Section 3.3 Energy

SECTION SUMMARY

This section describes existing conditions at the Project site and identifies potential impacts on energy consumption and conservation that would result from implementation of the Proposed Project or an alternative.

Section 3.3, Energy, provides the following:

- A description of energy-consuming elements of the Proposed Project;
- The environmental setting with respect to energy in the Port;
- A summary of existing regulations and policies associated with energy consumption; and
- An impact analysis of the Proposed Project and alternatives, focusing on the use of fuel and electricity during construction and operation.

Key Points of Section 3.3

Energy would be consumed by the Proposed Project and alternatives in the form of electricity and liquid fossil fuels during construction and operation of the facility. During construction, liquid fuels would be used to power construction vehicles (diesel and gasoline), off-road equipment and harbor craft (diesel). Electricity usage during construction would be negligible. Construction would be required by a lease measure to comply with the Port of Los Angeles Sustainable Construction Guidelines. During operations, electricity would be used to power several on-site stationary equipment and for general facility lighting; diesel would be used in off-road equipment, assisting harbor craft, and visiting heavy duty trucks, while marine diesel would be used to power dry bulk oceangoing vessels. The processing equipment for the Proposed Project and the Reduced Project (Alternative 2) would include a dryer powered by natural gas.

After review, operational energy use by the Proposed Project is projected to become slightly more efficient over time in response to increasing energy costs, which can be expected to encourage additional conservation, and also in relation to compliance with federal, State, and local energy regulations and programs, which can be expected to result in the introduction of more energy-efficient equipment and transport. The Proposed Project would not use non-renewable energy resources in a wasteful or inefficient manner during construction or operation. In addition, the Proposed Project would contribute to decreases in expenditures of energy in the Southern California construction industry by providing a construction binder that is produced using lower per-ton energy expenditure than the most common standard binder, Portland cement. By reducing per-unit energy costs to approximately 14% of the energy cost of traditional Portland cement, the Proposed Project would result in aggregate energy savings in the Southern California region. Accordingly, impacts related to energy use and conservation associated with operation of the Proposed Project would be less than significant.

The two build alternatives would have similar or lower energy usage than the Proposed Project during construction and operation. The Reduced Project Alternative (Alternative 2) would be similar to the

Proposed Project in terms of per-ton energy costs of production. However, the alternative's overall energy savings to the region would be reduced because, by virtue of the alterative's reduced output, less low-carbon cement would be available to the Southern California region. The Product Import Terminal Alternative (Alternative 3) would provide similar per-ton energy savings but would provide a less secure supply of low-carbon construction binder products. To lower the risk of not being able to secure large cargoes of ground granulated blast furnace slag (GGBFS), the facility may import other higher-carbon cementitious material. The Product Import Terminal (Alternative 3) would displace Proposed Project construction energy consumption and some of the operational energy consumption to overseas locations. Accordingly, impacts related to energy use associated with construction and operation of the Reduced Project Alternative (Alternative 2) and the Product Import Terminal Alternative (Alternative 3) would be less than significant.

The No Project Alternative (Alternative 1) would not cosume additional energy relative to the baseline because annual activities at the Project site would not increase relative to 2021 baseline levels, as described in Section 2.6.

3.3.1 Introduction

This section describes the energy consumption and conservation elements of the Proposed Project and identifies potential impacts related to energy use that would occur as a result of implementation of the Proposed Project or alternatives. The alternatives include the No Project Alternative (Alternative 1) and two build alternatives: the Reduced Project Alternative (Alternative 2) and the Product Import Terminal Alternative (Alternative 3).

The Proposed Project would construct a facility that would process raw materials (granulated blast furnace slag [GBFS] and gypsum) imported by both ship and truck to be combined into a low-carbon construction binder (ground granulated blast furnace slag, or GGBFS) that would replace a share of the Portland cement currently used in the Southern California region's construction industry.

The primary features of the two build alternatives related to energy are: 1) energy used to construct the facility; 2) energy consumed during operations; and 3) the decrease in the amount of energy used to produce the low-carbon binder product compared to conventional cement. The Project proponent, Ecocem, estimates that manufacturing each ton of its product (GGBFS) consumes approximately 530 thousand British thermal units (BTU) of energy from electricity consumption and fuel combustion combined (Table 3.3-1), which represents 14% of the total energy consumed per ton from production of traditional cement (Ecocem, 2023a).

Table 3.3-1: Typical energy consumption per ton of traditional cement and GGBFS

Consumption	Thousand BTUs per tonne	
	Traditional Cement	GGBFS
Electricity	461	298
Thermal Energy (Fuel Combustion)	3264	232
TOTAL Energy	3726	530
% of Traditional cement	100%	14%

Note: Values represent industry averages and are not specific to the Proposed Project
Source: Ecocem, 2023a

Energy content and consumption are typically presented in different units for the various energy sources, i.e., electricity in megawatt-hours (1 million watt-hours), natural gas in therms and cubic feet, and transportation fuels in gallons and BTUs. In the following analyses and discussions, these various units have been standardized into BTUs where comparisons among the alternatives are made. In general, one megawatt-hour equals 3.4 million BTUs, one therm of natural gas equals 100 cubic feet and has approximately 100,000 BTUs of energy, and one gallon of diesel fuel (the major transportation fuel in the Proposed Project) equals approximately 139,000 BTUs.

3.3.2 Environmental Setting

The Proposed Project and alternatives would consume energy through on-site electricity consumption, natural gas combustion, and fuel usage for off-road equipment, heavy-duty trucks, and marine sources (e.g., ocean going vessels and harbor craft)

3.3.2.1 Electrical Service

The Los Angeles Department of Water and Power (LADWP) provides electrical services to the Port, including the Proposed Project area, and has adequate generation capacity to serve the Port's current customer load. LADWP has a net dependable energy generating capacity of about 8,100 megawatts (MW) to serve a peak Los Angeles-area demand of about 6,500 MW (LADWP 2022a). In 2021, LADWP customers consumed approximately 21,000 gigawatt-hours (GWh) of electricity (CEC 2022a). Currently, renewable energy sources account for approximately one-third of LADWP's capacity (Table 3.3-2). This is expected to increase over time based on Senate Bill (SB) 100, "The 100 Percent Clean Energy Act of 2018", which established that 100% of all electricity in California must be obtained from renewable and zero-carbon energy resources by 2045 through the Renewables Portfolio Standard (RPS).

