

CHAPTER 10. ACRONYMS AND GLOSSARY

ACRONYMS AND ABBREVIATIONS

AC	alternating current
ACGIH	American Council of Governmental Industrial Hygienists
AV	assessed value
BCC	Bellevue City Code
BMPs	Best Management Practices
BP	BP Pipelines-North America
BPA	Bonneville Power Administration
Btu	British thermal unit
C&PSRR	Columbia & Puget Sound Railroad
CAG	Community Advisory Group
CAP	Corrective Action Plan
GENSE	Coalition of Eastside Neighborhoods for Sensible Energy
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent
COA	Certificate of Appropriateness
DAHP	Washington State Department of Archaeology and Historic Preservation
DC	direct current
EBCC	East Bellevue Community Council
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
ELF	extremely low-frequency
EMF	electric and magnetic fields

EPA	U.S. Environmental Protection Agency
ERC	Eastside Rail Corridor
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
F-N	frequency-number
FTA	Federal Transit Administration
G	gauss
GHG	greenhouse gas
GIS	geographic information system
HB	House Bill
HVAC	high voltage alternating current
Hz	hertz
I-405	Interstate 405
I-90	Interstate 90
ICES	International Committee on Electromagnetic Safety
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDP	Inadvertent Discovery Plan
IEEE	Institute of Electrical and Electronics Engineers
INGAA	Interstate Natural Gas Association of America
K4C	King County-Cities Climate Collaboration
KC Landmarks	King County and Local Landmarks List
KCHPP	King County Historic Preservation Program
kV	kilovolt
KVP	Key Viewpoint
LUC	City of Bellevue Land Use Code
mG	milligauss
MW	Megawatt
N ₂ O	nitrous oxide
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation

NESC	National Electric Safety Code
NH ₄	methane
NMC	City of Newcastle Code
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTSB	National Transportation Safety Board
NWI	National Wetlands Inventory
Olympic	Olympic Pipe Line Company
OPGW	optical ground wire
PHMSA	Pipeline and Hazardous Materials Safety Administration
PHS	Priority Habitat and Species
PSE	Puget Sound Energy
RCW	Revised Code of Washington
RMC	City of Renton Municipal Code
RZC	City of Redmond Zoning Code
SCADA	supervisory control and data acquisition
SCL	Seattle City Light
SEPA	State Environmental Policy Act
SF ₆	sulfur hexafluoride
SMP	Shoreline Master Program
SPU	Seattle Public Utilities
SR 520	State Route 520
UK-HSE	Health and Safety Executive of the United Kingdom
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
UTC	Utilities and Transportation Commission
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources

WHBR	Washington Heritage Barn Register
WHR	Washington Heritage Register
WISAARD	Washington Information System for Architectural and Archaeological Records Data
WSDOT	Washington State Department of Transportation

GLOSSARY

Term	Description
AC Current Density	A measure of electrical interference adjacent to the pipeline.
Aesthetic Environment	The physical influences of human perception of the world.
Alternating Current (AC)	An electric current that periodically reverses direction. Alternating current is the form in which electric power is delivered to businesses and residences.
Ancillary	Providing necessary support to the primary activities or operation of an organization, institution, industry, or system.
Arc Distances	The distance a fault current can travel to or through the ground, such as between a power pole and a buried pipeline.
Arcing	An electric current that is brief and strong between two points of contact, usually associated with a short circuit or current interruption.
Auger	A tool with a large helical bit for boring holes in the ground.
Auxiliary Rubber Tire Vehicle	A vehicle with spare rubber tires.
Backfill	To refill an excavated hole with the material dug out of it.
Backhoe	A mechanical excavator that draws toward itself a bucket attached to a hinged boom.
Best Management Practices (BMPs)	Measures developed on a project-specific basis to minimize potential construction-related impacts. BMPs vary depending on the activities involved.
Block Load	The expected increase in energy demand from a specific customer or group of customers.
Bucket Truck	A truck equipped with an extendable, hydraulic boom carrying a large bucket for raising workers to elevated, inaccessible areas.
Bulk Power System	A system for bulk transfer of electrical energy, from generating power plants to electrical substations located near demand centers. This is distinct from the local wiring between high-voltage substations and customers, which is typically referred to as electric power distribution.
Carbon Sink	A natural environment that absorbs more carbon dioxide than it releases.
Cathodic Protection System	Cathodic protection systems prevent corrosion from occurring on the exterior of pipelines by substituting a new source of electrons, commonly referred to as an anode. The anode is designed as the sacrificial material installed to purposely corrode and protect the pipeline. There are two basic types of anodes: the galvanic type and the impressed current type.

