

## Irreversible and Irretrievable Commitment of Resources

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The National Environmental Policy Act (NEPA) requires a consolidated discussion of environmental consequences to consider irreversible and irretrievable commitments of resources (42 United States Code [USC] 4331). An *irreversible* commitment of resources refers to the use of resources that are either nonrenewable or nonrecoverable. An *irretrievable* commitment of resources is the loss of use of a renewable resource. Construction and operation of the proposed export terminal would result in the commitment of natural and human-made resources. The primary commitment of resources would occur during construction of the terminal, but resources would also be committed during terminal operations.

The following discussion addresses resource commitments for construction and operation of the proposed export terminal, including the physical materials required and specific resource types. In general, the commitment of resources would be similar for the On-Site Alternative and Off-Site Alternative. No resources would be committed if the U.S. Army Corps of Engineers (Corps) does not issue a Department of the Army permit under Clean Water Act Section 404 and Rivers and Harbors Act Section 10 for the proposed export terminal.

### 10.1 Groundwater

Groundwater would be used during construction and operations for dust control, equipment washdown, and cleanup. Groundwater at the On-Site Alternative location would be drawn from existing groundwater wells with existing water rights; groundwater demand for construction and operations would be a small percentage of the allowable groundwater extraction volumes under the Applicant's existing water rights. For the Off-Site Alternative, a new groundwater well(s) or water source beyond the project area would be needed for construction and operations. Any new groundwater wells would require hydrogeology studies and a grant of water rights prior to construction to ensure groundwater supplies would not be adversely affected. The use of groundwater for both alternatives would be an irretrievable commitment of resources during construction and operations. The proposed export terminal at either alternative location would require the same amount of water during construction and operations; however, the terminal at the Off-Site Alternative location could obtain some or all water from a source beyond the project area. Any on-site groundwater withdrawals would occur under a Washington State-approved water right, and groundwater would continue to be replenished through the natural water cycle.

### 10.2 Wetlands

Construction of the proposed export terminal would permanently destroy 24.10 acres of wetland at the On-Site Alternative location and 51.28 acres of wetland at the Off-Site Alternative location. In addition, partial filling of some wetlands could result in permanent changes to wetland functions in the unfilled portions. The permanent filling of wetlands for construction of the proposed export terminal would represent an irreversible commitment of wetland resources because the proposed export terminal would be permanent. If a wetland is partially filled during construction, any loss of

wetland function could be an irretrievable loss if the wetland is not restored to full function. Per federal and state regulations, compensatory mitigation would be required for all permanent wetland impacts to ensure no net loss of wetland functions.

## 10.3 Biological Resources

Construction of the proposed export terminal would permanently destroy vegetation and wildlife habitat. The terminal at the On-Site Alternative location would result in the permanent loss of 26.26 acres of vegetated upland and 24.10 acres of wetland habitats. The terminal at the Off-Site Alternative location would result in the permanent loss of 155.46 acres of vegetated upland and 51.28 acres of wetland habitats. These habitats consist of forested, herbaceous, and scrub-shrub vegetation. Wildlife inhabiting these areas would be displaced to habitats outside of the project area and mortality of some less mobile wildlife could occur. The permanent loss of vegetation and wildlife habitat would represent an irreversible commitment of biological resources because the proposed export terminal would be permanent. Losses of wildlife during construction and operation would represent an irretrievable commitment of biological resources.

Construction of the proposed export terminal would permanently remove aquatic habitat. The terminal at the On-Site Alternative location would involve placing 610 piles in the Columbia River, permanently removing 0.10 acre (4,312 square feet) of river bottom habitat. The terminal at the Off-Site Alternative location would involve placing 597 piles in the Columbia River, permanently removing 0.10 acre (4,221 square feet) of river bottom habitat. Bottom-dwelling and benthic organisms within the pile footprint at the time of pile-driving would likely perish. The permanent conversion of riverine habitat would represent an irreversible commitment of biological resources because the piles would be permanent; losses of aquatic wildlife during construction and operation would represent an irretrievable commitment of biological resources.

Construction of the proposed export terminal would destroy open-water areas/freshwater aquatic habitat (ditches and ponds). Constructing the terminal would permanently remove 11 acres of freshwater aquatic habitat at the On-Site Alternative location and 8.61 acres of freshwater aquatic habitat at the Off-Site Alternative location. These open areas of freshwater support amphibians, small mammals, and birds. Animals inhabiting these areas could be displaced to habitats outside of the project area, but mortality of less mobile wildlife could occur. The permanent conversion of aquatic habitats would represent an irreversible commitment of biological resources because the proposed export terminal would be permanent. Losses of wildlife during construction and operations would represent an irretrievable commitment of biological resources.

Dredging activities during construction and operations would involve dredging a 48-acre area (500,000 cubic yards) in the Columbia River at the On-Site Alternative location and a 15-acre area (50,000 cubic yards) at the Off-Site Alternative location. Periodic maintenance dredging would likely be required in these areas during operations. Dredging activities would remove benthic organisms and disrupt fish; maintenance dredging would periodically disrupt the benthic community at these locations. Dredging activities would not result in irreversible impacts because the overall habitat type would remain the same, and recolonization by benthic organisms would occur once dredging ceased. The temporary loss of aquatic wildlife during dredging would represent an irretrievable commitment of biological resources.

## 10.4 Land Use

Construction and operation of the proposed export terminal would require the commitment of land. The terminal would require approximately 190 acres of land at the On-Site Alternative location and approximately 220 acres of land at the Off-Site Alternative location. The On-Site Alternative project area is substantially developed as an industrial site; the Off-Site Alternative project area includes both undeveloped and agricultural land. The proposed export terminal would be a permanent feature of the landscape, which would be an irreversible change to land use. This impact would be more pronounced at the Off-Site Alternative location because this area is undeveloped.

## 10.5 Construction Materials

Construction materials would be committed during construction of the proposed export terminal. Materials to construct the terminal (e.g., steel, concrete, rock ballast, and railroad ties) would be irretrievably committed. The commitment of construction materials for both alternatives would be similar, but the Off-Site Alternative would require more railroad construction materials because the Reynolds Lead would be extended to reach the Off-Site Alternative project area.

## 10.6 Energy Resources

Construction and operation of the proposed export terminal would consume gas, oil, and diesel fuel. Construction of the terminal at either the On-Site Alternative or Off-Site Alternative location would consume approximately 500 gallons of gasoline, 50 gallons of oil, and 20,000 gallons of diesel fuel for construction equipment and vehicles. Operating and maintaining the terminal at either location would require approximately 100 gallons of gasoline, 75 gallons of oil, and 865 gallons of diesel per month for vehicles and equipment. Operations would also result in fuel consumption by trains, vessels, employee vehicles, and equipment and fuel supply trucks. Consumption of fuel during construction and operations would be an irreversible use of nonrenewable fossil fuels.

Terminal electricity usage at both the On-Site Alternative and Off-Site Alternative locations would be approximately 6,624,000 kilowatt hours per year at full operation, which represents approximately 4% of the total electricity supplied to users in the Cowlitz Public Utility District (PUD) service area. Consumption of electricity during operations would be an irreversible use of this energy source. Cowlitz PUD currently has the capacity to meet this electricity demand.

