Summary

This summary includes information regarding the following elements of the draft environmental impact statement (EIS) prepared for the Port Angeles-Juan de Fuca Transmission Project:

- purpose and need for action;
- Proposed Action and No Action Alternative; and
- affected environment, environmental impacts, and mitigation measures.

S.1 Purpose and Need for Action

Sea Breeze Olympic Converter LP (Sea Breeze) has applied to the United States Department of Energy (DOE) for authorizations and approvals necessary to construct the U.S. portion of a proposed international electric power transmission cable. Specifically, Sea Breeze has applied to the Office of Electricity Delivery and Energy Reliability (DOE/OE), an organizational unit within DOE, for a Presidential permit for its project. Sea Breeze has also submitted a request to Bonneville Power Administration (BPA), another organizational unit within DOE, for interconnection into the federal transmission system.

The purpose and need for DOE/OE's action is to respond to Sea Breeze's request for a Presidential permit. DOE/OE may issue or amend a Presidential permit if it determines that the action is in the public interest and after obtaining favorable recommendations from the U.S. Departments of State and Defense. In determining whether issuance of a permit is in the public interest, DOE/OE considers the environmental impacts of the proposed project pursuant to the National Environmental Policy Act (NEPA), the project's impact on electric reliability, and any other factors that DOE/OE may consider relevant. If DOE/OE determines that issuing the Presidential permit would be in the public interest, the information contained in this EIS will provide the basis for DOE/OE to decide which alternative(s) to authorize and which mitigation measures, if any, would be appropriate for inclusion as conditions of the permit.

BPA needs to respond to Sea Breeze's request to connect to the transmission system. BPA owns and operates the federal transmission system in the Pacific Northwest. BPA has adopted an Open Access Transmission Tariff in which the procedures provide for new interconnections to the transmission system to all eligible customers, consistent with all BPA requirements and subject to an environmental review under NEPA.

In making a decision concerning Sea Breeze's request to interconnect, BPA will consider the following purposes or objectives.

- Maintenance of transmission system reliability.
- Consistency with BPA's environmental and social responsibilities.
- Cost efficiencies.

S.1.1 Public Involvement

Early in the development of this EIS, DOE solicited input from the public, agencies, and others to help determine what issues should be studied in the EIS. DOE requested comments through publishing notices in the Federal Register, mailing a letter requesting comments to about 415 people and agencies, holding a public open-house style meeting, and meeting with state and federal regulatory agencies. Most of the scoping comments received by DOE focused on three areas: the need for and scope of the project, questions about project details, and potential impacts on biological resources.

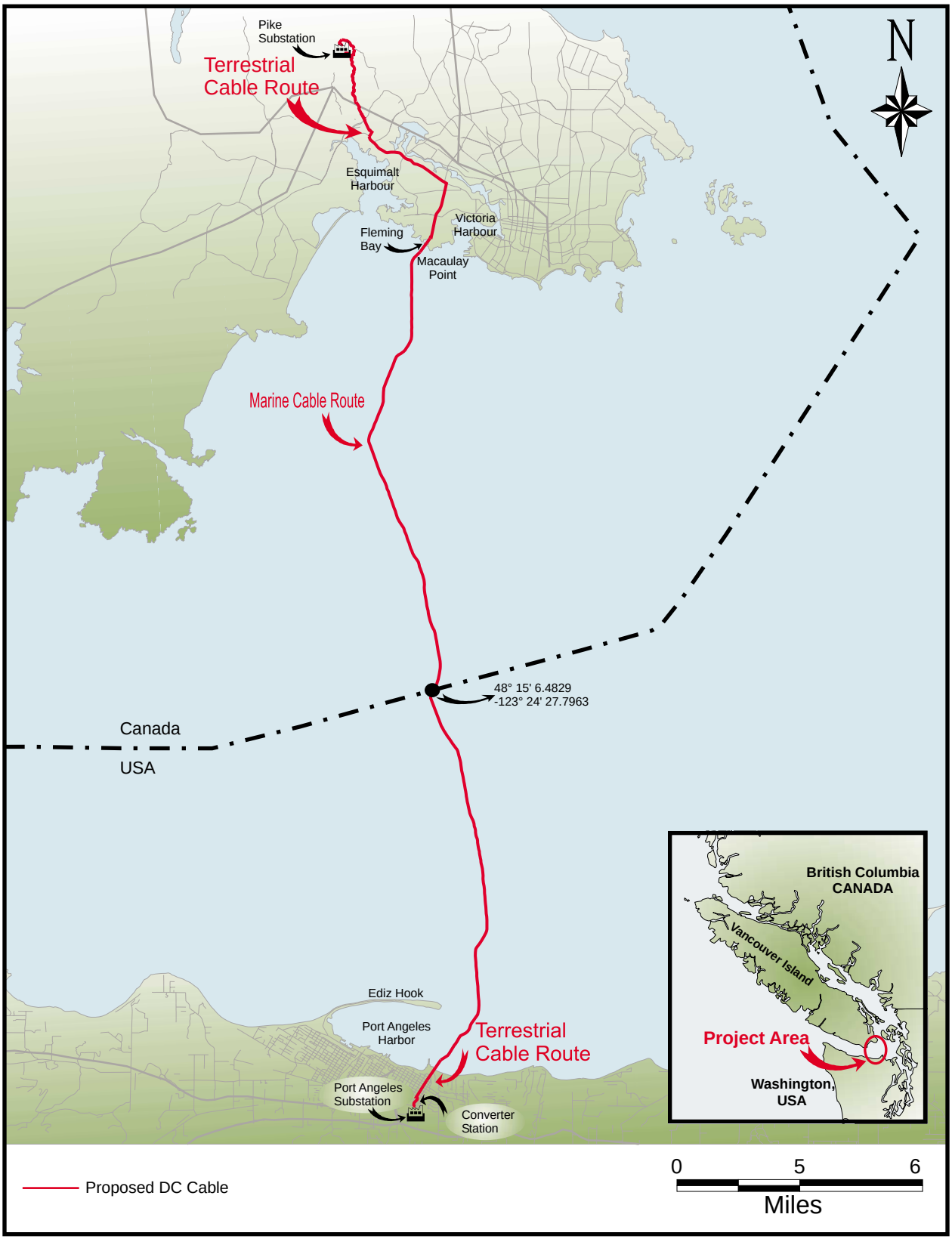
S.1.2 Issues Outside the Scope of the Proposed Action or This EIS

Though most of the issues raised during scoping or in early planning are considered to be within the scope of the Proposed Action and are addressed in this EIS, five issues raised are considered to be either beyond the scope of this EIS (and thus not addressed in this EIS) or are outside the scope of the Proposed Action. These five issues include the following: 1) impacts in Canada, 2) any Olympic Peninsula transmission line improvements to remove transmission constraints to allow for the full 550-MW flow of power to and from the proposed interconnection, 3) BPA's proposed Olympic Peninsula Reinforcement Project, 4) a separate request by Sea Breeze to interconnect at BPA's Fairmount Substation, and 5) alternative electric power sources.

