



11.12 Energy Analysis



Beaumont Heights Business Centre

ENERGY ANALYSIS

CITY OF BEAUMONT

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LIST OF ABBREVIATED TERMS

%	Percent
(1)	Reference
AQIA	Beaumont Heights Business Centre Air Quality Impact Analysis
BACM	Best Available Control Measures
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of Beaumont
CPEP	Clean Power and Electrification Pathway
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EMFAC	EMissions FACtor
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HHD	Heavy-Heavy Duty Trucks
hp-hr-gal	Horsepower Hours Per Gallon
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Thousand-British Thermal Units
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHD1/LHD2	Light-Heavy Duty Trucks
MDV	Medium Duty Trucks
MHD	Medium-Heavy Duty Trucks
MMcfd	Million Cubic Feet Per Day

mpg	Miles Per Gallon
MPO	Metropolitan Planning Organization
PG&E	Pacific Gas and Electric
Project	Beaumont Heights Business Centre
PV	Photovoltaic
SCAB	South Coast Air Basin
SCE	Southern California Edison
SDAB	San Diego Air Basin
sf	Square Feet
SoCalGas	Southern California Gas
TEA-21	Transportation Equity Act for the 21 st Century
TRU	Transport Refrigeration Unit
U.S.	United States
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Beaumont Heights Business Centre Energy Analysis* are summarized below based on the significance criteria in Section 5 of this report consistent with Appendix G of the *CEQA Guidelines (CEQA Guidelines)* (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	5.0	<i>Less Than Significant</i>	<i>n/a</i>
Energy Impact #2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	5.0	<i>Less Than Significant</i>	<i>n/a</i>

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the federal and state agencies that regulate energy use and consumption through various means and programs. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of energy usage include:

- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- The Transportation Equity Act for the 21st Century (TEA-21)
- Integrated Energy Policy Report (IEPR)
- State of California Energy Plan
- California Code Title 24, Part 6, Energy Efficiency Standards
- California Code Title 24, Part 11, California Green Building Standards Code (CALGreen)
- AB 1493 Pavley Regulations and Fuel Efficiency Standards
- California's Renewable Portfolio Standard (RPS)
- Clean Energy and Pollution Reduction Act of 2015 (SB 350)

Consistency with the above regulations is discussed in detail in Section 6 of this report.

ES.3 MITIGATION MEASURES

Because the proposed Project does not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation nor does it conflict with or obstruct a state or local plan for renewable energy or energy efficiency, impacts would be less than significant, and no mitigation is required.

The following measures were identified in the *Beaumont Heights Business Centre Air Quality Impact Analysis (AQIA)* report (2). These measures are designed to reduce Project operational-source emissions. However, it should be noted that there is no way to quantify these reductions in the California Emissions Estimator Model (CalEEMod), and therefore, to provide a conservative disclosure of Project emissions, no reductions in energy usage was assumed to occur even with implementation of the below measures. Notwithstanding the foregoing, it is likely that all of the below measures will decrease Project energy usage.

MM AQ-9

The Project Applicant/Developer/Operator shall post both interior and exterior facing signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to CARB, SCAQMD, and the building manager.

MM AQ-10

The Project Applicant/Developer/Tenant shall ensure that all building tenants utilize only electric service yard trucks (hostlers), pallet jacks, forklifts, and other onsite operational equipment through requirements in lease agreements and provide the necessary electrical charging stations.

MM AQ-11

The Project Applicant/Developer/Operator shall construct electric truck charging infrastructure consisting of infrastructure (i.e., conduit) to support future installation of charging stations, when such trucks are widely available and economically feasible as determined by the Community Development Director.

MM AQ-12

The Project Applicant/Director/Operator shall construct electric light-duty truck charging infrastructure consisting of infrastructure (i.e., conduit) proportional for one charging station for every five light-duty truck parking spaces at the Project.

MM AQ-13

The Project Applicant/Director/Operator shall install all necessary infrastructure (i.e., wiring, reinforced roofs) to allow solar photovoltaic systems on the Project site to be installed in the future, with a specified electrical generation capacity, such as equal to the building's projected energy needs.

MM AQ-14

The Project owner shall require facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks.

MM AQ-15

The Project owner shall require operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.

MM AQ-16

The Project Applicant/Developer/Owner shall post signs at every truck exit driveway providing directional information to the truck route.

MM AQ-17

The Project Applicant/Developer/Owner shall require that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with CARB regulations by attending CARB-approved courses. Also, if the tenant/facility operator owns its own fleet of vehicles subject to 13 California Code of Regulations Section 2025, require such tenants/facility operators to maintain records on-site demonstrating compliance and make sure records are available for inspection by the local jurisdiction, air district, and state upon request.

MM AQ-18

The Project Applicant/Developer/Owner shall encourage tenants to enroll in the United States Environmental Protection Agency's SmartWay program and encourage tenants to use carriers that are SmartWay carriers.

MM AQ-19

The Project Applicant/Developer/Owner shall provide tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Incentive Program, to upgrade their fleets.