Term	Description
Certificate of Appropriateness (COA)	The entitlement required to alter an individual landmark and any property within a landmark district.
Clear Zone	Area where vegetation has been removed to construct a new facility, create an access road, or meet design criteria for operation of transmission lines.
Climate Change	The changing of the earth's climate caused by natural fluctuations and human activities that alter the composition of the global atmosphere.
Coating Stress	Pipelines typically have an exterior coating to protect from corrosion. The susceptibility of this coating to breakdown is based on the type and thickness of the coating and the voltage the pipeline is subject to.
Coating Stress Voltage	During fault conditions, damage to a pipeline's coating can occur if the voltage between the pipeline and surrounding soil becomes excessive (see coating stress).
Collisions	When birds fly directly into conductors, resulting in injury or mortality from impact.
Concrete Pump Truck	A machine used for transferring liquid concrete via a pumping motion.
Conductor	An object or type of material that allows the flow of electrical current in one or more directions. A transmission line is an electrical conductor. Conductivity, in general, is the capacity to transmit electricity.
Contrast	The extent to which a viewer can distinguish between an object and its background.
Corrective Action Plan (CAP)	List of corrective actions that are to be made manually by local electrical system dispatchers to control local electrical problems.
Critical Areas	Areas identified by counties and local municipalities as needing to be protected. Critical areas include: geologic hazard areas, frequently flooded areas, wetlands, streams, fish and wildlife habitat conservation areas (FWHCAs), and critical aquifer recharge areas.
Cultural Resource	Collective evidence of the past activities and accomplishments of people. Buildings, objects, features, locations, and structures with scientific, historic, and cultural value are all examples of cultural resources.
Danger Tree	Trees at risk of falling and likely to come in contact with nearby wires.
Dead-End Tower	Structure used where the line ends, turns with a high angle, or at major crossings (such as highways or rivers). Dead-end towers must be stronger than other poles because they are under tension from just one side. Often they have additional guy wires, are larger in diameter, and/or have larger footings than other poles.

Term	Description
Determined Eligible for Listing	A property that has been determined by the State Historic Preservation Office (SHPO) or local preservation office to meet required criteria for inclusion on a historic register.
Distribution System	The final stage in the delivery of electric power; it carries electricity from the transmission system to individual consumers.
Duct Bank	An assembly of conduits installed underground between buildings, structures, or devices to allow installation of power and communication cables. They may either be directly buried in earth, or encased in concrete (sometimes with reinforcing rebar).
Eastside	An area of King County, Washington, roughly defined as extending from Renton in the south to Redmond in the north, and between Lake Washington and Lake Sammamish.
Ecosystems Services	The benefits that the ecosystem provides to humankind.
Electric and Magnetic Fields (EMF)	Invisible areas of energy often referred to as radiation that are associated with the use of electrical power and various forms of natural and man-made lighting. Also referred to as electromagnetic fields.
Electrical Interference	Any electrical disturbance on a metallic structure (e.g., pipeline) as a result of a stray current.
Electrocutions	When birds directly contact energized and grounded conductors or equipment.
Electromagnetic	Of or relating to the interrelation of electric currents or fields and magnetic fields.
Endangered Species	A species of animal or plant that is seriously at risk of extinction. These species are listed by state or federal agencies to implement protection measures.
Ethnographic	The scientific description of the customs of individual people and cultures.
Excavator	Large machine for removing soil from the ground, especially on a building site.
External Corrosion	Occurs when the metal of the pipeline reacts with the environment, causing pipeline to corrode (or rust) on the outside of the pipe.
Exurban	A region or area outside a city or its suburbs and that often is inhabited primarily by affluent families.
Facility Response Plan (FRP)	A plan prepared by certain facilities that store and use oil to demonstrate the facility's preparedness to respond to a worst-case oil discharge.