S.2 Proposed Action

DOE/OE's Proposed Action would be to grant Sea Breeze a Presidential permit for the international border crossing of the proposed cable. BPA's Proposed Action would be to allow the proposed cable to connect into the federal transmission system at BPA's Port Angeles Substation. The interconnection would allow power flow over BPA's system to the extent that capacity on the system is available.

With federal approvals granted, Sea Breeze could construct the portion of its proposed cable project that would be located in the U.S., i.e., the Port Angeles-Juan de Fuca Transmission Project. The proposed direct-current (DC) transmission cable would be about 32 miles (52 kilometers [km]) long starting from a new converter station in Victoria, B.C., Canada, and terminating at BPA's existing Port Angeles Substation in Port Angeles, Washington (see Figure S-1). The cable would cross both land and sea under Canadian and U.S. jurisdictions.



Source: Sea Breeze 2006.	Port Angeles - Juan de Fuca Transmission Project	Figure S-1 Project Location

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The proposed project evaluated in this EIS is the portion of the cable that would be located in U.S. jurisdiction. There are six main components of the Proposed Action: 1) a marine DC cable, 2) a horizontal-directional-drill (HDD) hole for the DC cable, 3) a terrestrial DC cable, 4) a converter station, 5) a terrestrial alternating current (AC) cable, and 6) interconnection work at BPA's Port Angeles Substation. These components are described briefly below and described in detail in Chapter 2 of the EIS.

Direct and Alternating Current

Electrical systems operate via direct current (DC) or alternating current (AC). DC is constant over time, while AC varies, or cycles, over time in both magnitude and polarity. The frequency of these AC cycles is expressed in Hertz (Hz), which is the number of cycles per second (i.e., 1 Hz is equal to one cycle per second). Typically in North America, AC systems operate at 60 Hz. Battery-operated devices and tools, including flashlights, cordless drills, automobiles, golf carts, tractors, etc., use DC. Direct current also is sometimes used in transmission lines to move electricity over long distances, but it requires converter stations at each end to convert AC to DC and back again from DC to AC prior to being connected to a local distribution system.

S.2.1 Marine DC Transmission Cable

About 10.5 miles (17 km) of the DC cable would be in the marine environment under U.S. jurisdiction. The marine transmission cable would be a ±150-kV DC cable with two copper conductors. The conductors would be insulated, strengthened with high tensile strength steel wire, sheathed in thick polypropylene yarn, and bundled together as one cable. The cable would not contain fluids or oil-impregnated insulation and would likely include a fiber optics cable for possible future use for communications.

A specialized cable-laying ship would be used to install the marine cable and would use lighting during nighttime construction periods for operation and crew safety.

The proposed marine cable would be buried in a trench (typically 3 to 5 feet [1 to 1.5 meter] deep and about 4 feet [1.2 m] wide) for most of its length across the Strait. Actual trench depth and width would vary depending on sea bed conditions encountered and existing uses that could disturb the cable. In some areas, the cable may rest on the sea floor if trenching is impossible. Sea Breeze has identified a 1-mile (1.6-km) wide cable corridor across the Strait in which the marine cable would be placed. In the United States, this corridor extends from the U.S.-Canada international boundary at about 48° 15' 6.4829 latitude and 123° 24' 27.7963 longitude to a point in the Port Angeles Harbor of Port Angeles, Washington.

The southern end of the proposed marine cable would enter the Port Angeles Harbor about 0.93 mile (1.5 km) to the east of Ediz Hook point. About 1,340 feet (408 m) from shore, where the cable would reach a water depth of about 26 to 30 feet (8 to 9 m), the cable would be pulled through a horizontal-directional-drilled (HDD) hole to transition from the sea floor to land.

Sea Breeze would use one or more of three possible methods to trench the cable into the sea floor: using a sea plow, hydro-jetting, or using a hydroplow. Under all three trenching methods, most

of the sea floor sediment disturbed during trenching would be expected to fall back into the trench and bury the cable immediately after the cable is placed in the trench.

In some areas, such as where the sea bed is rocky or already trenched for other utility cables, a new trench cannot be created for the proposed cable. If there is a danger that the cable laying on the sea floor could suffer physical damage from anchors or other hazards, the cable would need to be protected. The cable could be protected using a concrete or grout mattress over the cable, encasing the cable in a polyethylene sleeve, or placing rock fill over the cable. If the cable crosses other existing trenched utility cables, Sea Breeze would develop agreements with the utilities to determine which method to use to protect the proposed marine cable and the existing cables.

S.2.2 Horizontal Directional Drill Hole

The cable would transition from the sea bed to land through a proposed HDD hole, which would be between 13 and 15 inches (33 and 38 centimeters [cm]) in diameter. The hole would extend generally southwest from a point about 1,340 feet (408 m) offshore in Port Angeles Harbor, under the shoreline and bluff, to a point along North Liberty Street just south of Caroline Street in Port Angeles. The ocean water depth where the hole would emerge on the sea floor would be about 26 to 30 feet (8 to 9 m).

The hole would be bored using an HDD and would be a total of about 3,300 feet (1.0 km) long. All drilling would take place from the land. The drilling process would involve drilling a pilot hole, reaming or enlarging the pilot hole, and installing the casing pipe.

Both the piloting and reaming procedures would require the use of drilling fluids to flush the soil and rock particles from the drill hole, cool the drill bit, seal and support the drilled hole, and lubricate the hole. Drilling fluid or mud would consist of water and bentonite, a non-toxic, naturally-occurring clay.

Where the HDD hole would come to the surface in the Harbor, drilling muds would be released into the marine environment. The actual amount of drilling muds released would depend on the method used to ream out the hole, and whether the hole could be flushed out before it is punched through.

To facilitate the threading of the cable through the HDD hole, some excavation in the sea bed at the marine HDD end point may be required to provide a smooth curve in the sea floor to the hole. This excavated area would also be used to catch drilling fluids and soil cuttings so that they could be removed.

The HDD operation would disrupt through-traffic on that section of Liberty Street for the duration of the drilling operation, but access to local residents would be maintained. The HDD hole machinery would operate continuously for about 23 days, 24 hours a day, seven days a week. Continuous operation would be necessary in order to maintain hole stability and to prevent damage to the specialized equipment needed.

S.2.3 Terrestrial Direct Current Cable

Once the marine cable has been pulled through the HDD hole, it would be spliced to the terrestrial DC cable. From the Liberty Street HDD hole, the terrestrial cable would head southwest in a trench that would be dug under Liberty Street for about 0.8 miles (1.3 km). The underground cable would cross 11 streets, including Highway 101 and East Lauridsen Boulevard. The cable would then connect into the proposed converter station, which would be built between East Lauridsen Boulevard and East Park Avenue, near the BPA Port Angeles Substation.

The terrestrial cable would have two insulated copper conductors that would be larger than the marine cable, but without the additional corrosion protection needed for the marine cable.

Standard utility trenching methods would be used to underground the cable, including cutting and removing the asphalt, excavating the trench with backhoes, and using dump trucks to haul off the debris. The trench would be about 4 to 8 feet (1 to 2.5 m) deep and about 6 feet (2 m) wide at the surface. Some blasting would be required between E. 5th and E. 8th streets (about 600 feet [183 m]). Once construction is complete, all streets affected by the trenching activities would be repaved.

