## 8. ENERGY AND NATURAL RESOURCES

This section describes the baseline conditions and potential direct and indirect impacts on energy and natural resources that would be consumed in association with construction and operation of the proposed project, and the measures to mitigate these potential impacts. Energy resources that would be needed by the proposed project include electricity, natural gas, and petroleum fuels (gasoline and diesel). The proposed project would also require additional use of natural resources including water, fill material (clean fill dirt), and aggregates.

# 8.1. LAWS, REGULATIONS, AND GUIDANCE FOR ENERGY AND NATURAL RESOURCES

Table 8-1 provides a summary of the laws, regulations, and guidance applicable to energy and natural resources that may be consumed in association with the proposed project.

Table 8-1: Laws, Regulations, and Guidance for Energy and Natural Resources

Regulation, Policy, or Guideline	Description	
State		
Growth Management Act Title 36 Revised Code of Washington (RCW)	The state of Washington Growth Management Act Title 36 RCW requires local governments to manage growth by identifying and protecting critical areas and natural resource lands.	
Local		
Skagit County Comprehensive Plan, 2007	The 2007 Skagit County Comprehensive Plan (Skagit County Planning and Development Service 2007) identifies March Point as within the Anacortes Urban Development District (A-UD). The refinery and land surrounding it on March Point are not zoned as a Natural Resource Land, Open Space, or Mineral lands. The availability of sand and gravel in Skagit County for construction materials and management of these resources under the Skagit County Comprehensive Plan is discussed in Section 8.3.5.	

#### 8.2. STUDY AREA AND METHODOLOGY

This section describes the specific considerations used to assess potential impacts of the proposed project on energy and natural resources that would be consumed in association with the proposed project.

# 8.2.1. Study Area

The energy and natural resources study area evaluated in this assessment includes consideration of activities that would occur during construction and operations within the refinery, as well as the sources of natural resources that would be consumed in association with the proposed project. Because some resources are managed and provided on a regional level, such as electricity, natural gas, and water, the service territories of the respective utility providers that would potentially provide these resources were also considered in establishing the study area. The utilities and their service territories are summarized in Table 8-2. In addition to the study areas summarized in the table, Skagit County was defined as the study area for construction

materials as well as gasoline and diesel (including marine diesel) consumption from implementation of the proposed project.

Table 8-2: Utility Coverage Areas for Energy and Natural Resources

Resource	Utility	Utility Service Territory	
Electricity		Skagit, Kitsap, Thurston, and Whatcom Counties. Parts of Island, King (excluding Seattle), Kittitas, and Pierce (excluding Tacoma) Counties	
Water	City of Anacortes	City of Anacortes and greater Anacortes area, including March Point	
Natural Gas		Parts of northwest and central Washington (including Anacortes and surrounding area); Parts of central and eastern Oregon	

# 8.2.2. Methodology

To evaluate potential impacts on energy and natural resources, baseline conditions for these resources were evaluated by examining data provided by the refinery on their current energy usage, information on the availability and delivery of energy and water within utility service areas, and information on the availability of fuels and local sources of construction fill materials and gravel. Potential impacts on energy and natural resources that were evaluated as part of this analysis were determined through a public scoping process and by considering the proposed project's potential to impact these resources. Potential impacts on the consumption of energy and natural resources that could occur during both construction (short term) and operations (long term) of the proposed project were considered in the analysis. A series of scoping meetings were conducted during the scoping period for the proposed project, with the public, tribes, and government agencies providing verbal and written comments. The primary issues related to energy and natural resources that are addressed in this section include:

- Strain on local utilities supplying electricity, water, or natural gas due to the consumption needs of the proposed project
- Strain on local supplies of gasoline or diesel fuels during construction of the proposed project
- Strain on the supply of construction materials, specifically fill and aggregate materials (soil, sand, or gravel), due to the needs of the proposed project during construction and operations

Potential impacts were qualitatively evaluated by assessing whether the increases in energy and natural resources required by the proposed project would reduce the access or quality of the resources for their use by the public within the study area. A significant impact on energy and natural resources is one that would result in severe constraints on the access, quality, reliability, or the cost of obtaining the resource during construction or operation of the proposed project.

