

## 4.9 Energy and Natural Resources

The availability and conservation of energy and natural resources are important factors to consider for large projects, such as the Proposed Action. Construction, operations, and transportation to and from the project area would require energy and natural resources.

This section describes energy and natural resources in the study area. It then describes impacts on energy and natural resources that could result from construction and operation of the Proposed Action and under the No-Action Alternative. This section also presents the measures identified to mitigate impacts resulting from the Proposed Action.

### 4.9.1 Regulatory Setting

No federal, state, or local laws or regulations pertaining to the use of energy and natural resources apply to the Proposed Action.

### 4.9.2 Study Area

The study area for direct impacts on energy and natural resources is the project area for the Proposed Action. The study area for indirect impacts on energy and natural resources is the area within 0.25 mile of the project area. When assessing the availability of energy and natural resources, the analysis considers those resources that are available regionally, beyond the 0.25-mile study area.

### 4.9.3 Methods

This section describes the sources of information and methods used to evaluate the potential impacts on energy and natural resources associated with the construction and operation of the Proposed Action and No-Action Alternative.

#### 4.9.3.1 Information Sources

The following sources of information were used to identify the potential impacts of the Proposed Action and No-Action Alternative on these resources in the study area.

- Applicant-provided data
- Cowlitz Public Utility District
- Cowlitz Conservation District
- Cascade Natural Gas
- U.S. Energy Information Administration

#### 4.9.3.2 Impact Analysis

The following methods were used to evaluate the potential impacts of the Proposed Action and No-Action Alternative on energy and natural resources.

## Energy Consumption

Energy consumption was evaluated quantitatively. Potential impacts on energy were evaluated based on the estimated energy consumed during construction and operation of the Proposed Action and the estimated change in fuel consumption in the study area. Estimated hours of operation and types of fuel consumed were used to quantify energy consumption. Baseline energy usage and energy usage with the Proposed Action were estimated using data provided by the Applicant.

## Natural Resource Consumption

Natural resource consumption was evaluated qualitatively. Potential impacts on natural resources were estimated based on the proposed consumption of resources during construction. The following assumptions were made for the analysis.

- Heavy construction materials, such as gravel, sand, concrete, and timber would be sourced locally to the extent possible.
- Adequate quantities of natural resources needed to support the Proposed Action would be readily available.
- Long-distance transport of these materials would be undesirable because of associated transportation costs.
- Steel used in construction would be available from both local and regional sources.

## 4.9.4 Existing Conditions

This section describes the existing environmental conditions in the study area related to energy and natural resources that could be affected by the construction and operation of the Proposed Action and the No-Action Alternative.

### 4.9.4.1 Energy

This section describes the energy sources and usage local to the area and project area.

#### Local Energy Sources

The following describes local energy sources (electricity, natural gas, and diesel fuel) in the project area.

#### Electricity

Electricity is provided to the project area by Cowlitz Public Utility District (PUD), which supplies electricity throughout Cowlitz County. Cowlitz PUD buys over 90% of its wholesale power from Bonneville Power Administrative (BPA). The majority of the BPA power comes from the Columbia River system hydroelectric projects.

Cowlitz PUD provides service throughout Cowlitz County and is among the largest public utility districts in Washington State. Cowlitz PUD estimates that customers will use 609 average megawatts and 821 peak megawatts of electricity in 2015 (Cowlitz Public Utility District 2015). Approximately 14% of Cowlitz PUD's power is sold to residential users, and approximately 8% to industrial users (22 companies or industries). Major industrial users consume approximately 71% of the power.

Small general service and street/area lighting account for the other electrical usage (Cowlitz Public Utility District 2015).

### **Natural Gas**

Natural gas is provided to the project area by Cascade Natural Gas, which supplies residential, commercial, and industrial users throughout Cowlitz County and beyond. The Cascade Natural Gas service area is concentrated in western and central Washington, and central and eastern Oregon. Interstate pipelines transmit the company's natural gas from production areas in the Rocky Mountains and western Canada (Cascade Natural Gas Company 2014).

### **Diesel Fuel**

Local suppliers provide diesel fuel in the Longview-Kelso area. In Washington State, approximately 88.36 million gallons of diesel fuel were sold annually to railroad-related uses in 2012 (U.S. Energy Information Administration 2014). This represents approximately 9% of total diesel sales for all uses in the state. The largest consumers were on-highway users, or motor vehicles, accounting for 62% of diesel sales, or approximately 618 million gallons, in Washington State in 2012.