S.2.4 Converter Station

Because the cable would be DC and the BPA transmission grid is AC, a converter station would be required to convert the electricity from DC to AC. Sea Breeze has proposed construction of the converter station on about 5 acres (2 hectares [ha]) of land owned by Clallam County Public Utility District (PUD). The site is just north of BPA's Port Angeles Substation, between East Park Avenue and East Lauridsen Boulevard. The converter station would occupy about 3.75 acres (1.5 ha) of the site.

The proposed converter station would include a building and an electrical yard, with a fence enclosing most of the property. The proposed building would be about 100 feet (30 m) wide, 200 feet (60 m) long, and 40 feet (12 m) tall and the fence would be a combination of decorative and chain-link fencing.

Four existing overhead transmission lines that cross the property would need to be moved to make space for the converter station. These lines would need to be rebuilt and could be either reconfigured above ground across the property or buried under the converter station.

Construction of the proposed converter station would require grading and soil excavation, as well as some tree clearing. Clallam County PUD cleared trees on about one third of the property in 2004 when a 115-kV line was built. An additional 2 acres (0.8 ha) of trees of various sizes would be cleared on the site for the station. On the west side of the property, Sea Breeze plans to leave a 100-foot (30-m) wide buffer of trees and other vegetation, although large trees that would pose a potential wind fall hazard would be removed in this buffer area. Sea Breeze also intends to leave the existing tree buffer on the east side of the converter station site next to South Liberty Street. After construction, Sea Breeze would landscape the area surrounding the converter station.

S.2.5 Terrestrial Alternating Current Cable

AC power from the converter station would be transmitted to BPA's existing Port Angeles Substation via a proposed underground 230-kV AC transmission cable. The AC cable would exit the converter station on the southwest corner to the intersection of East Park Avenue and Porter Street and head south down Porter Street before entering the west side of BPA's Port Angeles Substation property. The length of the AC cable would depend on the routing option onto BPA property (see below), but would be less than 1,300 feet (396 m) long.

The cable would consist of three insulated conductors, buried either 18 or 24 inches (46 to 61 cm) apart within a concrete conduit. Standard utility trenching methods would be used to underground the cable. The trench would be about 4 to 6 feet (1 to 2.5 m) deep and about 6 feet (2 m) wide at the surface. The street would be repaired and repaved. During construction, control signs and personnel would direct traffic around the construction zone.

There are two short routing options for this 230-kV cable as it enters BPA property. Option A (BPA preferred) routes the cable down Porter Street for about 1,000 feet (305 m), then turns east onto BPA property. The cable would be a total of about 1250 feet (380 m) long under Option A. Option B routes the cable down Porter Street for about 711 feet (217 m), then turns southeast onto BPA property. The cable would be a total of about 1070 feet (327 m) long under Option B.

Trenching methods for the options across BPA property would be similar to those used in the street, except that no pavement would be removed and the backfill would include a final layer of top soil for plants to germinate. The area above the cable would need to remain clear of trees, but low-growing vegetation would be allowed to grow.

Two fiber cables would create a communication link between the converter station and the substation. One fiber cable would be placed in the trench with the terrestrial AC cable and the other fiber cable would enter substation property via a bore hole under East Park Avenue.

S.2.6 Port Angeles Substation Interconnection

The terrestrial AC cable would connect into BPA's Port Angeles Substation, which is located on the corner of East Park Avenue and Porter Street. The interconnection would require a new relay house about 36 feet by 20 feet (11 m by 6 m) and about 17-feet (5 m) tall, the relocation of an existing transmission line and other structures on BPA property, and the expansion of the existing electrical yard to accommodate new electrical equipment.

The electrical yard expansion would be south of the existing fence line on an undeveloped portion (about 2 acres [1 ha]) of BPA's property that has grasses, shrubs, and some trees. Because of the slope of the land in the expansion area, the electrical yard would be terraced.

One structure of an existing 115-kV transmission line entering the substation on the west side would need to be replaced and moved farther west by about 50 to 75 feet (14 to 23 m).

Some existing trees, including mature Douglas fir and hardwoods, would need to be removed for the yard expansion and the relocation of the existing transmission line. A 100-foot (30-m) wide

corridor would be cleared of trees where the 115-kV transmission line would be relocated. Low-growing vegetation would be allowed to grow or be left in the corridor. Trees outside of the corridor that could potentially fall close enough to the line to cause an arc or electrical outage of the line would also be removed. About 2.4 acres (1.0 ha) of trees would be cut on the west side. Along Porter Street, the shorter deciduous trees or trees that would not pose a hazard to the line would remain. About 1 acre (0.4 ha) of trees would need to be cut on the east side.

Construction equipment would likely enter the site from an existing dirt access road from Porter Street. To accommodate vehicles (tractor/trailers) that require a large turning radius, BPA would widen the road approach to 50 feet (15 m). The existing access road would need to be graded and graveled to a 16-foot (5-m) wide road surface with side slopes.

S.2.7 Construction and Schedule

If DOE/OE and BPA decide to grant the necessary permits and approvals to Sea Breeze and Sea Breeze is granted appropriate permits required by other regulatory agencies, Sea Breeze could construct the U.S. portion of its proposed project. Construction could likely start sometime in 2007 and would be expected to be completed in about 12 to 18 months.

S.2.8 Operation and Maintenance

Sea Breeze or its successors in interest would be responsible for operating and maintaining all aspects of the proposed project except for the Port Angeles Substation equipment, which would be operated and maintained by BPA. Operation and control of the cable and converter station by Sea Breeze would be primarily conducted from a remote site, but there would be regularly scheduled site inspections and maintenance activities. For the proposed substation equipment, BPA would perform periodic maintenance and emergency repairs when necessary.

S.2.9 Transmission Service

In its request submitted to BPA, Sea Breeze has requested only interconnection of its proposed project to BPA's transmission system, and has not requested transmission service over BPA's system. Accordingly, the Proposed Action by BPA is only for interconnection of Sea Breeze's project, and does not include any provision for transmission service. BPA would need to make a separate decision on any future request for transmission service related to Sea Breeze's proposed project, and would include appropriate NEPA considerations in making such a decision.

In addition, Sea Breeze has proposed that its project be connected to BPA's transmission system without any improvements made to this system. Sea Breeze believes that such an interconnection is both financially and operationally feasible, and they will accept restrictions on transmitting power across the system to maintain reliability. These restrictions will include limiting power flow from or to the new interconnection through the BPA transmission system on the Olympic Peninsula at certain times of the day and at certain times of the year. Any transmission service that is provided without system improvements would reflect these restrictions.

S.3 No Action Alternative

Under the No Action Alternative, DOE would deny Sea Breeze's request for a Presidential permit or deny the request to connect to the federal transmission system, or both. In either case, the Port Angeles–Juan de Fuca transmission cable would not be constructed as described and the potential environmental consequences due to the proposed project would not occur.