SEPA regulation (WAC 197-11-440) indicates that, where appropriate, the EIS should consider whether the project or its alternatives could use renewable energy, conserve energy and the use of natural resources, or use energy more efficiently. As described in Chapter 2, Proposed Action and Alternatives, this Draft EIS evaluates potential impacts of the no action alternative and the proposed project. Neither alternative involves changes to regional or national consumption of fossil fuels. Therefore, this Draft EIS does not evaluate alternative energy resources; however,

where the proposed project has selected energy efficient equipment and use of energy or resource conservation practices, that is so noted in the impacts discussion in Section 8.4.

The impact analysis results are summarized using a significance assigned for each potential impact on energy and natural resources. The process for characterizing the significance of each potential impact involved analyzing the magnitude, geographic extent, and duration of the impact (see Chapter 1, Section 1.7, Methodology). Based on the analysis results, the significance of each potential adverse impact was then as being either *less than significant* or *potentially significant*. Criteria for assessing the significance of potential adverse impacts on energy and natural resources are included in Table 1-B.1 in Appendix 1-B, Impact Criteria Tables.

# 8.3. AFFECTED ENVIRONMENT

This section describes how the refinery is currently obtaining energy and natural resources as well as information on the delivery and availability of these services.

# 8.3.1. Electricity

Electricity is currently provided to the refinery by Puget Sound Energy. Puget Sound Energy is the largest energy utility in the state of Washington and provides service to approximately 1.1 million customers over an area of approximately 6,000 square miles. Puget Sound Energy generates approximately 46 percent of their 3,500 megawatts (MW) of power-generating capacity. The remaining balance of their power supply is purchased from other power producers and energy markets in Canada and the western U.S. (Puget Sound Energy Undated). Puget Sound Energy forecasts future market needs based on projected regional growth and plans how to meet those needs in their Integrated Resource Plan, which is updated every two years. The current (2015) Integrated Resource Plan forecasts a tightening of the Pacific Northwest electrical market beginning in 2021 when two coal-fired power plants would retire. The plan for addressing the potentially tightening capacity entails Puget Sound Energy acquiring additional sources of electricity, most likely through the development of new natural gas plants (Puget Sound Energy Undated).

#### 8.3.2. Water

The water system owned and operated by the city of Anacortes has supplied the refineries on March Point with water since the 1950s and continues to supply water to the refinery today. This water supply system was retrofitted to accommodate the industrial demands of the refineries on March Point and the Scott Paper Company (no longer operating in the area), and it has been retrofitted numerous times in subsequent years to meet growing demand. Water is sourced from the Skagit River, is treated in the water treatment plant owned by the city to ensure compliance with drinking water standards, and then is delivered to customers on March Point, Anacortes, and Oak Harbor (City of Anacortes Undated). In 2014, the Tesoro Anacortes Refinery used 1,895 million gallons of water, or approximately 5.2 million gallons of water per day (Tesoro 2016a).

## 8.3.3. Natural Gas

The refinery obtains natural gas from the Cascade Natural Gas Corporation (Cascade Natural Gas Undated). Cascade Natural Gas Corporation provides natural gas to approximately 272,000 customers covering 32,000 square miles, including the communities of Bellingham, Mt. Vernon, the Kitsap Peninsula, Oak Harbor, and the city of Anacortes. Cascade Natural Gas also supplies natural gas to communities in south and central Washington as well as portions of Oregon.

