area around a documented northern spotted owl nest (activity center) that delineates the main home range or foraging area of the breeding pair. The circular area has a radius of 0.7 mile.
- noxious weed** – A non-native and invasive plant species designated by state law for some level of management.

open space – Land cover category used in the land analysis of this EIS. It contains areas that have not been developed and have the potential to be used for both production and non-production forest, and non-forested uses such as rural residential, agriculture, or recreation. For this EIS, this category includes area managed for commercial forest production by private companies much smaller than those included in the forest production category.

overload – Moving too much current flow over transmission facilities. Equipment has safeguards: in the event of system overload, switches will disconnect sensitive equipment from the flow of electricity.

palustrine – Relates to a system of inland, non-tidal wetlands characterized by the presence of trees, shrubs, and emergent. Palustrine wetlands range from permanently saturated or flooded land (as in marshes, swamps, and lake shores) to land that is wet only seasonally a class of wetland that is a freshwater wetland classification system.

peat – An unconsolidated deposit of plant remains in a water-saturated environment, such as a bog. Peat is an early stage in the development of coal.

pentachlorophenol (PCP) – Pentachlorophenol is an organochlorine compound used as a wood preservative, pesticide, and disinfectant. First produced in the 1930s, it is marketed under many trade names. People may be exposed to PCP in occupational settings through the inhalation of contaminated workplace air and dermal contact or with wood products treated with PCP. Also, general population exposure may occur through contact with contaminated environment media, particularly in the vicinity of wood treatment facilities and hazardous wastes sites.

perennial stream – A stream or portion of a stream that flows year-round and is considered permanent.

physiographic regions – A geographic region in which climate and geology have given rise to a variety of landforms different from those of surrounding regions.

plate footings – Used for suspension towers. They consist of a 4-foot by 4-foot steel plate buried about 11 feet deep for each tower foot.

Pleistocene – The epoch between about 2.6 million years and the present.

polychlorinated biphenyls (PCBs) – Polychlorinated biphenyls are a class of organic compounds. PCBs were widely used for many applications, especially as dielectric fluids in transformers, capacitors, and coolants. Due to PCB's toxicity and classification as a persistent organic pollutant, PCB production was banned by the United States Congress in 1979.

polycyclic aromatic hydrocarbons (PAHs) – Polycyclic aromatic hydrocarbons, also known as poly-aromatic hydrocarbons or polynuclear aromatic hydrocarbons are potent atmospheric pollutants. PAHs occur in oil, coal, and tar deposits, and are produced as byproducts of fuel burning (whether fossil fuel or biomass). As a pollutant, they are of concern because some compounds have been identified as carcinogenic, mutagenic, and teratogenic (can cause birth defects).