Tank vessels primarily use diesel or residual fuel oil. Diesel fuel sales for vessel uses in Washington State (excluding the military) totaled 80.5 million gallons in 2012, which accounted for 8.2% of the total diesel sales in the state (U.S. Energy Information Administration 2014). In 2013, the total prime supplier sales volume of fuel oil was 469.86 million gallons for Washington State (U.S. Energy Information Administration 2014).

### **Project Area Energy Usage**

Cowlitz PUD provides electricity to the project area via overhead 230-kilovolt and 115-kilovolt power lines along Industrial Way. Other power lines run perpendicular to the north end of the project area, where they converge with a BPA substation. The existing power configuration is sufficient for the current operations at the project area (URS Corporation 2014). The existing annual electricity use for the existing bulk product terminal (outside the project area but within the Applicant's leased area) averages 20 megawatts based on the average electrical usages for 2014.

Within the project area, administrative buildings use electricity provided by Cowlitz PUD. Other energy consumed comes from diesel- or gasoline-powered generators provided by local fuel suppliers.

#### **4.9.4.2 Natural Resources**

This section describes the natural resources local to the area and the natural resources available specifically in the project area.

##### **Local Natural Resources**

The Cowlitz County economy was historically centered on forestry and timber products. Weyerhaeuser manufactures wood and paper products at a facility near the project area along the Columbia River. Many other timber-industry companies are located in nearby Longview. Groundwater resources in the vicinity are an upper alluvium aquifer (i.e., shallow groundwater), and the deeper confined aquifer from which industries, small farms, and domestic well users withdraw groundwater. The Mint Farm Regional Water Treatment Plant, operated by the Beacon

Hill Water and Sewer District and located less than 1 mile north of the project area, began withdrawing groundwater from the deep confined aquifer in January 2013 (URS Corporation 2014). Numerous quarries and mines are located in Cowlitz County that provide crushed stone, sand, and gravel.

### **Project Area Natural Resources**

No forest products are located in the project area. The Applicant currently holds several water rights to extract groundwater from the deep aquifer within the Applicant's leased area and in the project area (Kennedy/Jenks Consultants 2012). Based on information provided by the Applicant, existing demand is within water rights limits for groundwater pumping.

## **4.9.5 Impacts**

This section describes the potential direct and indirect impacts related to energy and natural resources that would result from construction and operation of the Proposed Action and the No-Action Alternative.

### **4.9.5.1 Proposed Action**

This section describes the potential impacts that could occur in the study area as a result of construction and operation of the Proposed Action.

#### **Construction—Direct Impacts**

Construction-related activities associated with the Proposed Action could result in direct impacts as described below. As explained in Chapter 2, *Project Objectives, Proposed Action, and Alternatives*, construction-related activities include demolishing existing structures and preparing the site, constructing the rail loop and dock, and constructing supporting infrastructure (i.e., conveyors and transfer towers).

Heavy machinery would be operated to prepare foundations and footings for construction of the coal export terminal, associated services, and utilities. Diesel fuel and gasoline would be used in most construction equipment such as cranes, wheel loaders, dozers, dump trucks, excavators, graders, rollers, compactors, drill rigs, pile-driving equipment, portable ready-mix batch plant, ready-mix trucks, concrete pumps, elevated work platforms, forklifts, rail-track-laying equipment, water pumps, and other similar machinery (URS Corporation 2014a). A fuel truck would visit the site as required. The frequency during construction would vary based on usage and activities and could range from once or twice per day to once or twice per week. Fuel trucks that would be used during construction would have a 3,000-gallon to 4,000-gallon capacity. A temporary increase in fuel use would result from the need to transport employees and materials to the project area and to operate construction equipment.

#### **Increase Energy Use**

Construction-related energy uses would include the use of electricity, diesel fuel, gasoline, oil, and natural gas. Construction would require on average each month approximately 500 gallons of gasoline, 50 gallons of oil, and 20,000 gallons of diesel fuel.