### 8.3.4. Gasoline and Diesel

Gasoline and diesel fuels are readily available throughout the study area. The state of Washington ranks fifth in the nation for crude oil refining capacity, and produces more refined fuel than is consumed within the state. The state of Washington's five petroleum refineries had a combined production capacity of 657,500 bpd in 2015, and primarily served Pacific Northwest markets with gasoline, diesel fuel, and jet fuel (U.S. Energy Information Administration 2015b, Bonlender 2013). Refinery output is distributed in the state of Washington by pipeline, ship, and barge, and overland by rail and truck (U.S. Energy Information Administration 2015a). The majority of crude oil received by the refineries in the state of Washington is from domestic sources including Alaska and North Dakota, while the remaining balance of crude oil is sourced internationally from Canada, Russia, and other countries.

#### **8.3.5.** Construction Materials

Skagit Valley has designated approximately 60,134 acres of land as Mineral Resources Overlay, which is defined as "mineral resource lands where mining and processing activities are economically and environmentally feasible and where conflicts with other land uses can be minimized" (Skagit County Planning and Development Service 2007). Most of the surface mining activity in Skagit County is extraction of sand and gravel for use as construction materials. In 2010, a total of 28 permitted sand and gravel operators were registered in Skagit County, with a combined total permitted area of approximately 1,000 acres (Duerr 2010). The Skagit Valley designation of the Mineral Resources Overlay is intended to support long-term extraction and processing of mineral resources, including sand and gravel, by protecting against competing land uses. Preservation of mineral reserves in Skagit County is also intended to help reduce the future costs for material resources by maintaining local supply sources (Skagit County Planning and Development Service 2007).

Skagit County has updated the Skagit Valley Comprehensive Plan; it was completed June 30, 2016 (Skagit County Planning and Development Service Undated).

## 8.4. POTENTIAL IMPACTS ON ENERGY AND NATURAL RESOURCES

This section evaluates the potential direct and indirect impacts on energy and natural resources as a result of the consumption of these resources as part of the construction and operation of the proposed project and of the no action alternative.

Impacts associated with the proposed action are described separately below for construction and operations.

# 8.4.1. Impacts on Energy and Natural Resources Availability or Quality from Construction

Decreases in the availability or quality of energy or natural resources during construction would occur if construction activities used sufficient amounts of these resources that the public experiences reductions in the availability of these resources (such as electricity "brown outs"), or in cases where the public cannot purchase what they need because supplies are not available or the costs have increased due to increased demand.

# 8.4.1.1. Electricity, Water, Natural Gas, and Fuels

The increase in energy, water, natural gas, and local fuels in use during construction is within the range of current use at the refinery and would not constitute a perceptible change over baseline. The use of energy, water, natural gas, local fuels, and fill materials during construction would be due to:

- Electricity: Consumption of electricity for lighting, power tools, and the powering of stationary or mobile equipment such as cranes
- Water: Consumption of water for dust control, wash water, and drinking water
- Natural gas: Not used
- Fuels: Gasoline and diesel fuel required for on-site equipment, personal vehicle trips, truck deliveries, and two marine vessel trips to deliver proposed project components. Consumption of gas from the use of gas-driven generators. Such use would be minimized by using existing electrical infrastructure where possible.
- Fill: Fill material that may be needed to obtain desired grading as part of construction of the proposed project

Electrical needs during construction would be met by connecting equipment to existing power outlets at the refinery. Similarly, water trucks for dust suppression would be filled at the refinery. Tesoro has not identified a need for additional power or water beyond the current supply as the increases due to construction are within the typical variations in power or water use currently occurring at the refinery (Tesoro 2016b).

Construction is anticipated to require an average of 190 short-term workers (270 peak construction work force) and last for 19 months (Tesoro 2016b). As outlined in Chapter 2, Section 2.7.4, Construction Vehicle Traffic, there would be an increase in personal vehicle trips generated by construction employees of 190 round trips per day, on average, to the proposed project area during the construction period. In addition, there would be an increase in truck traffic for delivery of materials to the refinery during construction, ranging from 10 to 50 truck trips per day. The refinery routinely has variations in energy use and extra workers on-site during routine major maintenance turnarounds that can add between 150 to well over 650 additional short-term workers and potential vehicle trips per day (Chapter 2, Proposed Action and Alternatives). Major maintenance turnarounds occur approximately every other year. Fuels for vehicles and any gas-driven generators would be locally sourced. As the forecasted construction

vehicle traffic is similar in scope to the routine major maintenance turnarounds, it is not anticipated that the proposed project would put stress on the local fuel supply as this level of fuel demand is supported with local fuel sources during major maintenance turnarounds. The construction of the proposed project would occur as a component of a major maintenance turnaround