MM AQ-20

Legible, durable, weather-proof signs shall be placed at truck access gates, loading docks, and truck parking areas of the Project that identify applicable CARB anti-idling regulations. At a minimum, each sign shall include: 1) instructions for truck drivers to shut off engines when not in use; 2) instructions for drivers of diesel trucks to restrict idling to no more than three (3) minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager to report violations. Prior to issuance of an occupancy permit, the City shall conduct a site inspection to ensure that the signs are in place.

MM AQ-21

Prior to the issuing of each building permit, the project proponent and its contractors shall provide plans and specifications to the City of Beaumont Building Department that demonstrate that each project building is designed for passive heating and cooling and is designed to include natural light. Features designed to achieve this shall include the proper placement of windows, overhangs, and skylights.

MM AQ-22

Prior to the issuing of each building permit, the project proponent shall provide plans and specifications to the City of Beaumont Building Department that demonstrate that electrical service is provided to each of the areas in the vicinity of the building that are to be landscaped in order that electrical equipment may be used for landscape maintenance.

MM AQ-23

The warehouse/industrial buildings' electrical room shall be sufficiently sized to hold additional panels that may be needed to supply power for the future installation of electric vehicle (EV) truck charging stations on the site. Conduit should be installed from the electrical room to tractor trailer parking spaces in a logical location(s) on the site determined by the Project Applicant during construction document plan check, for the purpose of accommodating the future installation of EV truck charging stations at such time this technology becomes commercially available and the buildings are being served by trucks with electric-powered engines.

MM AQ-24

The buildings' electrical room shall be sufficiently sized to hold additional panels that may be needed in the future to supply power to trailers with transport refrigeration units (TRUs) during the loading/unloading of refrigerated goods. Conduit should be installed from the electrical room to the loading docks determined by the Project Applicant during construction document plan check as the logical location(s) to receive trailers with TRUs.

MM AQ-25

Upon occupancy and annually thereafter, the facility operator shall provide information to all tenants, with instructions that the information shall be provided to employees and truck drivers as appropriate, regarding:

- Building energy efficiency, solid waste reduction, recycling, and water conservation.
- Vehicle GHG emissions, electric vehicle charging availability, and alternate transportation opportunities for commuting.
- Participation in the Voluntary Interindustry Commerce Solutions (VICS) "Empty Miles" program to improve goods trucking efficiencies.
- Health effects of diesel particulates, State regulations limiting truck idling time, and the benefits of minimized idling.
- The importance of minimizing traffic, noise, and air pollutant impacts to any residences in the Project vicinity.

MM AQ-26

Prior to issuance of a building permit, the project proponent shall provide the City with an onsite signage program that clearly identifies the required onsite circulation system, for the industrial portion of the Project. This shall be accomplished through posted signs and painting on driveways and internal roadways.

MM AQ-27

Prior to issuance of an occupancy permit, the City shall confirm that signs clearly identifying approved truck routes have been installed along the truck routes to and from the Project site.

MM AQ-28

Prior to issuance of an occupancy permit, the project proponent for the industrial portion of the Project, shall install a sign on the property with telephone, email, and regular mail contact information for a designated representative of the tenant who would receive complaints about excessive noise, dust, fumes, or odors. The sign shall also identify contact data for the City for perceived Code violations. The tenant's representative shall keep records of any complaints received and actions taken to communicate with the complainant and resolve the complaint. The tenant's representative shall endeavor to resolve complaints within 48 hours.

MM AQ-29

Prior to issuance of a building permit for the industrial portion of the Project, the project proponent shall provide the City with project specifications, drawings, and calculations that demonstrate that main electrical supply lines and panels have been sized to support heavy truck charging facilities when these trucks become available. The calculations shall be based on reasonable predictions from currently available truck manufacturer's data. Electrical system upgrades that exceed reasonable costs shall not be required.

MM AQ-30

To reduce water demands and associated energy use, the Project is required to implement a Water Conservation Strategy and demonstrate a minimum 20 percent (%) reduction in indoor and outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy). Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that could include the following water conservation measures:

- Install low-water use appliances and fixtures
- Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces
- Implement water-sensitive urban design practices in new construction
- Install rainwater collection system

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Beaumont Heights Business Centre Project (Project). The purpose of this report is to ensure that energy implication is considered by the City of Beaumont (Lead Agency), as the lead agency, and to quantify anticipated energy usage associated with construction and operation of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The Project area is comprised of 385.6 acres which lies on vacant land within unincorporated Riverside County, west/southwest of the City of Beaumont and within the City of Beaumont Sphere of Influence (SOI), as shown on Exhibit 1-A. As one of the requested discretionary actions, the majority of the Project site would be annexed into the City of Beaumont.

1.2 PROJECT DESCRIPTION

The proposed Project would include approximately 5,182,891 square feet of combined office and industrial building area.

TABLE 1-1: PROJECT SQUARE FOOTAGE ASSUMPTIONS

Building	Proposed Development ¹
1	641,622 Square Feet
2	1,386,044 Square Feet
3	1,488,920 Square Feet
4	1,666,305 Square Feet
Total	5,182,891 Square Feet

¹Square footage includes office and industrial space.