Table 3.3-2: 2021 California and LADWP Electrical Energy System Profiles

Fuel Type	California Power Mix	LADWP Power Mix
Coal	3%	21%
Large Hydroelectric	15%	4%
Natural Gas	34%	24%
Nuclear	9%	14%
Renewables*	32%	37%
Other/Unspecified	7%	0%
Total	**100%**	**100%**

* "Renewables" includes solar, wind, geothermal, and small-scale hydroelectric generation facilities

Sources: CEC 2021; LADWP 2022b; rounding accounts for discrepancy in totals.

LADWP produces periodic updates of its Power Strategic Long-Term Resource Plan (SLTRP), which anticipates load growth and includes plans for new generating capacity or demand-side management programs to meet SB 100's requirements. The most recent update, the SLTRP 2022 (LADWP 2022a) provides the most appropriate setting for the Proposed Project's electrical energy analysis. By 2045, largely as a result of increasing electrification of transportation, buildings, and industry, LADWP's annual load is expected to reach approximately 31,000 GWh, which is 50% greater than the 2021 load. The 2022 SLTRP identifies increases in generation and storage resources needed to ensure that system capacity remains adequate to meet forecasted consumption in LADWP's service area (LADWP 2022a).

The industrial power station closest to the Port has four main 138-kilovolt (kV) supply lines, two from the Harbor Generating Station, and two from North Wilmington. Several other electrical power cables are distributed throughout the Harbor area, including the Proposed Project area.

3.3.2.2 Natural Gas Service

Nearly 90% of the natural gas consumed in California is imported (CEC 2023). Californians consumed 13,158 million therms of natural gas in 2019 (the last year for which data are available), which equates to approximately 1,315,800,000 million BTUs (MMBtu) (CEC 2020). Nearly 45% of the natural gas burned in California is used for

electricity generation, 21% for residential uses, 25% for industrial uses, and 9% for commercial uses.

The Southern California Gas Company (SCGC) provides natural gas in the Proposed Project area. The 2021 Supplemental California Gas Report recorded the average annual gas supply taken by SCGC in 2020 to be equivalent to 2,525 billion BTUs per day (California Gas and Electric Utilities 2021). As a public utility, SCGC is under the jurisdiction of the California Public Utilities Commission (CPUC) and can be affected by actions of federal regulatory agencies. The natural gas demand projections for Southern California are determined in large part by the long-term economic outlook for SCGC's service territory. Demand is expected to decline by approximately 1% per year through 2035 due to mandated demand-side management, renewable electricity goals, and declines in commercial and industrial demand (California Gas and Electric Utilities 2021). The report projected future average-year demand as equivalent to approximately 2,180 to 2,490 billion BTUs/day through 2035, compared to an available supply of 3,562 billion BTUs/day (California Gas and Electric Utilities 2021).

3.3.2.3 Transportation Fuels

In 2021, California consumed approximately 13.8 billion gallons of gasoline (CEC 2022b) and approximately 3.1 billion gallons of diesel fuel (CEC 2022c). These figures correspond to approximately 38 million gallons per day of gasoline and 8.5 million gallons per day of diesel fuel. Other transportation fuel sources used in California include alternative fuels, such as alcohol- and biomass-based fuels, natural gas (compressed or liquefied), hydrogen, and electricity. However, these accounted for less than 3% of transportation energy demand (CEC 2020). Future demand is not expected to increase substantially over existing levels because economic growth is expected to be counterbalanced by advances in fuel economy and market penetration of alternative fuels, most prominently by natural gas in the medium- and heavy-duty vehicle sectors and electric vehicles in the on-road transportation sector (CEC 2018, 2020).

3.3.3 Applicable Regulations

Numerous federal, State, and local laws have been established to regulate energy conservation and efficiency. Responsibilities for enforcing or executing these laws and regulations are governed by various state and local agencies, as described below.

3.3.3.1 Federal

Energy Policy Act of 2005

The federal Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, federal tax credits are available for fuel-efficient appliances and products such as hybrid vehicles and energy-efficient buildings. Additionally, tax credits are given for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. The Act also established the first renewable fuel volume mandate in the United States.

The Energy Independence and Security Act of 2007 expanded the Renewable Fuel Standard program to include diesel fuel and to increase the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by the year 2022.

EPA and NHTSA Joint Rulemaking for Vehicle Standards (2011)

In 2011, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) finalized regulations to reduce greenhouse gas emissions and improve the fuel efficiency of medium- and heavy-duty vehicles, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses. In subsequent rulemakings, the agencies extended the national program of fuel economy standards to medium- and heavy-duty vehicles of model years 2014-2018, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses.

3.3.3.2 State

Senate Bill 596 - Cement Decarbonization

Senate Bill 596 (SB 596), signed into law in September 2021, directs the California Air Resources Board (CARB) to develop and implement a comprehensive strategy to achieve net-zero greenhouse gas emissions associated with cement used within California as soon as possible, but no later than 2045, and to establish interim targets for reducing cement's greenhouse gas intensity. The strategy was to be developed by July 2023 but is still under development as of September 2023. SB 596 furthers the goal of the California Global Warming Solutions Act of 2006 to reduce greenhouse gas emissions to at least 40% below 1990 levels by 2030. At the time of this analysis, the SB 596 imposes no regulatory requirements on the cement industry because CARB has not yet completed development of its emissions reduction strategy, but future regulations can be expected once that process has been completed.

Senate Bill 350 - Clean Energy and Pollution Reduction Act of 2015

Senate Bill 350, enacted on October 7, 2015, provides a new set of objectives in clean energy, clean air, and pollution reduction. The objectives include increasing the procurement of California's electricity from renewable sources from 33% to 50% by December 31, 2030 and doubling the energy efficiency savings in electricity and natural gas final end uses of retail customers by 2030.

Senate Bill 100/Executive Order B-55-18

On September 10, 2018, Governor Brown signed Senate Bill 100, establishing that 100% of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the Renewable Portfolio Standard (RPS) goals that were established by SB 350, increasing electricity from renewable sources from 50% to 60% by 2030 with specific interim targets. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

On the same day that SB 100 was signed, Governor Brown signed Executive Order B-55-18 with a new statewide goal to achieve carbon neutrality (zero-net GHG emissions) by 2045 and to "maintain net negative emissions thereafter."

Executive Order N-79-20

In September 2020, Governor Newsom signed Executive Order N-79-20, which sets a new State goal that 100% of in-state sales of new passenger cars and trucks be zero-emission by 2035; that 100% of in-state sales of medium- and heavy-duty vehicles in the

State be zero-emission by 2045 for all operations where feasible; and that all in-use drayage trucks and all off-road vehicles and equipment will be zero emission by 2035 where feasible. This Order calls upon State agencies including CARB, the California Energy Commission (CEC), the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals, and it was the first step towards the development of some regulations recently adopted by CARB, such as the Advanced Clean Cars II, Advanced Clean Trucks and the Advanced Clean Fleets.