Construction of the proposed project would consume materials typically used in industrial construction projects such as steel, cement, gravel, and other fill material. Site preparation would use a balanced cut-and-fill approach to the extent possible based on the structural integrity of excavated material, thus reducing the amount of off-site fill material required. Approximately 164,000 cubic yards of on-site fill would be used during regrading activities for the New Tanks Area construction. On-site cut materials could be used as common fill throughout the proposed project area; however, on-site cut materials would not be suitable for use as structural fill (AECOM 2016). Therefore, structural fill would be brought on-site from an external source.

Up to 133,000 cubic yards of structural fill material could be required from off-site sources if on-site sources are inappropriate due to excessive clay or moisture content. Local supply of fill materials in Skagit County is readily available. The source of structural fill has not yet been identified; however, potential sources of fill include the Whatcom Pit, located in Bellingham; the Axton Pit, located approximately 6 miles north of Bellingham; and the Conway Pit, located approximately 6 miles south of Mount Vernon. Because supplies are readily available and the proposed project would excavate and reuse more on-site fill material than it imports from off-site supplies, construction activities would not pose a strain on the supply of fill materials.

Construction activities would not result in a perceptible change over baseline conditions (i.e., the public would not experience changes in their ability to access energy and natural resources). Thus, the impact on energy and natural resource use from proposed project construction would be *less than significant*.

# 8.4.2. Impacts on Energy and Natural Resources Availability or Quality from Operations and Maintenance

Once the proposed project is operational, the use of electricity, water, natural gas, and fuels would increase above the existing use by the refinery. Electricity use increases are required to operate the proposed project components, and the new steam boiler would also require an increase in water and natural gas consumption. Local fuel consumption would nominally increase from the 20 new permanent employees and their associated additional 40 truck trips per year, as well as the additional marine vessel traffic of up to 60 marine vessels traveling to and from the refinery wharf each year.

# 8.4.2.1. Electricity

Electricity consumption would increase during operation and maintenance of the proposed project by approximately 5 MW, which is a 17 percent increase above the refinery's current electricity use (Tesoro 2016a). The increased electricity consumption would be primarily due to new or increased pumping activities. New pumps would be used in the ARU process and to load

mixed xylenes product for shipment. Pumping capacity would be increased in the expanded NHT to support the proposed 15 percent increase in naphtha processing capacity. Electricity would also be required for processing equipment, heating, and lighting.

Energy efficiency of electronic motors and pumps would be optimized to the extent that is economically justifiable and meets required technology specifications. Energy conservation features have been selected where possible (in accordance with WAC 197-11-440). Electricity service is already located at the facility and is provided by Puget Sound Energy (Tesoro 2016b). Tesoro has discussed their increased power needs with Puget Sound Energy and the utility does not foresee any concerns with meeting this additional demand with existing power generation and transmission infrastructure (Tesoro 2016c). Therefore, the impact of the proposed project on Puget Sound Energy's ability to meet the refinery's increased electricity demand with their existing infrastructure and to continue to supply electricity locally would be *less than significant*.