S.4 Affected Environment and Environmental Impacts

S.4.1 Water Resources

S.4.1.1 Affected Environment

The underwater portion of the project crosses the Strait of Juan de Fuca, a major marine surface water system, and approaches land through Port Angeles Harbor. The Strait is the primary connection between the Pacific Ocean and Puget Sound – Georgia Basin inland marine waterways. The upper 100-foot (30-m) layer is relatively fresh water created by river inflows. Below 100 feet (30 m), the lower layer is more saline from ocean-influenced inflow at depth. Tidal ranges average between 4 and 10 feet (1.2 and 3 m).

Water temperature in the Strait is well mixed and homogeneous during much of the year, although stratification can occur in late summer. In winter, the water temperatures range from 46 to 50°F (8 to 10°C). Summer temperatures range from 45°F (7°C) at depth to 68°F (20°C) at the surface (Thomson 1994). The water column in the nearshore area is mixed throughout the year with higher temperatures of water and substrate. The Strait is classified as Class AA marine water (extraordinary water quality).

The Port Angeles Harbor is contained within Ediz Hook, a 4-mile (6.4-km) sand spit (see Figure S-1). The marine waters of Port Angeles Harbor are currently listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act due to low dissolved oxygen levels and past discharges of wastewater from the former Rayonier pulp mill.

The project is in the vicinity of three creeks (White Creek, Ennis Creek, and Peabody Creek) that flow from the foothills of the Olympic Mountains into the Strait. Ennis Creek, below its confluence with White Creek, and the entire reach of White Creek within the general project area have been classified as impaired or compromised by Clallam County (Clallam County 2004). Peabody Creek is a small rain-dominated drainage that enters Port Angeles Harbor in the downtown area and is listed on the Washington State 303d list as a Category 5 polluted waters. In the vicinity of the project, the creeks have limited channelized floodplains.

In the area of the proposed converter station and Port Angeles Substation, the city's existing storm drainage system is not currently sized to accommodate future development. In general, groundwater in the project area exists in shallow and deep saturated zones.

S.4.1.2 Environmental Impacts – Proposed Action

Impacts to water quality with all proposed mitigation measures in place would include temporary sedimentation and turbidity in the Strait and Harbor during cable-laying work and HDD hole end point excavation, sedimentation from drilling fluid releases into the Harbor at the HDD hole end point, and potential re-suspension of contaminants in the Harbor around the Rayonier pulp mill outfall. Operation of the cable in the marine environment would increase water temperatures within 4 inches (10 cm) of the sediment surface by less than 1.8°F (1°C). Terrestrial portions of the project would impact water quality through stormwater increases into waterways during dewatering and terrestrial trenching and long-term increases in stormwater run-off from clearing and development of the converter station and at the BPA Port Angeles Substation.

S.4.1.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to water resources.

S.4.2 Vegetation and Wetlands

S.4.2.1 Affected Environment

In Clallam County, there are no federally-listed threatened or endangered plant species, nine state-listed threatened plant species, and a number of special status species. No special status plant species were observed during field surveys of the converter station site and the Port Angeles Substation expansion area in April 2005.

Dive surveys of the marine vegetation in the Harbor found healthy growth of macroalgae, primarily brown algae growing in the cable corridor from about the HDD hole site to depths of 65 feet (20 m). Beyond this point and out to the U.S./Canadian border, attached marine vegetation would not be encountered because water depths are greater than 100 feet (30 m), exceeding 500 feet (150 m) in some places.

Port Angeles is located within the Puget Sound Douglas fir vegetative zone with a native plant community characterized by coniferous forests, usually Douglas fir-dominated, in low to mid-elevations on the west side of the Cascade Range and Sitka spruce and western hemlock subzones.

The HDD hole construction site, the terrestrial DC cable, and much of the AC cable and fiber cable would be in paved areas with no vegetation. Any staging areas required beyond the converter station site and the Port Angeles Substation expansion area would be in paved or graveled areas without vegetation.

The 5-acre (2-ha) converter station property has a mix of vegetation. A little over a third of the site was cleared of trees and vegetation in 2004 and is now a field dominated by white clover and various grasses. A portion of the site has shrubs (willow, snowberry, and salal) and young trees (red alder and Douglas fir trees about 20 feet [6 m] tall) that are maintained to keep from growing into overhead transmission lines that cross the property. The west side of the property consists of relatively mature trees (Douglas fir, western red cedar, red alder, big leaf maple, western hemlock, and Indian plum, with the taller trees reaching 70 to 100 feet [21 to 30 m] tall) and

understory vegetation. Another tree buffer is on the east side, just outside the property boundary next to S. Liberty Street. Scotch broom, a Class B noxious weed in Clallam County, is prevalent along the northern property boundary

Most of the area where the Port Angeles Substation electrical yard would be expanded is open area covered in shrubs, legumes, and grasses, with a few small trees. The east of the expansion area is wooded with Douglas-fir, western hemlock, western red cedar and various hardwoods with tree heights reaching 77 to 106 feet (23 to 97 m) tall and an understory of shrubs. This wooded area blends with wooded acreage of the adjacent college property.

On the west side, along Porter Street, the treed area is a mix of primarily younger hardwoods (red alder, bitter cherry, willow, big leaf maple, Indian plum, and Pacific ninebark) and a few larger and older trees (maple, cottonwood, Douglas fir, and western red cedar). The under growth includes ferns, snowberry, and salmonberry.

Riparian Vegetation and Wetlands

Peabody Creek, White Creek, and Ennis Creek are within the project vicinity and have varying amounts of riparian vegetation. However, the creeks are far enough from where the project action would occur that the riparian vegetation would not be affected.

There are no wetlands identified on the converter station site. No wetland indicator-type vegetation is present in the open area, and it is not expected that the soil type, plants, or hydrology are present in the disturbed area under the transmission lines or in the wooded portion of the site. Some wet areas were found during a survey on the BPA Port Angeles Substation expansion area. These areas appear to have generally been caused by tire ruts, seasonal runoff, and water collection in low spots. These areas did not meet at least one of the wetland criteria for soil-type, plant-type, or hydrology and thus are not considered wetlands.

S.4.2.2 Environmental Impacts – Proposed Action

At depths shallower than 100 feet (30 m), the proposed marine cable would affect marine vegetation. Marine trenching and work around the HDD hole end point in the Harbor would remove about 5 acres (2 ha) of marine vegetation, primarily brown algae. Marine algae would recolonize provided that appropriate attachment substrate is available and would recover within one or two growing seasons (Newell et al., 1998).

The HDD hole construction, the terrestrial DC cable, and much of the terrestrial AC cable would be located in pavement and through soil and bedrock and would not impact vegetation, including landscaping or yards of adjacent residents.

To construct the converter station and associated facilities, an approximate 3.75-acre (1.5-ha) portion of the property would be cleared of vegetation. A vegetative buffer about 100 feet (30 m) wide would be left along the west side; however, select tall trees growing within this buffer area that would have the potential of falling into the converter station yard would be removed. Although this site is relatively isolated, and provides a small vegetated space in a fairly developed area, the amount of vegetation that would be removed would be small, and the vegetation is low-

to-moderate quality and not unique to the area. Because no wetlands indicators have been found on the converter station site, wetlands are not expected to be affected.