CARB Programs and Rules

CARB has promulgated a number of rules and regulations that affect the fuel economy of mobile sources (specifically, on-road vehicles and off-road equipment). Key examples include the Mobile Source Strategy, the Airborne Toxics Control Measure, and the In-Use Off-Road Diesel-Fueled Fleets.

The 2020 Mobile Source Strategy (CARB 2021) is a framework that identifies the levels of cleaner technologies necessary to meet CARB's fuel economy goals and high-level regulatory concepts that would allow California to achieve the technology trajectories identified through scenario planning and, consequently, meet California's goals. Further, these concepts maximize the criteria pollutant reductions by going to zero-emission where feasible. Specifically, for medium- and heavy-duty vehicles, the scenarios call for the deployment of approximately 1.4 million medium- and heavy-duty zero-emission vehicles (ZEVs) in California by 2045. Statewide, the concepts in the 2020 Mobile Source Strategy could achieve criteria pollutant NO_x reductions of over 590 tons per day in 2037, and reduce mobile source fuel consumption by 9.5 billion gallons of gasoline and 3.0 billion gallons of diesel equivalent in 2045. This equates to a well-to-wheel GHG emissions reduction of approximately 94 million metric tons of carbon dioxide equivalent in 2045.

In 2004, CARB adopted an Airborne Toxics Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13, California Code of Regulations Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure limits idling of diesel-fueled commercial vehicles to no more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers and loaders, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB in 2007 and revised in 2022 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (Title 13, California Code of Regulations Section 2449). The original compliance schedule required full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. The 2022 amendments are to be phased in beginning in 2024 with completion by the end of 2036. These amendments aim to further reduce emissions from the off-road sector by requiring fleets to phase-out the oldest and highest polluting off-road diesel vehicles, prohibiting the addition of high-emitting vehicles to fleets, and requiring the use of 99-100 percent renewable diesel fuel.

On March 15, 2021, CARB approved the final Advanced Clean Trucks Regulation which sets an accelerated schedule to transition medium and heavy-duty vehicles from Class 2b to Class 8 towards zero-emissions technologies. By 2035, 55% of sales of Class 2b through 3 trucks, 75% of Class 4 through 8 trucks, and 40% of truck tractors would need to be zero-emission vehicles. Cement-hauler trucks, which tend to be Class 8 vehicles, may be affected indirectly by this rule, shifting some of the fleet's fuel consumption to electricity, although the rule does not explicitly address this truck type.

In addition, the Advanced Clean Fleet Regulation (ACF) was proposed by CARB in April 2023 with the goal of achieving zero-emission truck and bus fleets by 2045 for certain market segments such as government fleets, last mile delivery, and drayage applications. However, since the ACF rule does not specify cement truck fleets and has yet to receive a waiver by the USEPA; no emissions reduction credits from this rule, as well the ACT rule, were quantified in the analysis. Per the Clean Air Act, California must seek a waiver from the USEPA to enact emissions standards that are more stringent than those enacted at the federal level. California is granted this ability because of its unique air quality issues..

3.3.3.3 Local

Executive Directive No. 10

Executive Directive No. 10 was issued by the Mayor Villaraigosa in 2007 to address the City's environmental stewardship practices. In particular, the Directive requires City departments to create a "Statement of Sustainable Building Policies" that includes, among other elements, sustainable design and energy efficiency. City departments are required to submit annual sustainability reports to the Mayor's office.

Sustainable City pLAn/Green New Deal

In 2015, the City of Los Angeles developed the Sustainable City pLAn as a roadmap to a sustainable city through 2035. The pLAn was updated in 2019 as the Green New Deal (City of Los Angeles 2019) with accelerated targets for renewable energy and more ambitious programs. The pLAn contains strategies to address current and future climate change impacts, including initiatives aimed at energy conservation. These include energy-efficient buildings, leadership in carbon reduction efforts, and changes in mobility policies, particularly zero-emissions goods movement goals.

Port of Los Angeles Green Building Policy

As described in Section 1.7.2.3 of this EIR, in 2007 the Los Angeles Board of Harbor Commissioners (BHC) adopted the Green Building Policy requiring Leadership in Energy and Environmental (LEED) Gold Rating as the minimum standard for new construction of most buildings of at least 7,500 square feet as well as the incorporation of solar power and best available technology for energy efficiency for all new Port buildings.

LAHD Sustainable Construction Guidelines

As part of the Los Angeles Harbor Department (LAHD)'s overall environmental goals and the San Pedro Bay Ports Clean Air Action Plan (CAAP; Port of Long Beach and Port of Los Angeles 2017) strategies, any construction at the Port must follow the Sustainable Construction Guidelines, adopted in February 2008 (LAHD 2009); compliance with the Guidelines would be a lease requirement for the Proposed Project. The Guidelines reinforce and require sustainability measures under construction contracts, addressing a variety of

emission sources that operate at the Port during construction. Some of these strategies reduce energy consumption from construction sources. Examples of sources affected include ships and barges used to deliver construction related materials, harbor craft, dredging equipment, haul and delivery trucks, and off-road construction equipment. These Guidelines are further described in Appendix B1 Air Emissions.

3.3.4 Impacts and Mitigation Measures

3.3.4.1 Methodology

CEQA and its Guidelines require that project-level assessments include a discussion of potential energy impacts with emphasis on potential inefficient, wasteful, or unnecessary consumption of energy. Construction and operational energy usage calculations (electricity, natural gas, and mobile source fuel consumption) are described in Appendix B1, Subsection 6. Energy Consumption Calculations.

Key energy-consuming elements from the construction of the Proposed Project would consist of:

- Harbor craft associated with pile driving and overwater repairs;
- Off-road construction equipment such as derricks, loaders, excavators, scrapers, generators, and welders;
- On-road heavy-duty delivery and haul vehicles; and
- Light-duty worker vehicles.

When analyzing operational efficiency, the most common metric used in LAHD environmental documents is gallons of fuel used per unit of cargo throughput (in this case, per tonne of GGBFS). But because the facility's energy use would be a mixture of liquid fuels, natural gas, and electricity, a more useful metric is BTU per metric ton. Operational energy consumption would result from:

- Dry bulk vessel hotelling, arrivals and departures, including associated assist tugboat activity;
- Diesel off-road equipment handling stockpiles (e.g., front-end loader and excavator);
- Process equipment, including an electric grinding mill, natural gas fueled drier, and electric conveyor systems;
- Diesel heavy-duty delivery trucks transporting GGBFS from the facility to customers;
- Diesel heavy-duty trucks delivering gypsum (raw material) to the facility; and
- Gasoline light-duty worker vehicles.