## 8.4.2.2. Water

A new, natural gas-fired steam boiler and associated 4,000 bbl feedwater tank would be installed to provide the process heat needed for proposed project operations. The size of the new boiler was optimized to accommodate the energy requirements of the proposed project. Tesoro estimates that water consumption at the refinery would increase by about 2 percent per year, or about 34 million gallons per year (Tesoro 2016a). Tesoro estimates that approximately 90 percent of the water used to make steam would be recovered and recycled, meeting conservation of resource and efficiency requirements under SEPA. No new withdrawals from groundwater or surface water would be made for operations and maintenance of the proposed project. The water supply system operated by the city of Anacortes has been retrofitted to accommodate the industrial demands of the refineries on March Point. The percent increase in water usage as a result of the proposed project is about 2 percent per year and this amount would not be anticipated to affect the city of Anacortes' ability to meet this additional demand with existing infrastructure. No perceptible changes to water service are anticipated due to operations and maintenance of the proposed project. Therefore, the impact of the proposed project on the city of Anacortes' ability to meet the refinery's increased water demand with their existing infrastructure and to continue to supply water locally would be *less than significant*.

#### **8.4.2.3.** *Natural Gas*

The new steam boiler was determined to be the most efficient way to provide the process heat needed for the proposed project. Natural gas would be required to operate the new steam boiler and the MVEC System. The boiler would be powered by natural gas from the adjacent existing natural gas line, with gas supplied by Cascade Natural Gas. The high-efficiency boiler would utilize energy conservation features to maximize energy recovery and minimize natural gas consumption, such as combustion air pre-heat and feedwater pre-heat. The boiler's energy conservation features meet the requirements noted in WAC 197-11-440. Construction of the MVEC System would result in the addition of a new 3-inch natural gas line that would be routed from an existing natural gas line within the refinery to both the DSU and the VCU.

Operation of the new boiler and MVEC System for the proposed project would approximately require an additional 12 million standard cubic feet of natural gas per day supplied to the facility. This is an increase in natural gas usage at the refinery of 68 percent. To meet this demand while reliably supplying natural gas at the required rate and pressure for other customers, Cascade Natural Gas would need to perform an independent project to upgrade their natural gas transmission system in the local Skagit County area. This natural gas pipeline upgrade has already been planned and would have the capacity to meet the increased natural gas demand from the proposed project. Cascade Natural Gas has notified Skagit County Planning and Development Services of their upgrade project and has completed a pre-application meeting. Cascade's SEPA checklist application is expected to be submitted to Skagit County sometime in 2017; a specific date has not been put forward. Impacts resulting from the upgrade of this natural gas pipeline would be addressed under a separate SEPA analysis. Once modifications to the supply system are made, the impact of the proposed project on Cascade Natural Gas' ability to meet the refinery's increased demand for natural gas and to continue to supply natural gas locally would be *less than significant*.

#### 8.4.2.4. Gasoline and Diesel Fuels

The increase in local fuel consumption from the 20 new permanent employees and the additional 40 truck trips per year would be a nominal increase over existing vehicle trips in the area (see Chapter 9, Environmental Health). Marine diesel fuel would be consumed by the additional 60 marine vessels traveling to and from the refinery wharf each year. This represents an increase of 2.2 percent or less compared to current large marine vessel movements in the study area (see Table 13-9 in Chapter 13, Marine Transportation). Vessels departing the refinery may require marine diesel fuel supplied from local sources.

Local supplies of gasoline and diesel are sufficient to support operation and maintenance of the proposed project. Therefore, the proposed project's impact on accessibility of gasoline and diesel fuel for cars, trucks, or marine vessels would be *less than significant*.

# 8.4.3. Impacts on Energy and Natural Resources from Spills

Nominal increases in consumption of gasoline and diesel could result from product spill response activities. If a spill occurred at the refinery, excavation and use of a nominal volume of additional fill might be required. Response to marine spills of the new product (xylenes) or increased usage of petroleum feedstock (reformate), required by the proposed project would consist of eliminating sources of ignition, taking steps to notify people and marine vessels in downwind areas of the potential hazards (fire and inhalation risks), short-term evacuations (if warranted) for the downwind general public and vessel crew, and placement of sorbent booms, if needed, to protect sensitive areas. These activities would be expected to last 3 days or less—the time computer modeling indicated would elapse before 99.5 percent of spilled materials had evaporated or dissipated—and would not require large numbers of response vehicles or vessels, or other types of energy or natural resources. The impact of a spill on energy and natural resources, including the use of gasoline and diesel fuels, or fill materials, would be *less than significant*.