The portion of the terrestrial AC cable and fiber optic cable proposed within paved areas would not impact vegetation. Both routing Options A and B for bringing the cable onto the BPA substation property would require the removal of vegetation, including some tall trees.

Vegetation removed for the interconnection work at the Port Angeles Substation would include about 3.5 acres (1.4 ha) of trees (1 acre [0.4 ha] on the east side and about 2.4 acres [1 ha] on the west side) and 2 acres (0.8 ha) of grasses and shrubs. The trees removed are isolated from other vegetated spaces, and not unique to the area. Because no wetlands are present on BPA property, no wetlands would be impacted.

S.4.2.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to marine or terrestrial vegetation.

S.4.3 Marine Habitat and Wildlife

S.4.3.1 Affected Environment

The shallow banks and deep basins in the central Strait of Juan de Fuca provide habitat for both deep- and shallow-water species (Palsson et al. 2002). A variety of marine habitat can be found along the cable corridor including open water and benthic habitat (kelp beds, eelgrass beds, rock, sand, and mud) (City of Port Angeles 1989). Thirteen ESA-listed wildlife species with known occurrences in the marine environment of Clallam County have been identified. Various marine mammals occupy the trans-boundary waters of the Strait. The Steller sea lion, killer whale, and humpback whale are listed under the Endangered Species Act (ESA).

Shorebirds are common along and in the Harbor and the Strait and its harbors support many fish groups including groundfish, rockfish, forage fish, and many other varieties of finfish. Port Angeles Harbor is an important sport fisheries area. Ediz Hook sport fisheries have included salmon, ling cod, Pacific halibut, rockfish, and greenling (City of Port Angeles 1989).

The coasts of Clallam County support various Pacific salmon groups including Chinook, chum, sockeye, pink, coho, steelhead, and cutthroat trout. Three salmon stocks in Clallam County are listed as threatened under the ESA: the Puget Sound Evolutionarily Significant Unit (ESU) Chinook salmon; the Hood Canal summer-run ESU chum salmon (NOAA 2005b); and the Coastal-Puget Sound bull trout.

Shellfish, including bivalves, crustaceans, and sea urchins, are an important commercial and ecological component of the Strait system. Many types of bivalves (e.g., clams, mussels, oysters) are found along beaches and flats of the Washington coast, including Clallam County. The geoduck, a large edible clam, is of particular commercial and tribal subsistence importance. The geoduck lives in the sandy mud of the lower intertidal and subtidal zones.

Ecologically and economically important, crustacean resources for Port Angeles include Dungeness crab, spot shrimp, and coonstripe shrimp (Shaffer 2001). Purple, red, and green urchins have an abundant and patchy distribution in the Strait (Shaffer 2001).

S.4.3.2 Environmental Impacts – Proposed Action

Potential impacts to marine habitat and wildlife would occur only from the construction of the portions of the proposed project that would be localized in the marine environments, i.e., the marine DC cable and the HDD hole end point.

Of the 13 ESA threatened and endangered marine species that could occur within the project area, five would not be affected by the project. Eight species may be affected, but are not likely to be adversely affected. A biological assessment will be submitted to both the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS).

The cable laying vessel, trenching equipment, and HDD containment area excavation would have direct contact impacts to marine benthic species within about 38 to 46 acres (15 to 19 ha), incidental contact with fish, and unlikely contact with marine mammals. Turbidity would impact benthic or slow moving species and to a lesser extent fish and marine mammals, and in the event of an accidental oil or fuel spill, marine species, especially sea birds, could be impacted

Work within the Harbor would resuspend low-level contaminated sediments that could possibly contribute to biomagnification of contaminants in species within the food chain. Habitat impacts would include the removal of about 5 acres (2 ha) of algae/kelp habitat (with expected re-vegetation within 1 or 2 growing seasons) and about 7 to 14 acres (3 to 6 ha) of benthic and sediment habitat changes due to increased sediment temperatures.

Underwater noise levels from ship and equipment could impact fish and mammals (avoidance of work vicinity, possible disruption of communications, migration, and feeding behaviors), and potentially disrupt the behaviors of benthic species, including filter feeding and foraging. Noise levels near the trenching activities would be considered harassment to marine mammals and fish by the National Marine Fisheries Services (NMFS). In addition, ship presence, noise, and vessel wakes could temporarily disturb sea birds, including bird colony areas in the Harbor area.

The artificial light used at night on the cable-laying vessel could potentially disrupt behaviors of fish and marine mammals attracted to the light.

S.4.3.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to marine species.

S.4.4 Terrestrial Wildlife and Freshwater Fish

S.4.4.1 Affected Environment

The terrestrial portion of the project is located within the City of Port Angeles and most of the terrestrial cable route follows paved roadways, which provides minimal wildlife habitat.

However, some wildlife habitat is nearby, including the harbor shoreline and shoreline bluffs, forested areas, and three creeks (Ennis Creek, White Creek, and Peabody Creek).

Common wildlife species that may occur along the shoreline bluffs include deer, raccoons, opossum, gray squirrels, burrowing rodents, song birds, waterfowl, and shorebirds.

The proposed 5-acre (2-ha) converter station property is a mix of habitat including an open lot seeded with grass, a shrubby area underneath the transmission lines, and an area of coniferous forest along the western edge and to a lesser extent, the eastern edge. This site likely provides habitat for smaller species of mammals (such as squirrels, raccoons, and burrowing rodents), as well as birds. However, the site likely does not support larger species such as deer or species requiring large areas of undisturbed habitat.

The Port Angeles Substation interconnection expansion area lies beneath existing transmission lines, and the habitat consists of shrubs, legumes, grasses, and exposed soil. A mixed stand of conifers and deciduous trees borders both the east and west sides of the BPA property adjacent to the expansion area and provides habitat for small mammals and birds. The forested area on the east side of the property abuts a contiguous block of relatively undeveloped and forested habitat to the south and east that provides connectivity to the White Creek and Ennis Creek riparian corridors.

Anadromous fish are present within Ennis Creek, including coho salmon, bull trout, and winter steelhead. Cutthroat trout are the resident species present within Ennis Creek and White Creek. Anadromous fish within White Creek only include coho salmon. Peabody Creek has poor water quality, but provides habitat to cutthroat trout.

Special-status terrestrial species that have been identified within the project area include the bald eagle and northern spotted owl, coho salmon, bull trout, and Puget Sound steelhead.

S.4.4.2 Environmental Impacts – Proposed Action

Wildlife species found in the terrestrial environment could be impacted by the project through noise disturbance during construction and through habitat alteration. HDD drilling, equipment, and blasting would cause noise and visual disturbance to birds (including possible low-level impacts to foraging eagles) and small terrestrial mammals in the vicinity of project construction. Habitat removed for the project would about 4.5 acres (1.8 ha) of forested habitat and 5 acres (2 ha) of grass/shrub habitat; the habitat is generally disturbed and of low quality.