The energy consumption from construction and operational activities of the Proposed Project and alternatives is compared to equivalent state-level and regional energy consumption statistics to understand the relative contributions of the Proposed Project (or alternatives) to regional expenditures and to evaluate the significance of those expenditures. In addition, the Ecocem manufacturing process energy consumption is compared to that of traditional cement (e.g.,, Portland cement).

3.3.4.2 CEQA Baseline

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of a project that exist at the time of the NOP. These environmental conditions constitute the baseline by which the CEQA lead agency determines if an impact is significant. The CEQA baseline represents the setting at a fixed point in time. The CEQA baseline differs from the No Project Alternative (Alternative 1) in that the No Project Alternative addresses what is likely to happen at the Proposed Project site over time, starting from the existing conditions. Therefore, the No Project Alternative allows for growth at the Proposed Project site that could be expected to occur without additional approvals, whereas the CEQA baseline does not. For purposes of this Draft EIR, the CEQA baseline consists of site conditions as of calendar year 2021. The baseline conditions for the Proposed Project and alternatives are described in Section 2.6 and summarized in Table 2-3. In summary, the Project site in 2021 was largely vacant; accordingly, this analysis considered baseline activities at the Project site during 2021 to be negligible (consisting mostly of facility lighting, and a small marine hoist).

3.3.4.3 Thresholds of Significance

CEQA Guidelines Appendix G suggests two criteria for determining the significance of impacts related to energy:

- *VI(a). Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*
- *VI(b). Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

The Initial Study in the Notice of Preparation (Appendix A) eliminated VI(b) from further consideration on the basis that the Proposed Project's compliance with applicable standards, regulations, and policy guidance would mean that it would likely not conflict with or obstruct state or local plans or policies related to energy efficiency. Accordingly, the Proposed Project or alternative would have a significant impact if it would:

EN-1: Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

3.3.4.4 Impact Determination

Proposed Project

Impact EN-1: Would the Proposed Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

As described in Section 2.5.1, construction of the Proposed Project would include site clearance; grading; paving; geotechnical improvements; construction of the mill, storage facilities, supporting buildings, and infrastructure (including a new electrical substation) on the backlands behind Berths 192-194; and wharf repairs and installation of fender piles at Berth 191.

Energy, primarily in the form of diesel fuel, as well as some gasoline and electricity, would be used during construction of the Proposed Project. Table 3.3-3 shows the total energy consumption in terms of fuel usage during the entire 18-month construction period (2024-2025). Fuel consumption during construction would be temporary, lasting for approximately 18 months, and would represent a tiny fraction (0.0053%) of the approximately 3.1 billion gallons of diesel fuel and an even smaller fraction (0.00024%) of the 13.8 billion gallons of gasoline consumed in California each year (CEC 2022b, c).

This construction effort is necessary to achieve the overall project objective (discussed in Section 2.3.2) of supplying the Southern California construction industry with a low-carbon binder to help California meet its greenhouse gas (GHG) emissions targets for the cement industry (per SB 596), and thus does not represent a wasteful or unnecessary use of energy. Through lease measure LM AQ-4 Port of Los Angeles Sustainable Construction Guidelines, LAHD's lease with Orcem would require that construction comply with the policies in the Port of Los Angeles' Sustainable Construction Guidelines. Those Guidelines require more stringent engine emission standards for construction equipment than the average fleet, and best practices like limiting idling time for offroad equipment and construction vehicles, which would translate into improved energy usage.

Table 3.3-3: Proposed Project Construction Fuel Usage

Category	Year	Primary Fuel	Project Fuel Consumed (gallons)	Project Energy Consumed (Thousand BTU)
Offroad Construction Equipment	2024	Diesel	77,816	10,690,426
Onroad Trucks		Diesel	113,794	15,633,070
Worker Vehicles (Light-Duty)		Gasoline	12,606	1,515,709
Harbor Craft (tugboat)		Diesel	19,268	2,647,043
Offroad Construction Equipment	2025	Diesel	29,564	4,061,542
Onroad Trucks		Diesel	24,322	3,341,331
Worker Vehicles		Gasoline	4,205	505,554
Harbor Craft (tugboat)		Diesel	-	-
Total Construction – Diesel	**All**	**Diesel**	**264,763**	**36,373,412**
Total Construction - Gasoline	**All**	**Gasoline**	**16,811**	**2,021,263**

Note: Energy consumption from mobile sources such as vessels and trucks is estimated for travel up to California State land/water boundaries. Details of construction sources and energy calculations are available in Section 6 of Appendix B1.

The Proposed Project would also use electrical energy during construction (for welding, compressors, and lighting), but much of it would be supplied by on-site, diesel-fueled portable generators (grid-supplied electricity would likely power temporary construction offices and small-scale area lighting but is impractical for the mobile nature of other construction activities). The total electrical consumption, given the small scale and short duration of construction, would be insubstantial relative to diesel and gasoline fuel use.

Operation

The Proposed Project is estimated to be operating at maximum throughput levels by 2027 and thereafter, during which it would produce approximately 775,000 metric tons of GGBFS per year. At that level, the facility would receive 24 vessel calls per year and would generate approximately 66,000 one-way truck trips per year. Table 3.3-4 shows the maximum annual energy consumed during operations. More than half of the energy consumed during operations would be in the form of electricity used by the electrical stationary sources such as the grinding mill and conveyor systems, nearly a quarter of the energy consumed would be represented by the natural gas used for the dryer, and the remaining energy consumed would be from the diesel fuel consumed by mobile sources such as vessels, trucks, and off-road equipment.