- power circuit breakers** – A switching device that can automatically interrupt power flow on a transmission line at the time of a fault.
- pre-contact** – Resources that date to before direct or indirect contact between Euro-Americans and Native Americans.
- Priority Area** – A designation under WDFW’s Priority Habitats and Species list to indicate areas where species are considered a priority only within known limiting habitats (e.g., breeding areas) or within areas that support a relatively high number of individuals (e.g., regular large concentrations, rookeries, etc.).
- priority habitat** – A WDFW designation of habitat types with unique or significant value to many species. It may be described by a unique vegetation type or by a dominant plant species that is of primary importance to fish and wildlife (e.g., oak woodlands). A priority habitat may also be described by a successional stage (e.g., old growth or mature forest), or by a specific habitat feature of key value to fish and wildlife (e.g., talus slopes, caves, snags).
- priority species** – Under the WDFW, priority species are fish and wildlife species requiring protective measures or management actions to ensure their survival. A species identified and mapped as priority species fit one or more of the following criteria:
- Criterion 1.** State-Listed and Candidate Species.
 - Criterion 2.** Vulnerable Aggregations (species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to aggregate. Examples include heron rookeries, seabird concentrations, marine mammal haulouts, shellfish beds, and fish spawning and rearing areas.
 - Criterion 3.** Species of Recreational, Commercial, and/or Tribal Importance whose biological or ecological characteristics make them vulnerable to decline in Washington or that are dependent on habitats that are highly vulnerable or are in limited availability.
- Prime Farmland** – Land that has the best physical and chemical characteristics for producing items such as food, feed, forage, fiber and oilseed crops, which have not already been targeted for urban development or water storage (Code of Federal Regulations [CFR] 730-733 section 657.5). The NRCS identifies soil mapping units within Washington State that qualify as prime based on specific soil criteria. Soil mapping units may be classified as prime farmland under current conditions or as prime farmland given that certain qualifying conditions exist on the site (e.g., “prime farmland if irrigated,” “prime farmland when protected from flooding,” etc.). In such cases, if the qualifying conditions do not exist, then the unit is considered “not prime.”
- pro forma open access tariff** – This tariff defines the terms and conditions of point-to-point and network integration transmission services offered by BPA. Tariffs are schedules detailing utility rates, rules and regulations, and terms of service filed for approval with a regulatory agency. Usually relative to retail, end-use customer service.
- protective relay** – A safety measure designed to calculate operating conditions on an electrical circuit and to trip circuit breakers when a fault is detected.

pulling/tensioning site – Site used during construction where the conductors are pulled and tightened to the correct tension. Pulling/tensioning sites would be located both within and just outside of the right-of-way where the proposed line turns in a different direction. These sites would create a temporarily disturbed area of about 300 feet long by 100 feet wide at each site.

pyroclastic flow – A hot flow composed of a mixture of gases and particles.

reach – A section of a river or stream between two defined points.

red flag – Cultural resources to which potential effects are considered difficult or impossible to avoid.

redd – A nest of fish eggs covered with gravel.

residual soil – A soil formed from, or resting on, consolidated rock of the same kind as that from which it was formed, and in the same location.

riffle – A stretch of shallow stream habitat with moderate to fast current and turbulent flow.

right-of-way – An easement for a certain purpose over the land of another, such as a strip of land used for a road, electric transmission line, pipeline, etc.

riparian – The three-dimensional zones of direct physical and biotic interactions between terrestrial and aquatic ecosystems located along rivers, creeks and lakes; boundaries of the riparian zone extend landward to the limits of flooding and upward into the canopy of streamside vegetation.

rip-rap – A loose assemblage of broken stones erected in water or on soft ground as a foundation.

river mile – Distance from a river mouth or other known locality to a specific site.

rural – Land cover category used in the land analysis of this EIS. The rural land cover category includes areas characterized by a diverse suite of land uses and features that are typical in rural areas. These range from agricultural uses to diffuse/low density residential development. In terms of development density criteria, the rural land cover type included those areas with approximately ≤ 1 residence per acre.

rural centers – Distinct areas of smaller lot patterns with residential development, small-scale business that provides convenience shopping and services to nearby rural residents, have access to arterial roadways, and are surrounded by protected rural landscapes of generally open land used for agriculture, forestry, large lot residential, recreational and environmental protection purposes.

safety backline (safe backline) – A "buffer" strip outside the edge of the right-of-way to assure reliability. It is created by cutting a strip of trees alongside the right-of-way, including trees tall enough to hit the conductor adjacent to the right-of-way. When an existing stand of trees next to the right-of-way is found to be so highly compromised that it is unstable as a whole, all trees from outside the right-of-way from the last tree tall enough to hit a conductor to the edge of the right-of-way would be removed.

salmonid – Fish belonging to the family of salmonidae, including salmon, trout, char, whitefish, and allied freshwater and anadromous fish.

scenic quality– A rating of the overall appeal of a view that is categorized as High, Medium, or Low, which is determined based on several key factors (BLM 1986). The key factors include landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modifications. With a maximum possible score of 32, values are totaled with results of 19 or more ranked “High”, 12 to 18 ranked “Medium”, and 11 or less ranked “Low”.