# 8.4.4. Summary of Impacts on Energy and Natural Resources

The potential impacts of the proposed project discussed in this section are summarized in Table 8-3.

Table 8-3: Summary of Potential Impacts on Energy and Natural Resources

		Potential Impact Significance				
Impact Topic	Impact Summary	Less than Significant	Potentially Significant			
Construction	Construction					
Strain on local utilities and availability of natural resources	The refinery would increase its electricity consumption for construction equipment, increase water use for dust control, and increase fuel use for worker vehicles and supplies deliveries. Increases in usage are within the range of current variability at the refinery and the local area. No perceptible change in the availability of electricity, water, natural gas, and fuels is expected. Because supplies are readily available and the balanced cut-and-fill approach, construction activities would not pose a strain on the local supply of fill materials.	V				
Operations						
Strain on local electricity utility	The refinery would increase its electricity consumption by 17% primarily for increased electricity needed for the ARU process, expanded NHT, processing equipment, heating, and lighting. The increased electricity demand is within the capacity of Puget Sound Energy's existing infrastructure. No perceptible change in availability or access to electricity is expected.	V				
Strain on local water utility	The refinery would increase its consumption of water by 2%, primarily to operate the new steam boiler. The water supply system operated by the city of Anacortes has been retrofitted to accommodate the industrial demands of the refineries on March Point. The percent increase in water usage would not affect the city of Anacortes' ability to meet this additional demand with existing infrastructure. No perceptible change in availability of or access to water for the public is expected.	V				
Strain on natural gas availability	The refinery would increase its natural gas usage by 68% to operate the new steam boiler and MVEC System. To meet this demand while reliably supplying natural gas at the required rate and pressure for other customers, Cascade Natural Gas would upgrade their natural gas transmission system in the local Skagit County area. This natural gas pipeline upgrade has already been planned and would have the capacity to meet the increased natural gas demand from the proposed project. No perceptible change in availability or access of natural gas for the public is expected.	V				

		Potential Impact Significance		
Impact Topic	Impact Summary	Less than	Potentially	
		Significant	Significant	
Unplanned Events				
	There would be an increased use of local fuels for vehicles			
	and equipment involved in spill response at the refinery			
Strain on availability	during either construction or operations. Soil excavation			
	and fill placement may occur in the event that impacted	2/		
the event of a spill at	soils required removal. Fuels and clean fill material are	V		
the refinery	readily available locally and the spill would be confined to			
	refinery property. A spill would be short term, infrequent,			
	and rare and would only occur if controls failed.			
	There would be an increased use of local fuels for vehicles,			
Strain on availability	vessels, and equipment involved in a marine spill response			
of local resources in	event during either construction or operations. Spill			
the event of a spill in	response would not require large amounts of vehicles,			
the marine	vessels, or equipment. A spill response event would be			
environment	short term, infrequent, and rare and a spill itself (and the			
	associated response) would only occur if controls failed.			

### 8.5. POTENTIAL IMPACTS OF THE NO ACTION ALTERNATIVE

Under the no action alternative, Tesoro would not proceed with the proposed project. Because no construction or operations would take place under the no action alternative, there would be no new impacts on energy and natural resources.

# **8.6.** ADDITIONAL MITIGATION MEASURES

No additional mitigation measures are recommended beyond the embedded controls that are already incorporated into the proposed project design.

# 8.7. CUMULATIVE IMPACTS

As described above, construction and operation of the proposed project could result in less than significant impacts to energy and natural resources. Within the study area, there has been significant past agricultural, industrial, commercial and residential growth that has resulted in impacts to energy and natural resources. There are no present or reasonably foreseeable future actions that would impact energy and natural resources in the area of the proposed project. Cumulative impacts as a result of the proposed project in addition to the past impacts on energy and natural resources associated with refinery development on March Point are considered to be negligible.

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