Table 3.3-4: Operational Energy Usage for the Proposed Project (2027)

Category	Fuel	Project Energy Consumed	Units	Energy in Thousand BTU/year
Offroad Equipment (FEL, Excavator)	Diesel	8,001	gallons/year	1,099,173
OGVs	Diesel	149,583	gallons/year	20,549,816
Harbor Craft	Diesel	3,944	gallons/year	541,841
Onroad Trucks (diesel)	Diesel	616,305	gallons/year	84,668,532
Total Diesel		**777,832**	**gallons/year**	**106,859,362**
Worker Vehicles (gasoline)	Gasoline	4,337	gallons/year	521,501
Stationary Sources - Electricity	Electricity	63,790,000	KWh/year	217,659,575
Stationary Sources - Natural Gas	Natural Gas	90	MMscf/year	93,668,400
Total Energy			**Thousand BTU/year**	**418,708,838**
Total Energy per Unit of Product			**Thousand BTU per tonne GGBFS**	**540**

Notes:
FEL: front end loader. Energy consumption from mobile sources (e.g., vessels and trucks) are estimated for travel up to California land/water boundaries. Details of construction sources and energy calculations are available in Section 6 of Appendix B1.
MMscf: Million standard cubic feet, GWh: GigaWatt-hours, BTU: British Thermal Units

Several operational elements of the Proposed Project would rely on electrically-powered instead of fossil fueled sources. Specifically, the conveyor systems and grinding mill would be electrically powered. Furthermore, the Proposed Project would be subject to and consistent with the City of Los Angeles' sustainability and conservation goals, and building standards, and to the requirements of the various federal and state energy conservation laws, regulations, and policies as described in Section 3.3.3.

Because energy represents a substantial cost of operation, the Proposed Project would maximize its efficient use by sizing operational equipment appropriately and minimizing on-site idling of trucks and equipment.

Operational use of electricity and natural gas would increase over baseline conditions because the baseline use was negligible whereas the Proposed Project would use considerable quantities of electricity and natural gas (Table 3.3-4). LADWP is responsible for maintaining sufficient capability to provide customers with a reliable

source of power and will continue to ensure that the planning and development of new facilities will not impede the ability to provide sufficient and reliable power to their customers using mechanisms such as the SLTRP. Based on the SLTRP, LADWP's electricity resources and reserves will adequately provide electricity to all its customers, including the Proposed Project, through at least 2045 (LADWP 2022a).

The future operational electrical usage of the Proposed Project would represent approximately 0.3% of LADWP's 2021 supply of approximately 21,130 GWh (LADWP, 2022b) and approximately half that fraction of the estimated 2045 supply of approximately 44,000 GWh (LADWP 2022a), and therefore would not constitute a substantial burden on available capacity. In addition, as a result of Orcem's coordination with LADWP concerning the Proposed Project's electricity requirements, LADWP has required that Orcem construct a new electrical substation at the facility as part of the Proposed Project.

The consumption of natural gas by the Proposed Project, 90 MMscf/year (see Table 3.3-4), would represent approximately 0.011% of Southern California Gas Company's projected future energy delivery of up to 2,435 MMcf (2.4 billion BTU)/d (California Gas and Electric Utilities 2021). Therefore, the extra demand by the Proposed Project would not constitute a substantial burden on available capacity.

The quantities of diesel and gasoline that would be consumed by the Proposed Project operations as shown in Table 3.3-4 would represent insubstantial fractions of the California fuel consumption described in Section 3.3.2 (0.025% percent of 3.1 billion gallons of diesel per year, 0.00003% percent of 13.8 billion gallons of gasoline per year), and would therefore not adversely affect those supplies.

Overall, the energy consumed per metric ton of GGBFS is expected to decrease somewhat over time as efficiency-increasing measures, such as more efficient equipment and electric-powered vehicles and equipment, take effect. Furthermore, energy is a significant operating expense, and because energy can be assumed to become more expensive in the future, the facility operator would maintain market competitiveness by avoiding wasteful, inefficient, and unnecessary use of fuel and electricity.

The energy consumed per metric ton of GGBFS produced (540 MBTU/tonne) in Table 3.3-4 shows that the Proposed Project's overall energy consumption would be much lower (about 85% lower) than the typical per-ton energy expenditures to produce traditional (Portland) cement (3,726 MBTU/tonne), as shown in Table 3.3-1. GGBFS may be able to replace up to 70% of the Portland cement that is required to make concrete (Ecocem 2023b). If that replacement rate were achieved, GGBFS usage would represent about a 60% reduction in the embedded energy in concrete in the region. Therefore, in comparison, the overall improved energy efficiency of the Proposed Project demonstrates no wasteful, inefficient, or unnecessary consumption of energy resources.

Impact Determination

Energy use during construction would represent a very small fraction of the State's fuel supplies and usage, and that consumption would be necessary to accomplish building the Proposed Project. Energy use would be further reduced by compliance with LM AQ-4.

> **LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines.** The project shall implement and comply with all measures as required by the Los Angeles Harbor Department's Sustainable Construction Guidelines adopted in February 2008 and

updated in November 2009 during Project construction activities. These requirements shall be stipulated in the construction contracts and bid documents.

Operational energy use by the Proposed Project is projected to become more efficient over time in response to increasing energy costs and compliance with federal, State, and local energy conservation programs. Moreover, the Proposed Project would produce a Portland cement replacement that uses much less energy in the manufacturing process. Accordingly, impacts related to energy use and conservation associated with construction and operation of the Proposed Project would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Alternative 1 – No Project

Under the No Project Alternative (Alternative 1), none of the proposed construction activities would occur, either in water or in backland areas. Under the No Project Alternative (Alternative 1), the existing Berths 191-194 backlands area would continue to have negligible activity, i.e., as a small-boat facility and occasional LAHD storage area.

Impact EN-1: Would the No Project Alternative result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

Under the No Project Alternative (Alternative 1), no construction would occur.

Operation

Operation of the No Project Alternative (Alternative 1) would involve similar activities as under baseline conditions, and would thus consume negligible amounts of energy. Accordingly, the No Project Alternative (Alternative 1) would not adversely affect California supplies of fuels. Operational use of electricity would remain at baseline conditions, i.e., negligible amounts used for lighting; accordingly, existing electricity resources and reserves would be adequate to provide electricity to the site. Operation would not represent a more wasteful use of energy than under baseline conditions, as there would be no change.

Impact Determination

Operational energy use by the No Project Alternative (Alternative 1) is not projected to become less energy-efficient over time or to consume more energy than under baseline conditions. Accordingly, impacts related to energy associated with operation of the No Project Alternative (Alternative 1) would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Alternative 2 – Reduced Project Alternative

Under the Reduced Project Alternative (Alternative 2), all of the improvements described for the Proposed Project would be built and the same types of activities would occur. The difference would be that the facility's annual throughput would be approximately two-thirds that of the Proposed Project. Accordingly, there would be fewer vessels, fewer truck trips and less electricity and fuel consumed under operation of the Reduced Project Alternative (Alternative 2).