The proposed Project could develop under one of two development Options, detailed below as Option A and Option B. Option A assumes a 50/50 split between High-Cube Fulfillment Center Warehouses (Sort Facility) and High-Cube Fulfillment Center Warehouses (Non-Sort Facility). Option B would assumes a 50/50 split between High-Cube Fulfillment Center Warehouse (Sort Facility), 1,000,000 square feet dedicated to High-Cube Cold Storage Warehouse, and 1,073,156 square feet of warehousing space. A conceptual site plan is shown on Exhibit 1-B. Under both Options the Project would be developed over four phases, as described below:

Option A:

a. Phase 1 (2028)

- 192.487 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 192.487 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 256.648 TSF General Warehousing

b. Phase 2 (2029)

- 608.300 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 608.300 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 811.066 TSF General Warehousing

c. Phase 3 (2030)

- 1,054.976 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 1,054.976 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 1,406.634 TSF General Warehousing

d. Phase 4 (2032)

- 1,554.868 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 1,554.867 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 2,073.156 TSF General Warehousing

Option B:

a. Phase 1 (2028)

- 123.796 TSF High-Cube Cold Storage Warehouse
- 192.487 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 192.487 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 132.853 TSF General Warehousing

b. Phase 2 (2029)

- 391.223 TSF High-Cube Cold Storage Warehouse
- 608.300 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 608.300 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 419.843 TSF General Warehousing

c. Phase 3 (2030)

- 678.499 TSF High-Cube Cold Storage Warehouse
- 1,054.976 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 1,054.976 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 728.135 TSF General Warehousing

d. Phase 4 (2032)

- 1,000.000 TSF High-Cube Cold Storage Warehouse
- 1,554.868 TSF High-Cube Fulfillment Center (Non-Sort Warehouse)
- 1,554.867 TSF High-Cube Fulfillment Center (Sort Warehouse)
- 1,073.156 TSF General Warehousing

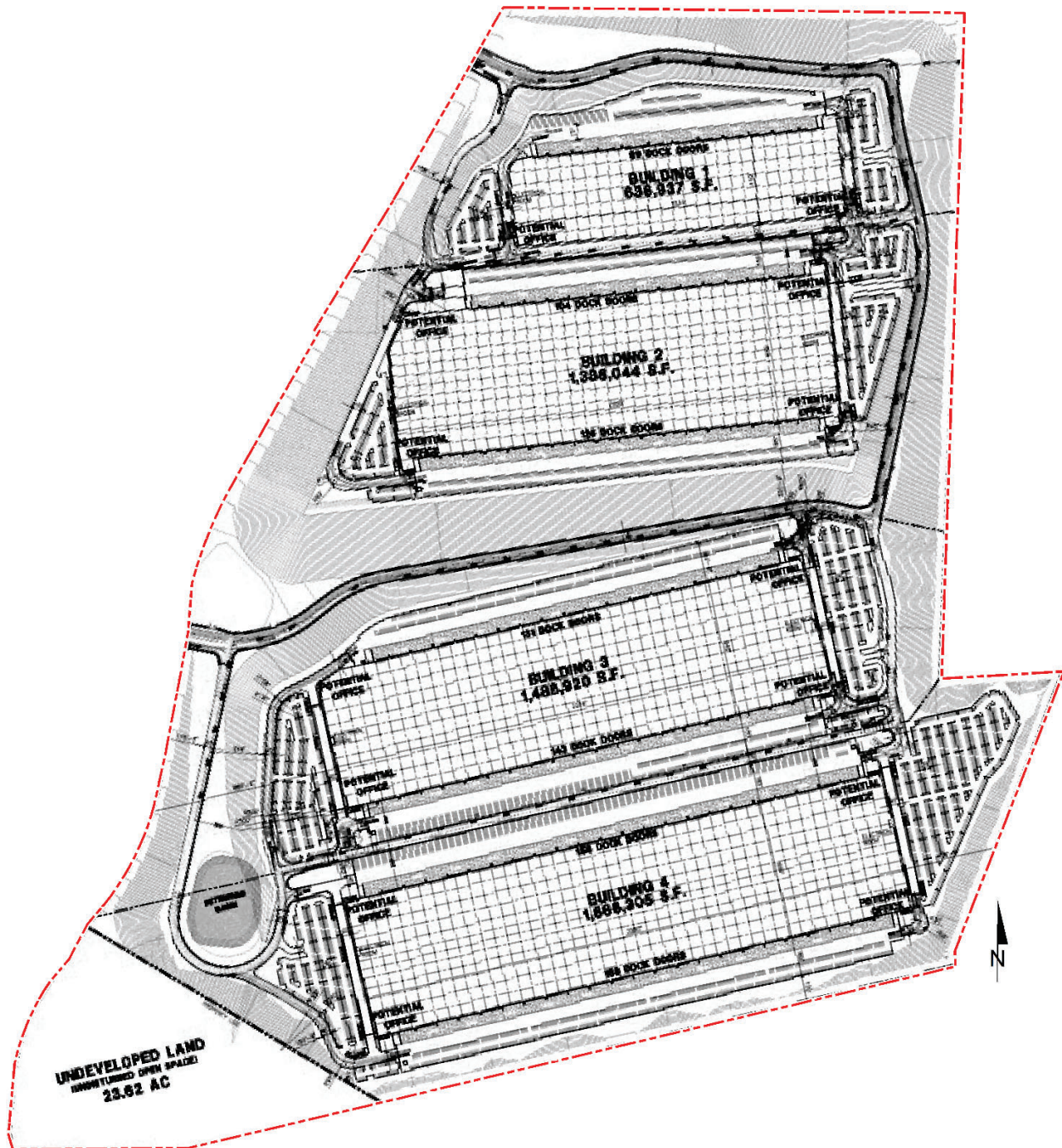
As evaluated in the Beaumont Heights Business Centre Traffic Analysis (3), under Option A the Project is expected to generate a total of 16,380 two-way trips per day at buildout, including 14,478 two-way passenger vehicle trips per day and 1,902 two-way truck trips per day. Under