Electricity from Cowlitz County PUD would be consumed to provide construction lighting and power tools and equipment. Natural gas would be used for minor purposes, including to heat water for showers and other sanitary uses, but not for industrial uses. Heavy machinery would operate during construction, which would increase fuel use. The demand for gasoline, oil, diesel fuel, and natural gas during construction would be minor compared to the current regional demand for these fuels and could be met by the existing local and regional supply.

### **Increase the Use of Natural Resources**

Natural resources that would be consumed during construction would include water, gravel, fill dirt, steel, and wood.

Groundwater available in the project area would be used during upland construction as necessary for dust suppression, which would be approximately 40,000 gallons per day (URS Corporation 2014). Approximately 2.1 million cubic yards of fill material would be imported to the project area to be used as preload material, and approximately 2.5 million cubic yards of material would be moved around the project area during preloading activities (URS Corporation 2014). Dredging would occur as part of the construction of the two docks (Docks 2 and 3), which would include removing approximately 500,000 cubic yards of fill material. All regularly used roads in the project area would require gravel. Any new impervious surface area would generate stormwater, but all stormwater would be collected and treated to meet state and federal water quality requirements prior to discharge to the Columbia River. Rail loop construction would require importing and placing approximately 130,000 cubic yards of ballast rock for the rail foundations; placing railroad ties; laying steel rail lines; and installing signaling, switching equipment, and track lighting (URS Corporation 2014).

The demand for these natural resources during construction would be minor compared to the current regional demand for these resources and could be met by existing local and regional supply.

## **Construction—Indirect Impacts**

Construction of the Proposed Action would result in the following indirect impacts.

### **Increase Energy Use**

A temporary increase in fuel consumption would result from the transport of employees and materials to the project area during construction. This fuel consumption would be a minor amount compared to the current demand for these fuels in the study area, and could be met by the existing local and regional supply.

## **Operations—Direct Impacts**

Operation of the Proposed Action would result in the following direct impacts. Operations-related activities are described in Chapter 2, *Project Objectives, Proposed Action, and Alternatives*.

### **Increase Energy Use**

Electricity, gasoline, oil, propane, and diesel fuel would be the primary energy types consumed during operations of the Proposed Action. Electricity would be used to heat buildings and light indoor and outdoor areas, to power the automated system used to unload coal from trains, store

coal, reclaim the coal from storage, and load the vessels. Specific types of equipment used for these processes include rail car unloading facilities, stacking conveyers, bucket wheel reclaimers, the belt conveyor system, and shiploaders.

Operational electricity usage is estimated at approximately 6,624,000 kilowatts per hour, per year, and operational electricity requirements are estimated at 20 to 25 megawatts per year. At full operation, the Proposed Action's energy use would represent an average of approximately 4% of the total electricity supplied to users in the Cowlitz PUD service area. This electricity demand is anticipated to be met by existing regional supply because Cowlitz PUD currently has the capacity to meet the electricity demand.

Gasoline, propane, and diesel would be used to power vehicles and equipment used for standard operations and routine maintenance. Operations is anticipated to require each month on average approximately 100 gallons of gasoline, 75 gallons of oil, and 865 gallons of diesel.

The demand for energy during operations would be minor compared to the current regional demand for these fuels and could be met by the existing local and regional supply.

### **Increase the Use of Natural Resources**

Natural resources that would be used would include water, gravel, fill dirt, and wood. Impacts on these resources are discussed below. Impacts on groundwater and water quality are discussed in Sections 4.4, *Groundwater*, and 4.5, *Water Quality*, respectively.

A water treatment facility would be designed to treat all surface runoff and process water with capacity to store the water for reuse. The use of stormwater in combination with a storage reservoir and groundwater would be used for processing water and fire protection. All of the stormwater would be processed through the water treatment facility prior to reuse. Water uses would include dust control, stockpile sprays, wash down, and clean up (URS Corporation 2014). Water would also be used to control dust from operating conveyors, transfer points, rail car unloaders, stockpiling, and ship loading. Approximately 120 million gallons per year would be reused from runoff during operations. Combined with the groundwater demand from existing activities in the project area (approximately 1,994 acre-feet per year), the total demand on groundwater supplies during operation of the Proposed Action would be approximately 3,019 acre-feet per year. Water would be sourced from existing production wells within the existing water rights, and there would be no need for new wells.