Impact EN-1: Would the Reduced Project Alternative (Alternative 2) result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

Construction activities under the Reduced Project Alternative (Alternative 2) would include the same elements as the Proposed Project, and therefore, the energy consumption would be the same. Energy (primarily as diesel fuel but including minor amounts of gasoline and electricity) would be consumed during construction by diesel-powered construction equipment and by supporting equipment (e.g., loaders, excavators, welders, lights, generators, and delivery haul trucks). Fuel consumption during construction (Table 3.3-3) would be temporary, lasting for approximately 18 months, and would represent a very small fraction of the approximately 3.14 billion gallons of diesel fuel and 13.8 billion gallons of gasoline consumed in California each year (CEC 2022b, c). This construction is necessary to achieve the overall Project objective of supplying the Southern California construction industry with a low-carbon binder (GGBFS) that will help California meet its emissions targets, and thus does not represent a wasteful or unnecessary use of energy. Construction would be required by lease measure LM AQ-4 to comply with the policies in the Port of Los Angeles' Sustainable Construction Guidelines, which require more stringent engine emission standards than the average fleet for construction equipment in accordance with the CAAP.

Operation

Operation of the Reduced Project Alternative (Alternative 2) would involve similar types of activities as the Proposed Project, except that vessel traffic would involve fewer vessels than the Proposed Project (16 versus 24), fewer truck trips per year (44,506 versus 65,950), and fewer employees (18 versus 26), and less energy would be consumed in production because less GGBFS would be produced. More details on how the Proposed Project and Reduced Project Alternative (Alternative 2) elements compare are provided in Section 2.7 of the Project Description.

As in the case of the Proposed Project, the Reduced Project Alternative (Alternative 2) would include a number of electrically-powered elements such as the conveyors, grinding mill, and fans, thereby reducing fossil fuel usage, and energy consumption per ton of throughput would be expected to decrease over time as energy-saving features are incorporated into operations.

Table 3.3-5: Operational Energy Usage for the Reduced Project (2027)

Category	Primary Fuel	Project Energy Consumed	Units	Energy in Thousand BTU/year
Offroad Equipment (FEL, Excavator)	Diesel	5,399	gallons/year	741,694
OGVs	Diesel	99,753	gallons/year	13,704,120
Harbor Craft	Diesel	2,629	gallons/year	361,227
Onroad Trucks (diesel)	Diesel	415,964	gallons/year	57,145,512
Total Diesel		**523,745**	**gallons/year**	71,952,553
Worker Vehicles (gasoline)	Gasoline	3,003	gallons/year	361,039
Stationary Sources - Electricity	Electricity	43,043,681	kWh/year	146,871,064
Stationary Sources - Natural Gas	Natural Gas	61	MMscf/year	63,205,019
Total Energy			**Thousand BTU**	282,389,675
Total Energy per Unit of Product			**Thousand BTU/ tonne GGBFS**	**540**

Notes:
FEL: front end loader. Energy consumption from mobile sources like vessels and trucks are estimated for travel within California land/water boundaries.

For the same reasons described for the Proposed Project, the Reduced Project Alternative (Alternative 2) would not use energy inefficiently or wastefully, as the cost of energy would be an incentive to maximizing efficiency and the operational use of energy is required to produce an essential commodity.

The quantities of diesel and gasoline that would be consumed by the Reduced Project Alternative (Alternative 2) as shown in Table 3.3-5, are lower than those of the Proposed Project, and would also represent insubstantial fractions of the California fuel supplies described in Section 3.3.2, and would therefore not have negative effects on those supplies.

Operational use of electricity would increase over baseline conditions because the baseline use is insubstantial and the Reduced Project Alternative (Alternative 2) would use considerable quantities of electricity and natural gas (Table 3.3-5). However, as described for the Proposed Project, LADWP is charged with maintaining sufficient capability to provide customers with a reliable source of power and will continue to do so with proper planning and development of facilities in accordance with the SLTRP. Based on SLTRP, electricity resources and reserves will adequately provide electricity to all its customers, including the Reduced Project, through at least 2045 (LADWP 2022a).

The Reduced Project Alternative (Alternative 2) would use substantial quantities of natural gas, although not as much as the Proposed Project. As with the Proposed Project, however, that use would represent an insubstantial fraction of projected future regional use, and projected available supplies would be more than adequate to meet the facility's demand.

Finally, the energy consumed per metric ton of GGBFS (540 MBtu/tonne) in Table 3.3-5 shows that the Reduced Project Alternative (Alternative 2)'s overall energy expenditures would be much lower than the typical per-ton energy expenditures to develop traditional cement (as shown in Table 3.3-1). Therefore, the comparative overall improved energy efficiency of the Reduced Project Alternative (Alternative 2) demonstrates no wasteful or unnecessary consumption of energy resources.

Impact Determination

Energy use during construction would represent a very small fraction of the State's fuel supplies and usage, and that consumption would be necessary to accomplish construction. Operational energy use by the Reduced Project Alternative (Alternative 2) is projected to become more efficient over time in response to increasing energy costs and compliance with federal, State, and local energy conservation programs. Accordingly, impacts related to energy use and conservation associated with construction and operation of the Reduced Project Alternative (Alternative 2) would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Alternative 3 – Product Import Terminal Alternative

Under the Product Import Terminal Alternative (Alternative 3), only the wharf features at Berth 191, product storage silos, a simpler conveyor system and truck loading facilities would be built at the Project site. The raw material storage and handling facilities and the grinding and drying mill facilities would be constructed at one or more ports outside of the United States, and those activities abroad would not be part of this CEQA analysis. The finished powder product would be transported by sea-going bulk vessels to Berth 191, where it would be off-loaded to a 60,000-ton bulk storage structure by an enclosed vacuum suction conveyor system. There would be no open storage piles for GBFS and gypsum, none of the mobile equipment needed to manage the storage piles, and no grinding mill and dryer. Construction would be similar, albeit slightly less intensive, to the Proposed Project, as the product storage facility would require similar ground improvements and foundations. Because the Product Import Terminal (Alternative 3)'s annual throughput of GGBFS would be the same as the Proposed Project, operation of this alternative would be similar to the Proposed Project in terms of vessel calls (one fewer call per year – 23) and GGBFS customer truck trips. However, this alternative would not require delivery of gypsum by trucks, and so truck trips would be fewer than in the Proposed Project.

Impact EN-1: Would the Product Import Terminal Alternative (Alternative 3) result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

Construction activities under the Product Import Terminal Alternative (Alternative 3) would include the wharf repairs and modifications described for the Proposed Project and construction of a storage silo, truck loading facility, and associated support facilities and infrastructure (possibly including an electrical substation). Energy (primarily as diesel fuel, but including minor amounts of gasoline and electricity) would be consumed during construction by diesel-powered construction equipment and by supporting equipment (e.g., welders, loaders, excavators, lights, generators, and on-road haul trucks) shown in Table 3.3-6. Fuel consumption during construction of the Product Import Terminal Alternative (Alternative 3) would be temporary, lasting for approximately 15 months, and

would represent a tiny fraction (0.0039%) of the approximately 3.1 billion gallons of diesel fuel and (0.00009%) of the 13.8 billion gallons of gasoline consumed in California each year (CEC 2022b, c).