scrub-shrub – Woody vegetation less than 20 feet tall.

sediment – Fragmental material that originates from the weathering of rocks.

sedimentary – Rocks or deposits formed by the deposition of sediment.

sensitive species – Washington or Oregon state listing of a fish or wildlife species. In Washington, the WDFW lists native species as sensitive if they are vulnerable or declining and likely to become endangered or threatened throughout a significant portion of its range within the state without cooperative management or removal of threats (WAC 232-12-297). In Oregon, the ODFW for fish and wildlife species, subspecies, or populations facing one or more threats to their populations or habitats (OAR 635-100-040). The Oregon listing is used to encourage voluntary actions that will improve species status, and contains the sub-categories “Critical” (imperiled with extirpation from a specific area of the state) and “Vulnerable” (facing one or more threats to populations or habitats).

sensitivity levels – In reference to visual resources, sensitivity is an evaluation of the viewer and as a way of ranking public concern.

series compensation – The use of devices such as capacitors or voltage regulators to improve performance of an electric system with respect to some specified characteristic. Such devices are used to increase capacity.

shrub – The shrubland cover category includes those areas dominated by shrub species or saplings, with greater than or equal to 30 percent aerial cover of these vegetation types.

single-circuit – One electrical circuit that consists of three separate conductors or bundles of conductors on one tower.

single-circuit tower – A tower that can support only one transmission line.

snags – Standing dead or dying trees. These occur as a result of age, disease, lightning, fire, animal damage, too much shade, and other factors. They are important to wildlife in both natural and landscaped settings.

snubs – Trenches about 8 feet deep by 4 feet wide by 12 feet long used to tie off the conductor after it is pulled through the towers and before it is strung under tension.

sock line – Thick rope placed in travelers (small wheels hung from the towers) by hand or by helicopter to help string conductor from dead-end to dead-end.

soil – Unconsolidated sediment that overlies bedrock.

sole source aquifer – An underground water source that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

source wells – Group A wells (Washington’s specific designation for public water systems regulated by the federal SDWA) and Group B wells (Washington’s designation for public water systems smaller than the minimum cut-off defined by the SDWA).

spacer damper – A mechanical device attached to each subconductor of a conductor bundle both to damp vibrations and to prevent physical contact of subconductors.

spans – The horizontal distance between two adjacent towers.

special-status vegetation resource – Vegetation resources receiving special protections or considerations under state or federal regulations, including rare plants (federally or state-listed), WDFW priority habitats, and WNHP high quality native plant communities.

spread footings – Rock anchors required for footings when a suspension tower is built on solid bedrock located less than two feet below the surface. Six-inch-diameter holes are drilled into the bedrock about 11 feet deep and steel anchor rods are secured within the hole with concrete. The approximate size of each column is 4 feet in diameter and 20-30 feet tall.

spud – A heavy timber or pipe extending vertically through a well in the bottom of a barge or boat that is used for mooring in lieu of anchors.

staging area – An area used along or near the proposed transmission line for construction crews to store materials, equipment, and vehicles. Staging areas would be from 5 to 15 acres in size, depending on the number or location needed.

stranded use – Permanently limited access to agricultural or forest production areas.

stratovolcano – A volcano that is comprised of alternating layers of lava and pyroclastic deposits.

subduction – The process of one lithospheric plate descending beneath another.

subsidence – The gradual or rapid lowering of the ground surface from compressing, drying out, or lowering the groundwater table of subsidence susceptible soils.

substation – The site containing the terminal switching and transformation equipment needed to distribute power from a transmission line. These non-generating electrical power stations serve to transform voltages to higher or lower levels, and serve as a delivery point to individual customers such as utilities or large industries.

substation dead-end towers – Towers within the substation where incoming or outgoing transmission lines end; typically these are the tallest structures within the substation.