Option B the Project is expected to generate a total of 16,792 two-way trips per day at buildout, including 14,738 two-way passenger vehicle trips per day and 2,054 two-way truck trips per day. The proposed Project would be all electric and would not include provisions for the installation of natural gas plumbing and appliances.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: LAND USE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption and natural gas consumption is from 2022, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates and includes (4):

- As of 2022, approximately 6,882 trillion British Thermal Unit (BTU) of energy was consumed
- As of 2022, approximately 628 million barrels of petroleum
- As of 2022, approximately 2,059 billion cubic feet of natural gas
- As of 2022, approximately 1,322 thousand short tons of coal

According to the EIA, in 2022 the U.S. petroleum consumption comprised about 90% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (5). In 2023, about 253,289 million gallons (or about 6.031 million barrels) of finished petroleum products were consumed in the U.S., an average of about 694 million gallons per day (or about 16.5 million barrels per day) (6). In 2021, California consumed approximately 12,157 million gallons in motor gasoline (33.31 million per day) and approximately 3,541 million gallons of diesel fuel (9.7 million per day) (7).

The most recent data provided by the EIA for energy use in California is reported from 2022 which shows approximate energy usage by each of the following sectors:

- 42.6% for transportation uses
- 22.5% for industrial uses
- 17.6% for residential uses
- 17.4% for commercial uses (8)

According to the EIA, California used approximately 251,869 gigawatt hours of electricity in 2022 (9). By sector in 2022, residential uses utilized 35.6% of the state's electricity, followed by 45.3% for commercial uses, 18.9% for industrial uses, and 0.3% for transportation. Electricity usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building (9).

According to the EIA, California used approximately 200,871 million therms of natural gas in 2022 (10). In 2023 (the most recent year for which data is available), by sector, industrial uses utilized 31% of the state's natural gas, followed by 32% used as fuel in the electric power sector, 23% from residential, 13% from commercial, 1% from transportation uses and the remaining 3% was utilized for the operations, processing and production of natural gas itself (10). While the supply of natural gas in the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90% of its supply of natural gas (10).

In 2023, total system electric generation for California was 281,140 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 215,623 GWh which accounted for approximately 76% of the electricity it uses; the rest was imported from the Pacific Northwest (6%) and the U.S. Southwest (18%) (11). Natural gas is the main source for electricity generation at 43.68% of the total in-state electric generation system power as shown in Table 2-1.

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below (12):

- In 2023, California was the seventh-largest producer of crude oil among the 50 states, and the state ranked third in crude oil refining capacity.
- California is the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states.
- California is the second-largest total energy consumer among the states, after Texas, but its per capita energy consumption is the fourth-lowest in the nation.
- In 2023, renewable resources, including hydroelectric power and small-scale solar power, supplied 54% of California's in-state electricity generation. Natural gas fueled another 39% and nuclear power provided almost all the rest.
- In 2023, California was the fourth-largest electricity producer in the nation. It is also the nation's third-largest electricity consumer and imports more electricity than any other state.

As indicated below, California is one of the nation's leading energy-producing states, and California's per capita energy use is among the nation's most efficient. Given the nature of the Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the Project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2023)

Fuel Type	California In-State Generation (GWh)	% of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Total California Energy Mix (GWh)	Total California Power Mix
Coal	257	0.12%	163	4,561	4,724	4,981	1.77%
Natural Gas	94,192	43.68%	52	8,530	8,582	102,774	36.56%
Oil	36	0.02%	0	0	0	36	0.01%
Other (Waste Heat/Petroleum Coke)	206	0.10%	0	0	0	206	0.07%
Unspecified	0	0.00%	100	10,273	10,373	10,373	3.69%
Total Thermal and Unspecified	94,690	43.91%	316	23,363	23,679	118,370	42.10%
Nuclear	17,714	8.22%	196	8,361	8,558	26,272	9.34%
Large Hydro	27,066	12.55%	4,712	1,109	5,821	32,886	11.70%
Biomass	5,037	2.34%	753	-	753	5,790	2.06%
Geothermal	10,999	5.10%	221	2,347	2,569	13,567	4.83%
Small Hydro	4,853	2.25%	133	2	135	4,988	1.77%
Solar	41,344	19.17%	417	6,108	6,525	47,869	17.03%
Wind	13,920	6.46%	9,177	8,302	17,479	31,399	11.17%
Total Non-GHG and Renewable Resources	120,932	56.09%	15,609	26,229	41,838	162,771	57.90%
SYSTEM TOTALS	215,623	100.00%	15,925	49,593	65,518	281,140	100.00%

Source: CECs 2023 Total System Electric Generation

2.2 ELECTRICITY

The usage associated with electricity use was calculated using CalEEMod Version 2022.1. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California Independent Service Operator (ISO) studies revealed the extent to which the Mojave Desert Air Basin (MDAB) and the San Diego Air Basin (SDAB) region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts. Similarly, the subsequent 2023 IEPR provides information and policy recommendations on advancing a clean, reliable, and affordable energy system (13).