Table 3.3-6: Product Import Terminal Construction Fuel Usage

Category	Year	Primary Fuel	Project Fuel Consumed (gallons/year)	Project Energy Consumed (Thousand BTU)
Offroad Construction Equipment	2024	Diesel	67,986	9,340,051
Onroad Trucks		Diesel	59,299	8,146,536
Worker Vehicles (Light Duty)		Gasoline	5,634	677,372
Harbor Craft (tugboat)		Diesel	19,268	2,647,043
Offroad Construction Equipment	2025	Diesel	12,551	1,724,249
Onroad Trucks		Diesel	7,876	1,082,026
Worker Vehicles		Gasoline	882	106,100
Harbor Craft (tugboat)		Diesel	-	-
Total Construction - Diesel	**All**	**Diesel**	**166,980**	**22,939,904**
Total Construction - Gasoline	**All**	**Gasoline**	**6,516**	**783,472**

Notes: Energy consumption from mobile sources like vessels and trucks are estimated for travel within California land/water boundaries.

This construction would be necessary to meet the project goals associated with supplying Southern California with low-carbon construction binder, and thus would not represent a wasteful or unnecessary use of energy. Construction would be required by lease measure LM AQ-4 to comply with the policies in the Port of Los Angeles' Sustainable Construction Guidelines, which require more stringent engine emission standards than the average fleet for construction equipment in accordance with the CAAP.

Operation

Operation of the Product Import Terminal Alternative (Alternative 3) would involve some similar activities as the Proposed Project (vessel unloading, product storage, and truck loading) but would also have different activities. For example, there would be no open storage pile operations, no off-road equipment handling of storage piles, no drying or processing of raw materials, and no grinding mill. Additionally, as the imported material would differ between the two scenarios, it is expected that the vessels used would vary slightly as a different material unloading mechanism would be required. The Product Import Terminal Alternative (Alternative 3) vessels would unload the more powdery product GGBFS (and possibly other cementitious materials), while the Project and Reduced Project Alternative (Alternative 2) vessels would unload the coarse-grained wet raw material GBFS. The vessel characteristics for the Product Import Terminal Alternative (Alternative 3) (engine size and engine emissions characteristics [tier mix]) were based on the average bulk vessel fleet from the POLA 2021 Emissions Inventory (LAHD 2022) whereas the fleet characteristics information for the Proposed Project and the Reduced Project Alternative (Alternative 2) were sourced from Ecocem's fleet supplier. The engine size differences result in slightly different energy demand values between alternatives. More details on how the Proposed Project and Product Import

Terminal Alternative (Alternative 3) elements compare are presented in Section 2.7 of the Project Description.

As in the case of the Proposed Project, the Product Import Terminal Alternative (Alternative 3) would include a number of electrically-powered elements, such as conveyor systems, thereby reducing fossil fuel usage, and energy consumption per ton of throughput would be expected to decrease over time as energy-saving features are incorporated into operations.

The quantities of diesel and gasoline that would be consumed by the Product Import Terminal Alternative (Alternative 3) as shown in Table 3.3-7 would represent insubstantial fractions of the California fuel supplies described in Section 3.3.2, and would therefore not have negative effects on those supplies. Furthermore, energy would not be used inefficiently or wastefully for the same reasons described for the Proposed Project.

Table 3.3-7: Operational Energy Usage for the Product Import Terminal (2027)

Category	Fuel	Project Energy Consumed	Units	Energy inThousand BTU/year
Offroad Equipment (FEL, Excavator)	Diesel	--	gallons/year	--
OGVs	Diesel	153,587	gallons/year	21,099,904
Harbor Craft	Diesel	3,780	gallons/year	519,264
Onroad Trucks (diesel)	Diesel	533,484	gallons/year	73,290,584
Total Diesel		**690,851**	**gallons/year**	**94,909,752**
Worker Vehicles (gasoline)	Gasoline	2,002	gallons/year	240,693
Stationary Sources - Electricity	Electricity	3,574,600	kWh/year	12,197,036
Stationary Sources - Natural Gas	Natural Gas	--	MMscf/year	--
Total Energy			**Thousand BTU**	**107,347,480**
Total Energy per Unit of Product			**Thousand BTU/ tonne GGBFS**	**139**

Notes
FEL: front end loader. Energy consumption from mobile sources like vessels and trucks are estimated for travel within California land/water boundaries.
Energy consumed overseas in the production of the GGBFS and other cementitious materials is not included in these figures; only energy consumed within California boundaries is included.

Operational use of electricity would primarily be due to the conveyor systems that would transport the product between the ships and the storage silo and between the silo and the truck loading facility, and the various fans and blowers associated with the filter systems. The electric mill, one of the largest sources of electricity consumption in the Proposed Project, would not be included in the Product Import Terminal Alternative (Alternative 3), therefore making the electricity consumption much lower in comparison. The GGBFS processing energy would be consumed overseas where the GGBFS would be processed, and outside of the scope of this analysis. The operational electrical use for the Product Import Terminal Alternative (Alternative 3) would be insubstantial in the context of the LADWP's capacity (see Section 3.3.2.1). LADWP is charged with maintaining sufficient capability to provide customers with a reliable source of power and will continue to do so

with proper planning and development of facilities in accordance with the mechanisms described in the SLTRP. Furthermore, the future operational electrical usage of the Product Import Terminal Project Alternative (Alternative 3) would represent less than 0.010% of LADWP's 2021 supply of approximately 21,130 GWh (LADWP 2022a) and substantially less than that percentage of the estimated 2045 supply of approximately 44,000 GWh, and therefore, would not constitute a substantial burden on available capacity. Based on LADWP's SLTRP, electricity resources and reserves will adequately provide electricity to all its customers, including the Product Import Alternative (Alternative 3), through at least 2045 (LADWP 2022a).

The quantities of diesel and gasoline that would be consumed by the operations of the Product Import Terminal Alternative (Alternative 3) as shown in Table 3.3-7 would represent insubstantial fractions of the California fuel supplies described in Section 3.3 (0.022% percent for diesel, 0.00001% percent for gasoline), and would therefore, not have negative effects on those supplies.