Specific quantities of gravel, fill dirt, and wood during operation of the Proposed Action are not known at this time. However, the quantities are anticipated to be met by existing local and regional supply considering the availability of these resources.

## **Operations—Indirect Impacts**

Operation of the Proposed Action would result in the following indirect impacts. Operations-related activities are described in Chapter 2, *Project Objectives, Proposed Action, and Alternatives*.

### **Increase Fuel Consumption**

The Proposed Action would increase fuel consumption by the following.

- Approximately 240 unit trains arriving and 240 unit trains departing each month, which would increase rail locomotive fuel consumption in the study area.
- Approximately 70 vessel transits each month, which would increase vessel fuel consumption in the study area.
- Approximately 135 employees to operate the facility, which would generate approximately 270 trips per day assuming two employee trips per day. These vehicle traffic operations would increase vehicle fuel consumption in the study area.
- A fuel truck with a 3,000- to 4,000-gallon capacity would come to the project area as needed to supply vehicles and equipment with fuel for operations and maintenance. The frequency would vary based on usage and activities. This activity would increase fuel consumption in the study area.

Trains and vessels would not be fueled within the study area. Fuel consumption from employee and fuel truck trips would be a minor amount compared to the current demand for fuel within the study area, and could be met by the existing local and regional supply.

#### **4.9.5.2 No-Action Alternative**

Under the No-Action Alternative, the Applicant would not construct the coal export terminal, and the existing use of energy and natural resources would continue. However, the Applicant could expand the existing bulk product terminal onto the project area. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations and federal and state permits. Potential impacts of the No-Action Alternative are described below.

##### **Increase Energy Use**

Any expansion of the existing bulk terminal would increase the demand for energy (natural gas, electricity, diesel fuel, and gasoline). Cowlitz PUD and Cascade Natural Gas have the capacity to meet the anticipated demand and local suppliers would be able to accommodate diesel and gasoline demand.

##### **Increase Natural Resources Use**

Any expansion of the existing bulk terminal would increase the demand for natural resources. Use of natural resources would not cause a noticeable impact on supplies in the area, and demand for natural resources would not adversely affect the supply from local and regional service providers.

#### **4.9.6 Required Permits**

The Proposed Action would require building and site development permits from the Cowlitz County Department of Building and Planning in relation to the use of energy and natural resources (such as electrical and mechanical permits).

#### **4.9.7 Potential Mitigation Measures**

This section describes the voluntary mitigation measures that would reduce impacts related to energy and natural resources from construction and operation of the Proposed Action. These

mitigation measures would be implemented in addition to project design measures, best management practices, and compliance with environmental permits, plans, and authorizations that are assumed as part of the Proposed Action.

#### **4.9.7.1 Voluntary Mitigation**

The Applicant has committed to implementing the following measures prior to or during construction to mitigate impacts on energy and natural resources.

- Prior to construction, prepare a Waste Management Plan in coordination with Cowlitz County's Solid Waste Management Plan. The plan will include measures to avoid and minimize the generation of wastes and promote waste reuse and recycling.
- Where feasible, turn off construction vehicles rather than idling engines.

The Applicant has committed to implementing the following measures during operations to mitigate impacts on energy and natural resources.

- Where appropriate, implement energy conservation measures, such as energy-efficient electrical system specifications, lighting, mechanical equipment, and building insulation.
- Switch on lighting in unoccupied areas only when needed and turn off lighting automatically.
- Maximize energy efficiency in facility and equipment specifications and selection, such as electric motors that have high power factors, conveyor drives with "quiet drives" that require less power to operate, and life-cycle costs advantage of energy efficient components.
- Use power factor correction equipment in substations.
- Use conveyor idlers to specify rim drag to reduce conveyor start up power.
- Revert office equipment to standby mode or switch off when not in use.
- Match vehicle size to the need of the task.
- Choose vehicles based on fuel efficiency.
- Use controlled temperature settings on switch room and office air conditioning.
- Use automatic shutdown controls for idle plant and equipment.
- Manage energy load by using submetering of offices, workshops, conveyors stackers, reclaimers, and shiploaders.
- Use soft-start electric motors to minimize peak power demand.

#### **4.9.8 Unavoidable and Significant Adverse Environmental Impacts**

Implementation of the voluntary measures and design features described above would reduce impacts on energy and natural resources. There would be no unavoidable and significant adverse environmental impacts.