Term	Description
Fault Conditions	Fault conditions, usually initiated by lightning, result in the transfer of electrical power indirectly from one or more AC powerline conductors (i.e., wire) via the metallic transmission line pole to the ground, or directly to the ground as a result of an overhead conductor falling to the ground.
Fault Currents	Faults (or fault currents) are any abnormal current flow from the standard intended operating conditions. These faults are typically caused by lightning, insulator failure, mechanical failure, and transformer failure.
Fixed Value	The structural value + the carbon storage value.
Flash Fire	Can occur when a vapor cloud is formed, with some portion of the vapor cloud within the combustible range, and the ignition is delayed.
Foreground	The part of a view that is nearest to the observer.
Fossil Fuels	Buried combustible geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years.
Frequency	The number of cycles that occur in 1 second, measured in hertz (Hz).
Generator	Machine for converting mechanical energy into electricity.
Greenhouse Gas (GHG) Emissions	Any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. They include carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (NO ₂), and water vapor.
Hazardous Material	Any substance or material that could adversely affect the safety of the public, handlers, or carriers during transportation.
Hazardous Waste	Waste that is dangerous or potentially harmful to human health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the byproducts of manufacturing processes.
Heat Flux	Humans in the vicinity of a fire receive heat from the fire in the form of thermal radiation. Radiant heat flux decreases with increasing distance from a fire.
High Consequence Area (HCA)	A location that is specifically defined in pipeline safety regulations as an area where pipeline releases could have greater consequences to health and safety or the environment. Regulations require a pipeline operator to take additional steps to ensure the integrity of a pipeline for which a release could affect an HCA.
High Voltage	Usually considered any voltage 69 kilovolts or higher.
Historic Archaeological Resources	Material remains of human life or activities that are at least 100 years of age, of archeological interest, and determined eligible for listing on the NRHP.

Term	Description
Historic Register-listed Resources	Resources within the study area that is included as a listed resource on a register of importance.
Historic Resource	A prehistoric or historic archaeological site, as well as historic sites, buildings, structures, objects, districts, and landscapes.
Incident	As used in pipeline safety regulations, an incident is an event occurring on a natural gas pipeline for which the operator must make a report to the Office of Pipeline Safety. Events of similar magnitude affecting hazardous liquid pipelines are considered accidents.
Individual Risk	The frequency that an individual may be expected to sustain a given level of harm from the realization of exposure to specific hazards, at a specific location. The individual risk results can be expressed as likelihood (e.g., fatalities per year).
In-Line Inspection	The inspection of a steel pipeline using an electronic instrument or tool that travels along the interior of the pipeline.
Insulator (electrical)	A material whose internal electric charges do not flow freely, and therefore make it nearly impossible to conduct an electric current under the influence of an electric field. Insulators are used in electrical equipment to support and separate electrical conductors without allowing current through themselves. They are often used to attach electric power distribution or transmission lines to utility poles and transmission towers. They support the weight of the suspended wires without allowing the current to flow through the tower to ground.
Integrated Resource Plan (IRP)	A plan prepared by PSE and updated every 2 years, describing how forecasted annual peak and energy demand will be met into the future. The IRP process considers a full range of power sector investments to meet new demand for electricity, not only in new generation sources, but also in transmission, distribution, and demand-side measures such as energy efficiency on an equal basis.
Integrity	A term used to describe the condition of a pipeline. Pipeline integrity ensures that the pipeline can safely carry out its function under the conditions for which it was designed.
Integrity Management Program	A documented set of policies, processes, and procedures that an operator implements to ensure the integrity of a pipeline. Federal pipeline safety regulations specify what an operator's integrity management program must include.
Internal Corrosion	Metal loss due to corrosion on the internal surfaces of a pipeline.
Lead Agency	The agency responsible for all procedural aspects of SEPA compliance. Typically it is the agency proposing the project, but lead agency status may be transferred to another agency through an agency agreement.