- substation rock surfacing** – A 3-inch or more layer of rock, selected for its insulating properties, which is placed on the ground within the substation to protect operation and maintenance personnel from danger during substation electrical failures.
- substrate** – An underlying layer upon which other materials exist or are placed.
- suspension tower** – A tower designed to support conductors strung along a virtually straight line with only small turning or descending or ascending angles.
- switches** – Devices that mechanically disconnect or isolate equipment. Usually located on both sides of circuit breakers.
- talus** – A sloping mass of coarse rock fragments accumulated at the base of a cliff or slope.
- tectonic** – The process and dynamics of lithospheric plate movement.
- tensioner** – A device used to pull the conductors to the correct sag so that proper ground clearance is maintained.
- timber production** – Land cover category used in the land analysis of this EIS. Forest production areas are within land owned or managed by timber companies (Weyerhaeuser, Longview Timber, and Sierra Pacific), utilities (PacifiCorp), or the state (WDNR) and are primarily used for timber production. These areas are mostly forested (some with mature forests and forested wetlands), cleared, or have been replanted. There are also existing access roads within these areas that were built for hauling cut timber.
- thermal plant** – A type of electric generating station or power plant, such as gas, coal, and nuclear plants, in which the source of energy for the prime mover is heat.
- threatened species** – Federal or Washington State listing status of a plant or wildlife species. Under federal listing (as determined by the USFWS under the ESA) these species (or subspecies, variety, or evolutionarily significant unit of a species) are considered likely to become endangered within the foreseeable future. The ESA protects threatened species and their habitats by prohibiting “take” (harassment, disturbance, removal, hunting, etc.) of listed animals or plants, except under Federal permit. The ESA also regulates the designation of “critical habitat” for listed species, which may include areas not currently occupied by the species but essential to its conservation. Under Washington State listing (as determined by the WDFW) these species are native to the state and are likely to become endangered in the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats (WAC 232-12-297).
- toxic substance** – A toxic substance is any chemical or mixture that may be harmful to the environment and to human health if inhaled, swallowed, or absorbed through the skin. A toxic substance would also include any chemical or substance regulated by the Toxic Substances Control Act regulations (40 CFR Parts 700 through 766).
- Traditional Cultural Property (TCP)** – A property or place that is eligible for inclusion on the National Register of Historic Places because of its association with cultural practices and beliefs that are rooted in the history of a community, and are important to maintaining the continuity of that community’s traditional beliefs and practices.

transfer capability – Amount of electric power that can be transferred over the interconnected transmission network in a reliable manner at a given time.

transpiration – Loss of water vapor from parts of plants.

triple-circuit – The placing of three separate electrical circuits on the same tower.

turbidity – The extent to which water is muddy or cloudy due to the presence of suspended matter.

unconsolidated – A soil or sediment that is loosely aggregated or uncemented.

urban/suburban – Land cover category used in the land analysis of this EIS. The urban/suburban land cover category includes high to mid-density development and infrastructure associated with urban and suburban environments, including roads, commercial buildings, and residences and associated landscaping, and associated impervious surfaces (e.g., parking lots).

vegetation type – A category representing the general vegetation conditions in a given area.

viewshed – The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

volt – The international system unit of electric potential and electromotive force.

voltage – The driving force that causes a current to flow in an electrical circuit.

water bar – A diagonal channel across a road surface that diverts surface water off the road into a stable drainway. By constructing a series of water bars at intervals along a road, the volume of erosive water flowing down the road is reduced.

water right – A legal authorization to use a certain amount of public water for a designated purpose.

water wells – Exempt and non-exempt wells in the State of Washington's Department of Ecology well database.

Water Resource Inventory Area (WRIA) – The State of Washington's Department of Ecology and other natural resources agencies have divided the state into 62 "Water Resource Inventory Areas" or "WRIAs" to delineate the state's major watersheds.

watershed – An area draining into a river, lake, or waterbody.