Freshwater fish species could potentially be impacted by the release of drilling fluids in the event of a fracture during horizontal directional drilling and by increases in stormwater run-off into nearby streams.

S.4.4.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to terrestrial wildlife or freshwater fish species.

S.4.5 Geology and Soils

S.4.5.1 Affected Environment

The project area has been shaped by the tectonic movement of continental plates, glaciers, and human activity. The area is within the active region of the Cascadia subduction zone, where the North American Plate is overriding the Juan de Fuca Plate. Much of the current landscape was also scoured and sculpted by glaciers during the Pleistocene epoch (1.8 million to 10,000 years ago). The glaciers left behind sediments and the deep channels, submarine ridges, basins, and bays that comprise the many waterways of the region. Since the time of the glaciers, some sediments have eroded, and have been redeposited and compacted.

Human activities have also changed the landscape, including excavation in some areas and the use of fill in other areas. Four soil types are present within the project area (USDA SCS 1987); none are agricultural or prime farmland soils. Soils are generally deep, and well-drained. Erosion potential is slight.

When the glaciers retreated after forming the Strait, deposits of glacial tills, glaciomarine deposits, and outwash up to 3,600 feet (1,100 m) thick were left behind (Archipelago 2005). Modern sediments, mostly muds, sand, and coarser-grained materials, including cobbles and boulders also accumulate in the Strait, mainly in isolated basins. Recent sediments also include some pollutants.

Geologic hazards in the area include faults and earthquakes, liquefaction, tsunamis, slope failures and sea floor mobility, and erosion.

S.4.5.2 Environmental Impacts – Proposed Action

In the marine environment about 22,000 to 145,000 yards^3 (17,000 to 111,000 m^3) of sea floor sediment would be disturbed in the Strait and about 43,000 yards^3 (33,000 m^3) in the Harbor. About 10 to 20 percent of the disturbed sediment would disperse up to about 0.5 mile (0.8 km) from its original place on the sea floor. The disturbed low-level contaminants in the Harbor would stay in the contaminated area, disperse to another contaminated area, or disperse to an unpolluted area.

Sand waves could increase sediment depth over the buried cable or erode sediment resulting in a thinning or removal of sediment cover over the cable. In the event of a severe earthquake, the cable could potentially be severed, at which time the power would automatically shut off.

Drilling muds (bentonite) would be released into the Harbor as the HDD drill bit would exit through the seafloor. Though drilling mud would be removed to the extent possible, some drilling mud would inevitably remain and become part of the sediment make-up.

Construction of the terrestrial cables, converter station, and interconnection at BPA's substation would impact soil through, disturbance, removal, exposure to run-off, compaction, and covering with buildings or rock.

Of the terrestrial soils disturbed, about 215 yards^3 (165 m^3) of drill cuttings from the HDD hole would be removed, up to about 1000 yards^3 (765 m^3) of soil would be removed from the converter station site, and about 20,000 yards^3 (15,000 m^3) of soil would be excavated at the Port Angeles Substation and used on site for terracing. Soils removed would be taken to a suitable landfill or spoil disposal location.

S.4.5.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to earth resources.

S.4.6 Land Use

S.4.6.1 Affected Environment

The marine portion of the proposed project (within the U.S.) is in the jurisdiction of Clallam County, and ownership of the tidal and seabed lands is held by Washington's Department of Natural Resources. The waters in the Strait, above where the proposed marine cable would be trenched, are used by both commercial and pleasure craft.

The land portion of the proposed project is in the jurisdiction of the City of Port Angeles and has various zonings classifications. Land potentially affected by the project is owned by the City, Clallam County PUD, private landowners, and the state and federal government. The converter station site and the BPA substation property are zoned for Public Buildings and Parks. Land uses include industrial, commercial, residential, recreational, transportation and utility purposes. Some land is protected as environmentally sensitive.

S.4.6.2 Environmental Impacts – Proposed Action

Residents and businesses would be temporarily impacted by noise, dust, road closures, and air emissions from construction activities, especially in the vicinity of the HDD hole construction site. Local transportation patterns would be changed to avoid construction. The converter station site would be changed permanently to an industrial setting with restricted access for casual recreation. The Port Angeles Substation expansion would also change the existing casual recreation use, reduce access, and increase the industrial element in the local neighborhood.

S.4.6.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to land use.

S.4.7 Visual Resources

S.4.7.1 Affected Environment

The Port Angeles area has a wide range of features that contribute to its setting including the Olympic Mountains rising to the south, the Strait and open shoreline, wooded drainages, gentle rolling foothills, the waterfront trail, and a busy commercial harbor. Access to marine and alpine environments makes the area a destination for many tourists.

The proposed project route is through marine, industrial, residential, and commercial areas of Port Angeles. In the immediate area of the project, views range from background views of the ocean and mountains, to moderate views of patches of urban trees, the ocean, and residential and commercial areas, to foreground views of utility, transportation and business corridors and residential homes.

The proposed project would cross U.S. Highway 101, which carries large amounts of traffic generally moving quickly through this area going to other locations.

S.4.7.2 Environmental Impacts – Proposed Action

The proposed project would create short-term and long-term visual impacts. Construction activities and staging areas would temporarily change the views of sensitive and other viewers. Permanent buildings and equipment would create long-term impacts as they change views and create contrasts with existing buildings and landscape.

Residents, businesses, and motorists, and recreationists along the waterfront trail would have views of the construction activities in the Harbor and on land. The converter station parcel would be changed permanently to an industrial setting and residents would have screened views of the station through landscaping. The Port Angeles Substation interconnection would also increase the industrial element in the local neighborhood and residents would have increased views of the existing electrical facilities, as well as of the new electrical yard expansion.

S.4.7.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to visual resources.

S.4.8 Socioeconomics

S.4.8.1 Affected Environment

The City of Port Angeles is the county seat of Clallam County with a population estimated for 2004 of 18,530, which accounts for 28.5 percent of the population of Clallam County. According to the City Planning Department, no distinct concentrations of minorities exist in the project area or in the City as a whole (Johns 2006).

The Lower Elwha Klallam Tribe lives in the Lower Elwha River Valley and nearby bluffs on the north coast of the Olympic Peninsula, west of Port Angeles. Elwha tribal members participate in commercial fishing, especially salmon fishing, in the area. The project also crosses the Suquamish Tribe's Usual and Accustomed fishing areas.

Over 90 percent of the population in Port Angeles is white, and the terrestrial cable corridor passes by both lower and upper-middle class housing.

The City of Port Angeles is in an area known for its rich natural resources, and the industries they support, especially timber and fishing. Recent declines in these industries have had a major effect on the economy of Port Angeles and vicinity. In recent years, though, there has been an increase

in service industries related to tourism in the area and an increase in popularity of the Olympic Peninsula as a retirement destination.

S.4.8.2 Environmental Impacts – Proposed Action

Impacts to socioeconomics would include some low-level positive impacts to the economy from construction worker and project supply spending, and short-term increases in population and housing (campgrounds, RV parks, hotels) from about 85 construction workers coming in from outside the area to work on various portions of the project at different points in time. In addition, the project would provide minimal numbers of jobs including temporary non-specialty construction jobs, a full-time security guard job, and the hiring of a local grounds maintenance company for the converter station.