Term	Description
Lifecycle Emissions	Emissions associated with the creation and existence of a project, including emissions from the manufacture, transportation of the component materials, and from the manufacture of the machines required to produce the component materials.
Line Truck (electrical)	A truck used to transport personnel, tools, and material for electric supply_line work.
Load Shedding	Cutting off the electric current on certain lines when the demand for electricity exceeds the power supply capability of the network. A last-resort measure used by an electric utility company to avoid a total blackout of the power system.
Magnetic Field	Magnetic effect of electric currents and magnetic materials.
Material Failure	Defects in the pipeline as a result of the pipe manufacturing process, stress on the pipeline handling during transport, or weld failures.
Mile Years	A means of predicting the number of pipeline incidents for a given length of line, over a given period of time. For example, if one considered an incident rate of 1.0 incidents per 1,000 miles years, one would expect one incident per year on a 1,000 mile pipeline.
Nameplate Capacity	The number registered with authorities for classifying the power output of a power station usually expressed in megawatts (MW).
National Electric Safety Code	The safety guidelines that PSE follows during the installation, operation, and maintenance of transmission lines and associated equipment. The NESC contains the basic provisions considered necessary for worker and public safety under specific conditions, including electrical grounding and protection from lightning strikes.
National Pollutant Discharge Elimination System (NPDES)	A program authorized by the Clean Water Act to control water pollution by regulating point sources that discharge pollutants into waters of the United States.
Olympic Pipelines	Two steel pipeline systems, 16 inches and 20 inches in diameter, that transport gasoline, diesel, and jet fuel (petroleum products) from Blaine, Washington to Portland, Oregon. The pipelines are buried approximately 3 to 4 feet below the ground surface.
Overlapping Impressed Current Systems	Systems that consist of an array of metallic anodes buried in the ground along the pipeline with a connection to a source of direct current (DC) electric current to help drive the protective electrochemical reaction.
Pool Fire	Occurs when flammable liquid pools on the ground and comes in contact with an outside ignition source.
Power Grid	A system of synchronized power providers and consumers connected by transmission and distribution lines and operated by one or more control centers.
Power Line Faults	Faults (or fault currents) are any abnormal current flow from the standard intended operating conditions.

Term	Description
Precontact Cultural Resources	Dating prior to the point of contact between European-American peoples (including explorers, fur traders, and military personnel) with Native American peoples. In Seattle, the Precontact period is considered to have ended with the arrival of the Denny Party in 1851.
Probabilistic Pipeline Risk Assessment	A type of risk assessment used to estimate event frequencies or probabilities, for a specified time period, associated with specific, measurable consequences.
Probability	A measure of the likelihood that an event will occur within some unit of time.
Problem Nests	When nest material on utility towers touches energized equipment, potentially conducting electricity when wet and igniting, resulting in outages and hazards to the nesting birds.
Programmatic EIS	An environmental impact statement (EIS) that addresses in general terms the environmental effects of long-term, multi-step programs.
Puller	A device for separating two components that are secured by press fitting them.
Recommended Eligible for Listing	Historic or cultural resource that is recommended eligible for listing.
Right-of-Way (electric)	A corridor of land on which electric lines may be located. The transmission owner may own the land in fee, own an easement, or have certain franchise, prescription, or license rights to construct and maintain lines.
Risk	A measure of the likelihood that an adverse event could occur, and the magnitude of the expected consequences should it occur.
SCADA	In the pipeline industry, SCADA systems are used to collect data from pipeline sensors in real time and display these data to humans (controllers) who monitor the data from remote sites. Controllers, in turn, can use the SCADA system to input commands that remotely operate pipeline control equipment, such as valves and pumps.
Scenic Views	Views of visual resources that are considered special attributes of the study area and region.
Scoping	An initial step in the SEPA and NEPA environmental review process, where agencies, tribes, and the public learn about the proposed project and provide comments on the content that should be covered in the Environmental Impact Statement (EIS). Often, comments on the scope describe potential environmental impacts or suggest alternatives that should be evaluated.
Sequestration	Long-term storage of carbon dioxide or other forms of carbon.
Settlement	Increase in vertical strain on the soil causes the soil to compact.
Significant Historic Resources	A resource that is either register-listed, recommended eligible for listing, or determined eligible for listing.