Watershed Administrative Unit (WAU) – Used by the Timber/Fish/Wildlife cooperators as the boundaries for watershed analysis studies and other natural resources management purposes on state and privately owned lands. WAU represents the administrative boundaries of 846 units. The boundaries are mainly along drainage divides (ridges), with some along rivers and other WDNR management boundaries.

wellfield – Tract of land that contains a number of existing or proposed wells for supplying water as specified in the wellfield protection maps.

wellhead protection areas – Surface and subsurface zones surrounding a well or wellfield supplying a public water system that are protected areas designed to reduce the risk of contamination of water supply wells associated with spills and discharges of contaminants.

wetland – An area of land where soil is saturated with moisture either permanently or seasonally. Indicators of wetland include the type of vegetation, soil characteristics, and hydrology of the area.

wetland plant communities – An assemblage of plants adapted to wetlands (areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; 33 CFR 328.3, 40 CFR 230.3).

woody debris – Materials left over from cutting, harvesting, natural breakage or falling, such as limbs or branches of a tree.

yearling – A fish that is one year old.

yolk sacs – A membranous sac attached to an embryo, providing early nourishment in the form of yolk in bony fishes, sharks, reptiles, birds, and primitive mammals.

32.2 Acronyms

µm	micrometers
A	Amperes
AC	alternating current
ACGIH	American Conference of Governmental Hygienists
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADPA	Archaeological Data Preservation Act
AINW	Archaeological Investigations Northwest, Inc.
AOC	Administrative Order of Consent
APE	area of potential effect
APLIC	Avian Power Line Interaction Committee
ARPA	Archaeological Resources Protection Act
ATV	all-terrain vehicle
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BNSF	Burlington Northern Santa Fe Railway Company
BPA	Bonneville Power Administration
CAA	Clean Air Act
CAO	Critical Area Ordinance
CARA	critical aquifer recharge areas
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations

CH ₄	methane
CMP	comprehensive management plan
COA	Conservation Opportunity Area
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalents
Corps	United States Army Corps of Engineers
CRP	Conservation Reserve Program
C-TRAN	Transportation Benefit Authority
CUBS	community urban bus service
CUSV	Current Use Special Valuation
CWA	Clean Water Act
CWCOG	Cowlitz-Wahkiakum Council of Governments
DAHP	Department of Archaeology and Historic Preservations
dba	decibel (A-weighted)
DC	double-circuit
DEQ	Department of Environmental Quality
DGER	Division of Geology and Earth Resources
DNR	Washington State Department of Natural Resources
DOE	United States Department of Energy
DSL	Oregon Department of State Lands
DT	danger tree
Ecology	Washington State Department of Ecology
EDNA	environmental designations for noise abatement
EFH	essential fish habitat
EFSC	(Oregon) Energy Facility Siting Council
EFSEC	(Washington) Energy Facility Site Evaluation Council

EIA	Energy Information Administration
EIS	environmental impact statement
EMF	electromagnetic fields
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute, Inc.
ESU	evolutionarily significant unit
F	Fahrenheit
FAA	Federal Aviation Administration
FCDP	Federal Land Policy and Management Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIRM	Flood Insurance Rate Map
FLMPA	Federal Land Policy Management Act
FR	Federal Register
GHG	greenhouse gas
GIL	gas insulated line
GIS	geographic information system
GMA	Growth Management Act
Gorge	Columbia River Gorge
gpm	gallons per minute
GWP	global warming potential
H ₂ O	water