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California ISO is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that enough power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (14).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, utilities file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Electricity is currently provided to the Project site by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2022 Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers (15).

Table 2-2, SCE's specific proportional shares of electricity sources in 2022. As indicated in Table 2-2, the 2022 SCE Power Mix has renewable energy at 33.2% of the overall energy resources.

Geothermal resources are at 5.7%, wind power is at 9.8%, large hydroelectric sources are at 3.4%, solar energy is at 17.0%, and coal is at 0% (16).

TABLE 2-2: SCE 2022 POWER CONTENT MIX

Energy Resources	2022 SCE Power Mix
Eligible Renewable	33.2%
Biomass & Waste	0.1%
Geothermal	5.7%
Eligible Hydroelectric	0.5%
Solar	17.0%
Wind	9.8%
Coal	0.0%
Large Hydroelectric	3.4%
Natural Gas	24.7%
Nuclear	8.3%
Other	0.1%
Unspecified Sources of power*	30.3%
Total	100%

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

2.3 NATURAL GAS

The following summary of natural gas customers and volumes, supplies, delivery of supplies, storage, service options, and operations is excerpted from information provided by the California Public Utilities Commission (CPUC).

"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

California's natural gas utilities provide service to over 11 million gas meters. SoCalGas and PG&E provide service to about 5.9 million and 4.3 million customers, respectively, while SDG&E provides service to over 800, 000 customers. In 2018, California gas utilities forecasted that they would deliver about 4740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.

The overwhelming majority of natural gas utility customers in California are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers

consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

A significant amount of gas (about 19%, or 1131 MMcfd, of the total forecasted California consumption in 2018) is also directly delivered to some California large volume consumers, without being transported over the regulated utility pipeline system. Those customers, referred to as "bypass" customers, take service directly from interstate pipelines or directly from California producers.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, i.e., they receive deliveries of gas from SoCalGas and in turn deliver that gas to their own customers. (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area.) Similarly, West Coast Gas, a small gas utility, is a wholesale customer of PG&E. Some other wholesale customers are municipalities like the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines are Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Mojave Pipeline, and Tuscarora. Another pipeline, the North Baja - Baja Norte Pipeline takes gas off the El Paso Pipeline at the California/Arizona border and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, and authorizes rates for that service, the CPUC may participate in FERC regulatory proceedings to represent the interests of California natural gas consumers.

The gas transported to California gas utilities via the interstate pipelines, as well as some of the California-produced gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered to the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large volume noncore customers take natural gas delivery directly off the high-pressure backbone and local transmission pipeline systems, while core customers and other noncore customers take delivery off the utilities' distribution pipeline systems. The state's natural gas utilities operate over 100,000 miles of transmission and distribution pipelines, and thousands more miles of service lines.

Bypass customers take most of their deliveries directly off the Kern/Mojave pipeline system, but they also take a significant amount of gas from California production.

PG&E and SoCalGas own and operate several natural gas storage fields that are located within their service territories in northern and southern California, respectively. These storage fields, and four independently owned storage utilities - Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage - help meet peak seasonal and daily natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. PG&E is a 25% owner of the Gill Ranch Storage field.

These storage fields provide a significant amount of infrastructure capacity to help meet California's natural gas requirements, and without these storage fields, California would need much more pipeline capacity in order to meet peak gas requirements.

Prior to the late 1980s, California regulated utilities provided virtually all natural gas services to all their customers. Since then, the Commission has gradually restructured the California gas industry in order to give customers more options while assuring regulatory protections for those customers that wish to, or are required to, continue receiving utility-provided services.

The option to purchase natural gas from independent suppliers is one of the results of this restructuring process. Although the regulated utilities procure natural gas supplies for most core customers, core customers have the option to purchase natural gas from independent natural gas marketers, called "core transport agents" (CTA). Contact information for core transport agents can be found on the utilities' web sites. Noncore customers, on the other hand, make natural gas supply arrangements directly with producers or with marketers.

Another option resulting from the restructuring process occurred in 1993, when the Commission removed the utilities' storage service responsibility for noncore customers, along with the cost of this service from noncore customers' transportation rates. The Commission also encouraged the development of independent storage fields, and in subsequent years, all the independent storage fields in California were established. Noncore customers and marketers may now take storage service from the utility or from an independent storage provider (if available), and pay for that service, or may opt to take no storage service at all. For core customers, the Commission assures that the utility has adequate storage capacity set aside to meet core requirements, and core customers pay for that service.