Term	Description
Significant Tree	Trees that are specifically defined and protected for their unique ecological and aesthetic value.
Societal Risk	The annual probability that a specified number of people will be affected by a given pipeline release event.
Spill Prevention and Control (SPCC) Plan	A plan to prevent the discharge of oil or other substances into water bodies.
Stepped Down	To reduce or decrease voltage.
Stormwater Pollution Prevention Plan (SWPPP)	A plan describing best management practices (BMPs) to control and treat stormwater.
Study Area Communities	Bellevue, Newcastle, Redmond, Renton.
Substation	Facility with equipment that switches, changes, or regulates electric voltage.
Supervisory Control And Data Acquisition System (SCADA)	A pipeline control system, usually computerized, designed to gather information such as pipeline pressures and flow rates from remote locations and regularly transmit this information to a central control facility where the data can be monitored and analyzed. Through this same system, the central control facility can often issue commands to the remote sites for actions such as opening and closing valves and starting and stopping pumps.
Surcharge Loading	The presence of equipment and other loads on the soil surface.
Tangent Poles	Poles that are in a straight line with other poles.
Telecommunication Line	A pipe, cable, or an arrangement of lines of wire or other conductors, by which telephone or other kinds of communications are transmitted and received.
Tensioner	A device that applies a force to create or maintain tension. The force may be applied parallel to, or perpendicular to, the tension it creates.
Third Party Damage	Damage to pipelines that can occur during excavation, digging, or other activities by persons not affiliated with the pipeline operator or their contractors.
Threatened Species	Any species (including animals, plants, fungi, etc.) that are vulnerable to endangerment in the near future.
Trackhoe	A hydraulic excavator that is used in construction to dig holes or trenches for infrastructure.
Traditional Cultural Property	A property that is eligible for inclusion in the National Register of Historic Places (NRHP) based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community.
Transformed	The byproduct of a process through which energy is changed from one form to another. Oftentimes, this refers to the change in voltage of an electrical current.

Term	Description
Transformer	A device used to change the voltage of an alternating current in one circuit to a different voltage in a second circuit, or to partially isolate two circuits from each other. Transformers consist of two or more coils of conducting material, such as wire, wrapped around a core (often made of iron). The magnetic field produced by an alternating current in one coil induces a similar current in the other coils. If there are fewer turns on the coil that carries the source of the power than there are on a second coil, the second coil will provide the same power but at a higher voltage. This is called a step-up transformer. If there are fewer turns on the second coil than on the source coil, the outgoing power will have a lower voltage. This is called a step-down transformer.
Transmission	The bulk transfer of electrical energy from generating power plants to electrical substations located near demand centers.
Transmission Lines	A system of structures, wires, insulators, and associated hardware that carry electric energy from one point to another in an electric power system. Lines are operated at relatively high voltages varying from 69 kV up to 765 kV, and are capable of transmitting large quantities of electricity over long distances.
Trench	To dig a long cut or trench into the ground.
Turbidity	A measure of water clarity indicating how much materials suspended in the water reduce the passage of light through the water. Suspended materials could include soil particles, algae, plankton, microbes, or other substances.
Turbine	A machine that generates rotary mechanical power from the energy produced by a stream of fluid (such as water, steam, or hot gas).
Underbuild	To place transmission and distribution lines on the same poles.
Unevaluated Historic Resource	Meets the minimum age threshold for listing but has not been evaluated for its historic significance.
Utility Locates	The process of identifying and labeling underground utility lines. Excavating without knowing the location of underground utilities can result in damage, which can lead to service disruptions.
Vapor Cloud Explosion (VCE)	Occurs when there is a sudden release of flammable vapor, it mixes with air, and then is ignited by an outside source.
Vault	An underground room providing access to subterranean public utility equipment, such as switchgear for electrical equipment. Utility vaults are commonly constructed of reinforced concrete boxes, poured concrete, or brick. They are placed at regular intervals along an underground transmission or distribution line to allow access to the line for installation and maintenance of the line.
Viewer Awareness	Considers viewers' attention and focus and whether affected views are protected by policy, regulation, or custom.

Term	Description
Viewer Exposure	Considers the viewers proximity, extent, and duration of views.
Viewpoints	Locations from which visual resources can be viewed. Typically associated with residential properties or publicly accessible recreation areas, such as parks, trails, and open spaces.
Views	The observation of a visual resource from a particular location, such as a private residence or a public park.
Visual Character	The aggregate of the visible attributes of a scene or object, including natural (topography, water bodies, vegetation) and built (building height and form, types of infrastructure) features.
Visual Resources	Natural and constructed features of a landscape that are viewed by the public and contribute to the overall visual quality and character of an area. Such features often include distinctive landforms, water bodies, vegetation, or components of the built environment that provide a sense of place, such as city skylines.
Washington State Growth Management Act (GMA)	Requires state and local governments to manage Washington’s growth by identifying and protecting critical areas and natural resource lands, designating urban growth areas, preparing comprehensive plans, and implementing those plans through capital investments and development regulations.
Wellhead Protection Area	A surface and subsurface land area regulated to prevent contamination of a well or well-field supplying a public water system. This program, established under the Safe Drinking Water Act (42 U.S.C. 330f-300j), is implemented through state governments.