HBC	Hudson's Bay Company
HCP	habitat conservation plan
HFC	hydrofluorocarbons
HVAC	high voltage alternating current
HVDC	high voltage direct current
HVED	high voltage extruded dielectric
I	Interstate
ICBEMP	Interior Columbia Ecosystem Management Project
IPCC	International Panel on Climate Change
IVM	Integrated Vegetation Management
JCTRA	Jones Creek Trail Riders Association
kV	kilovolt
kV/m	kilovolts per meter
kWh	kilowatt hours
L ₅₀	audible noise level exceeded 50 percent of the time during foul weather
LCDC	(Oregon) Land Conservation and Development Commission
L _{dn}	day-night noise level
L _{eq}	equivalent sound level
MAP	Mitigation Action Plan
MBF	Thousand board feet
MCCFP	Multnomah County Comprehensive Framework Plan
MCL	maximum contaminant level
Metro	Metropolitan Service District
Mg/L	milligram per liter
MOA	Memoranda of Agreement
MOU	Memoranda of Understanding

msl	mean sea level
MVCD	Minimum Vegetation Clearance Distance
MW	megawatt
MWh	megawatt hour
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAP	Natural Area Preserve
NC	no change from the action alternative
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrographic Dataset
NHD	National Hydrographic Dataset
NHPA	National Historic Preservation Act
NLCD	National Land Cover Data
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA National Marine Fisheries Service
NOS	network open season
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park System
NRCA	Natural Resources Conservation Area
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NSA	National Scenic Area
NWI	National Wetland Inventory
NWPCC	Northwest Power and Conservation Council
O ₃	ozone
OAR	Oregon Administrative Rules
OASIS	Open-Access Same-Time Information System
OATT	Open Access Transmission Tariff
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OHWM	ordinary high water mark
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
ORV	off-road vehicle
ORWAP	Oregon Rapid Wetland Assessment Protocol
OSU	Oregon State University
PAB	palustrine aquatic bed
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PCP	pentachlorophenol
PDX	Portland International Airport
PEM	palustrine emergent
PEP	Permission to Enter Property
PFC	perfluorocarbons

PFO	palustrine forested
PGA	peak ground acceleration
PGE	Portland General Electric
PHS	Priority Habitats and Species
PM	particulate matter
PM10	particulate matter smaller than 10 µm
PM2.5	particulate matter smaller than 2.5 µm
PO	policy
POW	palustrine open water
ppm	parts per million
PSS	palustrine scrub-shrub
PUD	Clark Public Utility District
RA	Risk Assessment
RAS	remedial action scheme
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RI/FS	remediation investigation/feasibility study
RM	river mile
RMC	Reynolds Metals Company
ROD	Record of Decision
RV	recreational vehicle
SBL	safety backline
SC	single-circuit
SDWA	Safe Drinking Water Act
SEPA	State Environmental Policy Act
SF ₆	sulphur hexafluoride

SHA	site hazard assessment
SHPO	State Historic Preservation Office (or Officer)
SMA	Special Management Area (in National Scenic Area)
SMP	shoreline master program
SOA	South of Allston
SOAL	State Owned Aquatic Land
SPCC	Spill Prevention, Control, and Countermeasure (plan)
SPS	Spokane, Portland, and Seattle
SR	State Route
SWCAA	Southwest Clean Air Agency
SWPPP	Stormwater Pollution Prevention Plan
TC	triple-circuit
TCC	Terrestrial Coordination Committee
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Office (or Officer)
TMDL	total maximum daily load
TRIP	Troutdale Reynolds Industrial Park
TSCA	Toxic Substances Control Act
TSD	treatment, storage, and disposal
U.S.	United States
UAO	unilateral order
UNOS	Urban Natural Open Space
USA	unconsolidated sedimentary aquifer
USC	United States Code
USCG	United States Coast Guard
USDA	United States Department of Agriculture

USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCPRD	Vancouver-Clark Parks and Recreation Department
V/m	volts per meter
VRM	visual resource management
WAC	Washington Administrative Code
WARM	Washington ranking method
WAU	Watershed Administrative Unit
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WECC	Western Electricity Coordinating Council
WHMP	Wildlife Habitat Management Plan
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area
WSDA	Washington State Department of Agriculture
WSDOT	Washington State Department of Transportation
WSU	Washington State University
XLPE	polyethylene