Construction in the Harbor and marine waters would create temporary low-level impacts as fishing and ship traffic would need to avoid the slow moving cable-laying operations. There would be a minimal risk that the cable could be snagged or hit by ship anchors.

S.4.8.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to socioeconomics.

S.4.9 Cultural Resources

S.4.9.1 Affected Environment

The project area has been inhabited for over 11,000 years (Carlson 1990; Matson and Coupland 1995). The Klallam people traditionally lived along the southern shore of the Strait from the Hoko River east to Port Discovery and across the Strait on the southern shore of Vancouver Island. Port Angeles was initially named “Puerto de Nuestra Señora de Los Angelos” by a Spanish naval lieutenant in 1791. By the early 1860s Port Angeles was organized as a town. Logging was an early important economic activity of Port Angeles from its beginning, but the industry began to expand considerably after the area was opened to homesteading in the 1890s, and continued to play an increasingly vital role in the city’s economy until recently.

Documented cultural resources include 12 vessels and two aircraft wrecked in the general vicinity of Port Angeles since 1862, and a precontact and ethnohistoric Klallam village at the mouth of Ennis Creek below the Water Street bluff. The Klallam village had an associated burial ground now under 10 feet (3 m) of fill below the former Rayonier, Inc. parking lot. The mouth of Ennis Creek is also the site of the Puget Cooperative Colony. The Colony buildings were on both sides of Ennis Creek and extended to the base of the Water Street bluff.

Pedestrian and vehicle surveys were conducted along the paved areas of the project (the HDD construction site and the DC and AC terrestrial cable routes). Because the areas are paved, it could not be determined if cultural resources are present. Given the amount of surface disturbance, however, it seems unlikely that wide-ranging intact precontact archaeological materials would be preserved.

A pedestrian survey was also conducted on the converter station site and because of extensive surface disturbance, no shovel probes were done. A pedestrian survey and shovel probes were completed on the BPA Port Angeles Substation property where construction would occur for the interconnection. No evidence of cultural resources was found.

S.4.9.2 Environmental Impacts – Proposed Action

The Proposed Action includes ground-disturbing activities that have the potential to cause direct impacts to cultural resources within the project area. If resources are present, such ground disturbance could destroy the relationships among artifacts and features and their contexts, or could cause the destruction of historic structures or buildings.

S.4.9.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create impacts to cultural resources.

S.4.10 Noise

S.4.10.1 Affected Environment

Noise is regulated in the City of Port Angeles, though construction noise is exempt from regulations between the hours of 7:00 a.m. and 10:00 p.m. Environmental noise is usually measured in decibels on the A-weighted scale (dBA).

Background noise levels were taken at the proposed HDD hole construction site on Liberty Street and at the converter station site. At the HDD hole construction site, the levels were 60 dBA (City of Port Angeles, July 2006). Noise levels during a site visit were observed to be exclusively from passing automobiles. Noise generated from U.S. 101 (Front Street) located 2 blocks (more than 600 feet [183 m]) south of the HDD hole construction site was undetectable.

Sound measurements taken by the City of Port Angeles at the converter station site and adjacent to Lauridsen Boulevard found that ambient background sound ranged from 51 dBA to 53 dBA during daytime hours. Cars traveling by brought the sound levels up to 65-68 dBA, occasionally as high as 70 dBA. However, sound readings also often dropped below 50 dBA indicating that nighttime sound levels would likely be at or below the 45 dBA noise limits for residential areas.

S.4.10.2 Environmental Impacts – Proposed Action

Construction would generate noise. Temporary noise impacts would occur for 2 to 3 days, 24 hours/day from the cable laying ship and equipment work in the Harbor. The HDD hole construction site would generate noise 24 hours per day for 23 consecutive days at levels slightly louder than typical construction noise levels (90 to 95 dBA), reducing to ambient noise levels at a distance of about 600 feet (183 m) from the drilling equipment. Terrestrial construction of the cable trenching, converter station, and interconnection work would generate construction level noise between 7 a.m. and 7 p.m. Required blasting along Liberty Street between 5th and 8th streets would include two blasts per day for 10 days.

Operation of the converter station may raise noise levels in the vicinity of the converter station. Converter stations typically generate noise levels between 35 and 55 dBA.

S.4.10.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create noise impacts.

S.4.11 Health and Safety

S.4.11.1 Affected Environment

Electric and Magnetic Fields

Electric transmission facilities, if not constructed and operated properly, can lead to potential harmful effects. Transmission lines, like all electric devices and equipment, produce electric fields and magnetic fields often referred to as "electromagnetic fields" (EMF). The electrical current is either direct current (DC) or alternating current (AC). The changing direction of AC induces currents in surrounding objects. Since DC does not change direction, it does not induce currents in surrounding stationary objects.

Electrical field strength is measured in kilovolts per meter (kV/m). In a home, the AC electric field strength from wiring and appliances (from 110-volt circuits) is typically less than 0.01 kV/m.

The strength or intensity of magnetic fields is commonly measured in milligauss (mG). The earth's natural DC magnetic field in the Port Angeles area is about 550 mG. The international guideline for continuous public exposure to DC magnetic fields is 400,000 mG (International Commission on Non-ionizing Radiation Protection, 1994, World Health Organization, 2006).

The AC magnetic field strength in the middle of a typical living room measures about 0.7 mG (California Department of Health Services and the Public Health Institute 2000). Throughout the land portion of the proposed project there are sources of EMF, including appliances, existing AC transmission and distribution lines, and electrical substations.

Toxic and Hazardous Materials

The former Rayonier pulp mill located at 700 North Ennis Street is a contaminated site. The mill property consists of about 80 acres (32 ha), including submerged land in the southeastern portion of Port Angeles Harbor. The pulp mill operated from 1930 to 1997 and used an acid sulfite and bleaching process to produce paper products. Most of the facility has been dismantled since its closure (Integral Consulting and Foster Wheeler 2003).

S.4.11.2 Environmental Impacts – Proposed Action

Electric and Magnetic Fields

High-voltage electric transmission lines, like electrical wiring, can cause serious electric shocks if precautions are not incorporated into their design and construction. The energized electric cables could potentially be exposed and damaged during third-party construction, which could

potentially result in an electrical shock to construction workers. Ship anchors could damage the cable, but if the submarine cable insulation was breached by an anchor or by fishing equipment, the cable would automatically disconnect.

Both the DC and AC cables would be in trenches and the electric fields would be shielded by grounding, soil, and water. The DC electric field in the earth directly above the cable would be about 0.004 kilovolts per meter (kV/m), less than the AC levels found in homes. The AC electric field would be about 0.02 kV/m at ground level directly above the AC cable, which is about the same AC electric field found in a typical home. The BPA overhead transmission lines would meet BPA's standard for AC electrical field strength of 9 kV/m maximum on rights-of-way and 5 kV/m at the edge of rights-of-way.