In a 1997 decision, the Commission adopted PG&E's "Gas Accord", which unbundled PG&E's backbone transmission costs from noncore transportation rates. This decision gave customers and marketers the opportunity to obtain pipeline capacity rights on PG&E's backbone transmission pipeline system, if desired, and pay for that service at rates authorized by the Commission. The Gas Accord also required PG&E to set aside a certain amount of backbone transmission capacity in order to deliver gas to its core customers. Subsequent Commission decisions modified and extended the initial terms of the Gas Accord. The "Gas Accord" framework is still in place today for PG&E's backbone and storage rates and services and is now simply referred to as PG&E Gas Transmission and Storage (GT&S).

In a 2006 decision, the Commission adopted a similar gas transmission framework for Southern California, called the "firm access rights" system. SoCalGas and SDG&E implemented the firm access rights (FAR) system in 2008, and it is now referred to as the backbone transmission system (BTS) framework. As under the PG&E backbone transmission system, SoCalGas backbone transmission costs are unbundled from noncore transportation rates. Noncore customers and marketers may obtain, and pay for, firm

backbone transmission capacity at various receipt points on the SoCalGas system. A certain amount of backbone transmission capacity is obtained for core customers to assure meeting their requirements.

Many if not most noncore customers now use a marketer to provide for several of the services formerly provided by the utility. That is, a noncore customer may simply arrange for a marketer to procure its supplies, and obtain any needed storage and backbone transmission capacity, in order to assure that it will receive its needed deliveries of natural gas supplies. Core customers still mainly rely on the utilities for procurement service, but they have the option to take procurement service from a CTA. Backbone transmission and storage capacity is either set aside or obtained for core customers in amounts to assure very high levels of service.

In order [to] properly operate their natural gas transmission pipeline and storage systems, PG&E and SoCalGas must balance the amount of gas received into the pipeline system and delivered to customers or to storage fields. Some of these utilities' storage capacity is dedicated to this service, and under most circumstances, customers do not need to precisely match their deliveries with their consumption. However, when too much or too little gas is expected to be delivered into the utilities' systems, relative to the amount being consumed, the utilities require customers to more precisely match up their deliveries with their consumption. And, if customers do not meet certain delivery requirements, they could face financial penalties. The utilities do not profit from these financial penalties - the amounts are then returned to customers as a whole. If the utilities find that they are unable to deliver all the gas that is expected to be consumed, they may even call for a curtailment of some gas deliveries. These curtailments are typically required for just the largest, noncore customers. It has been many years since there has been a significant curtailment of core customers in California." (17)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the State in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

Based on information provided by the Project applicant, the Project would not utilize natural gas.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. The Department of Motor Vehicles (DMV) identified 36.2 million registered vehicles in California (18), and those vehicles consume an estimated 17.2 billion gallons of fuel each year.¹ Gasoline (and other vehicle fuels) are

¹ Fuel consumptions estimated utilizing information from EMFAC2021.

commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

California's on-road transportation system includes 396,616 lane miles, more than 26.6 million passenger vehicles and light trucks, and almost 9.0 million medium- and heavy-duty vehicles (18). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. California is the second-largest consumer of petroleum products, after Texas, and accounts for 8% of the nation's total consumption. The State is the largest U.S. consumer of motor gasoline and jet fuel, and 83% of the petroleum consumed in California is used in the transportation sector (19).

California accounts for less than 1% of total U.S. natural gas reserves and production. As with crude oil, California's natural gas production has experienced a gradual decline since 1985. In 2023, about 32% of the natural gas delivered to consumers went to the State's industrial sector, and about 31% was delivered to the electric power sector. Natural gas fueled more than two-fifths of the State's utility-scale electricity generation in 2023. The residential sector, where three-fifths of California households use natural gas for home heating, accounted for 23% of natural gas deliveries. The commercial sector received 13% of the deliveries to end users and the transportation sector consumed the remaining 1% (19).

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3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the U.S. Department of Transportation, the U.S. Department of Energy, and the U.S. Environmental Protection Agency (EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the California Energy Commission (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

ISTEA promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The TEA-21 was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. The TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. The TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. The TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems (ITS), to help improve operations and management of transportation systems and vehicle safety.

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301[a]). The CEC prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2023 IEPR was adopted February 2024, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2023 IEPR introduces a new

framework for embedding equity and environmental justice at the CEC and the California Energy Planning Library which allows for easier access to energy data and analytics for a wide range of users. Additionally, energy reliability, western electricity integration, gasoline cost factors and price spikes, the role of hydrogen in California's clean energy future, fossil gas transition, and distributed energy resources are topics discussed within the 2023 IEPR (20).

3.2.2 STATE OF CALIFORNIA ENERGY PLAN

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The State Energy Plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies several strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

3.2.3 CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that became effective on January 1, 2023². The CEC anticipates that the 2022 energy code will provide \$1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (21). The Project would be required to comply with the applicable standards in place at the time plan check submittals are made. These require, among other items (22) (23):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).

² The 2022 California Green Building Standard Code was first published on July 1, 2022 and amended on July 1, 2024 with the Intervening Code Cycle Update.

- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106.5.3.1 (5.106.5.3). Alternatively, the power allocation method may be used as an alternative to the requirements mentioned in Section 5.106.5.1, and associated Table 5.106.5.3. Use of Table 5.106.5.3.6 to can be used to determine the total power in kVA required based on the total number of actual parking spaces. Additionally, Table 5.106.5.5.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty EV supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
 - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1).
 - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
 - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
 - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).

- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is projected to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

3.2.4 AB 1493 PAVLEY REGULATIONS AND FUEL EFFICIENCY STANDARDS

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

3.2.5 CALIFORNIA'S RENEWABLE PORTFOLIO STANDARD (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 44% of total retail sales by 2024 (24).

3.2.6 CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350)

In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 45% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electricity transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

3.2.7 EXECUTIVE ORDER N-79-20 AND ADVANCED CLEAN CARS II

On August 25, 2022, CARB approved the Advanced Clean Cars II rule, which codifies the goals set out in Executive Order N-79-20 and establishes a year-by-year roadmap such that by 2035, 100% of new cars and light trucks sold in California will be zero-emission vehicles. Under this regulation, automakers are required to accelerate deliveries of zero-emission light-duty vehicles, beginning with model year 2026. CARB estimates that between 2026 and 2040, the regulation would reduce GHG emissions by a cumulative 395 million metric tons, equivalent to reducing petroleum use by 915 million barrels.

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

4.1 EVALUATION CRITERIA

Appendix F of the *State CEQA Guidelines* (25), states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, and oil; and
- Increasing reliance on renewable energy sources.

In compliance with Appendix G of the *State CEQA Guidelines* (26), this report analyzes the Project's anticipated energy use during construction and operations to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.2 METHODOLOGY

Information from the CalEEMod outputs for the *Beaumont Heights Business Centre Air Quality Impact Analysis* (AQIA) (2) was utilized in this analysis, detailing Project-related construction equipment, transportation energy demands, and facility energy demands.

4.2.1 CAL EEMOD

The California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released CalEEMod 2022 in May 2022. CalEEMod periodically releases updates, as such the latest version available at the time of this report has been utilized in this analysis. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources as well as energy usage (27). Accordingly, the latest version of CalEEMod has been used to determine the proposed Project's anticipated transportation and facility energy demands. Outputs from the annual model runs are provided in Appendices 4.1 through 4.3.

4.2.2 EMISSION FACTORS MODEL

On May 2, 2022, the EPA approved the 2021 version of the EMISSIONS FACTOR model (EMFAC2021) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (28). This energy study utilizes the different fuel types for each vehicle class from the annual EMFAC2021 emission inventory in order to derive the average vehicle fuel economy which is then used to determine the estimated annual fuel consumption associated

with vehicle usage during Project construction and operational activities. For purposes of analysis, the 2025 through 2032 analysis years were utilized to determine the average vehicle fuel economy used throughout the duration of the Project for both Option A and Option B. Outputs from the EMFAC2021 model run is provided in Appendix 4.4.

4.3 CONSTRUCTION ENERGY DEMANDS

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project.

4.3.1 CONSTRUCTION POWER COST

The total Project construction power costs is the summation of the products of the area (sf) by the construction duration and the typical power cost.

CONSTRUCTION DURATION

For purposes of analysis, construction of the Project is expected to commence in June 2025 and would end in December 2032 under both options (2). The construction schedule utilized in the analysis, shown in Table 4-1, represent a “worst-case” analysis scenario. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (29).

TABLE 4-1: CONSTRUCTION DURATION – OPTION A AND OPTION B

Phase	Construction Activity	Start Date	End Date	Days
Mass Grading	Site Preparation	6/1/2026	7/24/2026	40
	Mass Grading	7/25/2026	1/8/2027	120
Phase 1 (2028 OY)	Remedial Grading	1/9/2027	4/2/2027	60
	Building Construction	4/3/2027	12/31/2027	195
	Paving	9/20/2027	12/31/2027	75
	Architectural Coating	9/20/2027	12/31/2027	75
Phase 2 (2029 OY)	Remedial Grading	1/1/2028	3/24/2028	60
	Building Construction	3/25/2028	7/31/2029	352
	Paving	2/28/2029	7/31/2029	110
	Architectural Coating	2/28/2029	7/31/2029	110
Phase 3 (2030 OY)	Remedial Grading	8/1/2029	10/23/2029	60
	Building Construction	10/24/2029	12/31/2030	310
	Paving	7/31/2030	12/31/2030	110
	Architectural Coating	7/31/2030	12/31/2030	110

Phase	Construction Activity	Start Date	End Date	Days
Phase 4 (2032 OY)	Remedial Grading	1/1/2031	3/25/2031	60
	Building Construction	3/26/2031	12/31/2032	463
	Paving	7/31/2032	12/31/2032	110
	Architectural Coating	7/31/2032	12/31/2032	110

As discussed in the AQIA, off-site utility and infrastructure improvements are anticipated in order to support development of the Project. However, these activities would be short-term in nature relative to Project construction and would not utilize equipment totals that would exceed the equipment totals on Table 3-2. As such, energy demand required for off-site utility and infrastructure improvements would be minimal relative to the energy demand required for Project construction activities.