The energy consumed per metric ton of GGBFS (139 MBtu/tonne) in Table 3.3-7 shows that the Product Import Terminal Alternative (Alternative 3)'s overall energy expenditures would be much lower than those of Proposed Project as the manufacturing of GGBFS would essentially be transferred overseas. The per-ton energy expenditures of the Product Import Terminal Alternative (Alternative 3) would be much lower than those to develop traditional cement (as shown in Table 3.3-1). Therefore, the overall improved energy efficiency of the Product Import Terminal Alternative (Alternative 3) in comparison, demonstrates no wasteful or unecessary consumption of energy resources.

Impact Determination

Energy use during construction would represent a tiny fraction of the State's fuel supplies and usage, and that consumption would be necessary to accomplish construction. Operational energy use by the Product Import Terminal Alternative (Alternative 3) is projected to become more efficient over time in response to increasing energy costs and compliance with federal, State, and local energy conservation programs. Accordingly, impacts related to energy conservation associated with operation of the Product Import Terminal Alternative (Alternative 3) would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

3.3.4.5 Summary of Impact Determinations

Table 3.3-8 summarizes the impact determinations of the Proposed Project and alternatives related to Energy, as described in the detailed discussion above. This table is meant to allow easy comparison between the potential impacts of the Proposed Project and alternatives with respect to this resource.

For each impact threshold, the table describes the impact, notes the impact determinations, describes any applicable mitigation measures, and notes the residual impacts (i.e., the impact remaining after mitigation). All impacts, whether significant or not, are included in this table.

Table 3.3-8: Summary Matrix of Potential Impacts and Mitigation Measures for Energy Conservation Associated with the Proposed Project and Alternatives

Alternative	Environmental Impacts	Impact Determination	Applied Mitigation/Lease Measures or Controls	Residual Impacts
Proposed Project	**EN-1:** Would the Proposed Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than significant	Mitigation not required although LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines would be applied	Less than significant
Alternative 1 – No Project	**EN-1:** Would the No Project Alternative result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than significant	Not applicable	Less than significant
Alternative 2 – Reduced Project	**EN-1:** Would the Reduced Project Alternative result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than significant	Mitigation not required although LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines would be applied	Less than significant

Alternative	Environmental Impacts	Impact Determination	Applied Mitigation/Lease Measures or Controls	Residual Impacts
Alternative 3 – Product Import Terminal	**EN-1:** Would the Product Import Terminal Alternative result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than significant	Mitigation not required although LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines would be applied	Less than significant

3.3.4.6 Mitigation Monitoring

Neither the Proposed Project nor any of the alternatives would result in significant impacts related to energy conservation. Therefore, no mitigation measures are required. However, as mentioned above, lease measure LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines would require the Proposed Project to comply with the Guidelines, which would result in additional energy conservation during construction.

Mitigation Measure	**LM AQ-4: Port of Los Angeles Sustainable Construction Guidelines.** The project shall implement and comply with all measures as required by the Los Angeles Harbor Department's Sustainable Construction Guidelines adopted in February 2008 and updated in November 2009 during Project construction activities. These requirements shall be stipulated in the construction contracts and bid documents.
Timing	During operation.
Methodology	LAHD will include this lease measure in lease agreements with tenants.

3.3.5 Significant Unavoidable Impacts

No significant unavoidable impacts related to energy conservation would occur during construction or operation of the Proposed Project or alternatives.

References

California Gas and Electric Utilities. 2021. 2021 Supplemental California Gas Report. https://www.socalgas.com/sites/default/files/2021_California_Gas_Report_Supplement.pdf.

CARB (California Air Resources Board). 2020. Mobile Source Strategy. 2020 Mobile Source Strategy (ca.gov).

CBE (California State Board of Equalization). 2022a. Fuel Taxes Statistics & Reports. January 2022 – Motor Vehicle Fuel 10 Year Reports. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.cdtfa.ca.gov%2Ftaxes-and-fees%2FMVF-10-Year-Report.xlsx&wdOrigin=BROWSELINK.

_____. 2022b. Fuel Taxes Statistics & Reports. Taxable Diesel Gallons 10-Year Report https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.cdtfa.ca.gov%2Ftaxes-and-fees%2FDiesel-10-Year-Report.xlsx&wdOrigin=BROWSELINK.

CEC (California Energy Commission). 2018. Revised Transportation Energy Demand Forecast, 2018-2030. Publication Number: CEC-200-2018-003. https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-IEPR-05.

_____. 2019. Supply and Demand of Natural Gas in California. https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california.

_____. 2020. Final 2019 Integrated Energy Policy Report. CEC-100-2019-001-CMF. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report.

_____. 2021. 2019 Total System Electric Generation . https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation/2019.

_____. 2022a. Energy Reports: Electricity Consumption by Entity. http://www.ecdms.energy.ca.gov/elecbyutil.aspx.

_____. 2022b. What Drives California's Gasoline Prices? https://www.energy.ca.gov/data-reports/energy-insights/what-drives-californias-gasoline-prices#:~:text=California%20Consumption,38%20million%20gallons%20per%20day.

_____. 2022c. California Retail Fuel Outlet Annual Reporting (CEC-A15) Results. https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting.

CEC. 2023. Supply and Demand of Natural Gas in California. https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california.

City of Los Angeles. 2019. LA's Green New Deal Sustainable City pLAn. https://plan.lamayor.org/.

Ecocem. 2023a. Energy Calculation – Cement vs GGBFS. Email communication with Clive Moutray. January 19, 2023.

Ecocem. 2023b. Ecocem GGBFS Technical Data Sheet. Accessed online June 2023. Available at https://www.ecocemglobal.com/en-ie/products-projects/ecocem-ggbs/?download=MTMxOTg=.

Los Angeles Department of Water and Power (LADWP). 2022a. Strategic Long-Term Resource Plan. https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-integratedresourceplanning?_afrLoop=1967828139057441&_afrWindowMode=0&_afrWindowId=null#%40%3F_afrWindowId%3Dnull%26_afrLoop%3D1967828139057441%26_afrWindowMode%3D0%26_adf.ctrl-state%3D74ipm9hj2_30.

_____. 2022b. Power Facts and Figures. https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-factandfigures?_adf.ctrl-state=an9w7bv2c_4&_afrLoop=648476746240207.

LAHD (Los Angeles Harbor Department). 2009. Sustainable Construction Guidelines for Reducing Air Emissions.

_____. 2022. Port of Los Angeles Inventory of Air Emissions. Technical Report. Prepared by Starcrest Consulting Group. September. https://kentico.portoflosangeles.org/getmedia/f26839cd-54cd-4da9-92b7-a34094ee75a8/2021_Air_Emissions_Inventory.