The static magnetic fields from the DC cables at maximum current carrying capacity would be about 550 mG. Depending on the angle between the cable and the naturally-occurring geomagnetic field, the DC cable would add to or subtract from the geomagnetic field. The field levels would decrease with distance from the cable. Animals that depend on magnetism for navigation may be misdirected somewhat while in the combined magnetic field.

Directly over the AC cable (the centerline), the field levels could be between 541 mG and 193 mG, depending on the configuration and spacing. About 15 feet (4.5 m) from the centerline, the levels would drop to between 42 mG and 87 mG. About 30 feet (9 m) from the centerline, the magnetic field levels would drop down to between 12 mG and 33 mG, depending on the configuration and spacing. The closest houses along Porter Street are about 45 to 60 feet (14 to 18 m) from the edge of the road. Nearby residents could have some increased exposure to magnetic fields depending on the cable configuration and placement in the street and the distance from the cable to a residence. For the AC cable routing options onto BPA property, Option A would be routed along Porter Street for about 200 feet (61 m) longer than Option B, though there are no houses along most of this 200-foot (61-m) long stretch.

Magnetic fields at the perimeters of electrical stations tend to be greatest where transmission lines enter or exit the station. The field levels in these areas are the same field levels of those lines.

Several existing overhead power lines would be reconfigured as part of the Proposed Action. If the existing lines at the converter station are moved or reconfigured, the existing magnetic fields would change. If the lines are moved to the west side of the property, the lines would be located at least 100 feet (30 m) from the property boundary. Because field levels reduced rapidly with distance, increased levels would not be expected at the edge of the property. If the lines were moved to the east side of the property, there are no residences on that side and there would be no potential for long-term increase in public exposure.

A BPA overhead transmission line would need to be moved to the west on BPA property to accommodate the interconnection work at the Port Angeles Substation. The existing field levels would change and the line would be closer to the residences on Porter Street, however because the line would, at its closest point, be about 125 feet (38 m) from Porter Street, there would be no increased magnetic field exposure to homes.

Toxic and Hazardous Materials

There is a potential for safety impacts in the event of accidental oil spills or mishandling or storage of toxic or hazardous waste products. Also, fire could potentially occur without appropriate fire protection systems installed in the converter station or if trees were allowed to grow too close to overhead lines or electrical yards.

Although the HDD hole would pass beneath the contaminated area of the former Rayonier pulp mill, contaminants occur in the surface sediments and the proposed depth of the HDD hole would be deep enough that no contaminated soils or sediments would be expected to be encountered during the drilling. The contaminated marine sediments would be disturbed in the Port Angeles Harbor, but samples indicate that the sediments generally do not exceed the State of Washington Sediment Quality Standards (SQS).

S.4.11.3 Environmental Impacts – No Action Alternative

The No Action Alternative would not create health and safety impacts.

S.4.12 Air Quality

S.4.12.1 Affected Environment

The air quality in Port Angeles is consistently ranked as good. Clallam County is not within an EPA-listed non-attainment area or maintenance area for any of the criteria pollutants.

S.4.12.2 Environmental Impacts - Proposed Action

Construction would have low-level impacts on air quality; activities such as terrestrial trenching would create dust (particulate matter) and the heavy equipment required would emit exhaust pollutants.

S.4.12.3 Environmental Consequences - No Action Alternative

The No Action Alternative would not create impacts to air quality.

S.4.13 Cumulative Impacts

"Cumulative impacts" are the impacts on the environment which result from the incremental impact of an action – such as this Proposed Action – when added to other past, present, and reasonably foreseeable future actions.

In general, urbanized uses have been developed along much of the Strait's shoreline in the project vicinity ranging from single-family residential to large-scale industrial and port uses. Due to continuing population growth and other factors, development is expected to continue into the future.

Reasonably foreseeable development that may occur in the vicinity of the Proposed Action could include expansions at Peninsula College, City of Port Angeles capital projects, removal of the

Elwha and Glines Canyon dams on the Elwha River (which flows from the Olympic Mountains to the Strait near Port Angeles), the potential construction of another transmission cable project (Vancouver Island-Fairmont) proposed by Sea Breeze, and potential improvements to transmission lines along the Olympic Peninsula to allow the proposed cable to operate at its full capacity.

The proposed Port Angeles-Juan de Fuca Transmission Project may contribute incrementally to impacts to a number of resources that have been or are being cumulatively impacted by past, present, and reasonably foreseeable future actions. The resources include those previously discussed including the following: water, vegetation, marine habitat and wildlife, terrestrial wildlife and freshwater fish, soils, land use, visual resources, socioeconomics, cultural resources, noise, health and safety, and air quality. The contribution of the Proposed Action to these cumulative impacts would vary, with the greatest contribution occurring in cumulative impacts on water resources and marine habitat and wildlife.

1.0 Purpose and Need for Agency Action

This chapter describes the purpose and need for the United States (U.S.) Department of Energy (DOE) to take action regarding the proposed Port Angeles–Juan de Fuca Transmission Project. This chapter also presents the project applicant's objectives and a summary of the public scoping process conducted for this environmental impact statement (EIS). The end of the chapter provides information about the scope and organization of this EIS.

1.1 Introduction

Sea Breeze Olympic Converter LP (Sea Breeze) has applied to DOE for authorizations and approvals necessary to construct the U.S. portion of an international electric power transmission cable. Sea Breeze's proposed cable project would extend from the greater Victoria area, British Columbia (B.C.), Canada, to Port Angeles, Clallam County, Washington, U.S. (see Figure 1-1).

The proposed cable project involves the installation of a ±150-kilovolt (kV) direct-current (DC) transmission line cable, which could carry up to 550 megawatts (MW) of power. The total length of the cable would be about 32 miles (52 kilometers [km]). Beginning at the northern end, the proposed cable would connect into the B.C. transmission system, which is owned by B.C. Hydro and Power Authority and operated by the British Columbia Transmission Corporation, both Crown corporations of the Province of British Columbia, Canada. About 7.5 miles (12 km) of cable would be buried underground in Canada, about 23 miles (37 km) of cable would be trenched under the Strait of Juan de Fuca (Strait) international waterway, and about 1.5 miles (2.4 km) of cable would be buried underground through Port Angeles, Washington. In Port Angeles, the cable would connect to the Federal Columbia River Transmission System, which is owned and operated by Bonneville Power Administration (BPA).

About 12.0 miles (19.3 km) of the cable would be located in U.S. jurisdiction; about 10.5 miles (16.9 km) in the ocean and 1.5 miles (2.4 km) on land. This portion of the cable project is referred to as the "Port Angeles-Juan de Fuca Transmission Project" and is the subject of this EIS.

Sea Breeze would construct and own the proposed cable project. Sea Breeze intends to sell capacity on the cable to interested utilities or generators (through open access), with power flow possible both north and south between the U.S. and Canada. Because the proposed project does not include improvements that would increase the capacity of BPA's transmission system, power flow to and from the proposed interconnection with BPA's system would be subject to existing power transfer limits and transmission constraints. Power flow in excess of the existing capacity on BPA's transmission system would require improvements to the system. A complete