PROJECT CONSTRUCTION POWER COST

The 2024 *National Construction Estimator* identifies a typical power cost per 1,000 sf of building construction per month of \$2.66, which was used to calculate the Project's total construction power cost (30).

As shown in Table 4-2, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately \$250,450.62 for Option A and Option B.

TABLE 4-2: CONSTRUCTION POWER COST – OPTION A AND OPTION B

Phase	Building Construction (in 1,000 sf)	Power Cost (in 1,000 sf)	Construction Duration (months)	Power Cost
1	641.622	\$2.66	11	\$18,773.86
2	1,386.044	\$2.66	18	\$66,363.79
3	1,488.920	\$2.66	16	\$63,368.44
4	1,666.305	\$2.66	23	\$101,944.54
(PHASES 1-4) TOTAL CONSTRUCTION POWER COST				\$250,450.62

4.3.2 CONSTRUCTION ELECTRICITY USAGE

The total Project construction electricity usage is the summation of the products of the power cost (estimated in Table 4-3) by the utility provider cost per kilowatt hour (kWh) of electricity.

PROJECT CONSTRUCTION ELECTRICITY USAGE

The SCE's general service rate schedule is used to determine the Project's electrical usage. As of October 1, 2024, SCE's general service rate is \$0.16 per kilowatt hours (kWh) of electricity for industrial services (31). As shown in Table 4-3, the total electricity usage from on-site Project

construction related activities is estimated to be approximately 1,565,316 kWh for Option A and Option B.

TABLE 4-3: CONSTRUCTION ELECTRICITY USAGE – OPTION A AND OPTION B

Phase	Cost per kWh	Project Construction Electricity Usage (kWh)
1	\$0.16	117,337
2	\$0.16	414,774
3	\$0.16	396,053
4	\$0.16	637,153
PHASE 1-4 TOTAL CONSTRUCTION ELECTRICITY USAGE		1,565,316

4.3.3 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction.

CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 4-4 for Option A and Option B would operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed.

TABLE 4-4: CONSTRUCTION EQUIPMENT ASSUMPTIONS – OPTION A AND OPTION B

Phase	Construction Activity	Equipment	Quantity	Hours Per
Mass Grading	Site Preparation	Crawler Tractors	12	8
		Rubber Tired Dozers	9	8
Phase 1-4	Mass Grading	Crawler Tractors	6	8
		Excavators	6	8
		Graders	3	8
		Rubber Tired Dozers	3	8
		Scrapers	16	8
	Remedial Grading	Crawler Tractors	3	8
		Excavators	3	8
		Graders	2	8
		Rubber Tired Dozers	2	8
		Scrapers	4	8
	Building Construction	Cranes	2	8
		Forklifts	6	8
		Generator Sets	2	8

Phase	Construction Activity	Equipment	Quantity	Hours Per
		Tractors/Loaders/Backhoes	6	8
		Welders	2	8
	Paving	Pavers	2	8
		Paving Equipment	2	8
		Rollers	2	8
	Architectural Coating	Air Compressors	1	8

¹ In order to account for fugitive dust emissions, Crawler Tractors were used in lieu of Tractors/Loaders/Backhoes.

PROJECT CONSTRUCTION EQUIPMENT FUEL CONSUMPTION

Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-7. The aggregate fuel consumption rate for all equipment is estimated at 18.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer Guidelines (32). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered, which is consistent with industry standards.

Diesel fuel would be supplied by existing commercial fuel providers serving the Project area and region.³ As presented in Table 4-5, Project construction activities would consume an estimated 741,280 gallons of diesel fuel for Option A and Option B. Project construction would represent a “single-event” diesel fuel demand and would not require ongoing or permanent commitment of diesel fuel resources for this purpose.

³ Based on Appendix A of the CalEEMod User’s Guide, Construction consists of several types of off-road equipment. Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod assumes all of the equipment operates on diesel fuel.

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A AND OPTION B (1 OF 5)

Phase	Construction Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Fuel Consumption (gallons)
Mass Grading	Site Preparation	40	Rubber Tired Dozers	367	9	8	0.4	10,570	22,853
			Crawler Tractors	87	12	8	0.43	3,591	7,765
	Mass Grading	120	Graders	148	3	8	0.41	1,456	9,446
			Excavators	36	6	8	0.38	657	4,259
			Scrapers	423	16	8	0.48	25,989	168,578
			Rubber Tired Dozers	367	3	8	0.4	3,523	22,853
			Crawler Tractors	87	6	8	0.43	1,796	11,648
MASS GRADING TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									247,403

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A AND OPTION B (2 OF 5)

Phase	Construction Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Fuel Consumption (gallons)
1	Remedial Grading	60	Graders	148	2	8	0.41	971	3,149
			Excavators	36	3	8	0.38	328	1,065
			Scrapers	423	4	8	0.48	6,497	21,072
			Rubber Tired Dozers	367	2	8	0.4	2,349	7,618
			Crawler Tractors	87	3	8	0.43	898	2,912
	Building Construction	195	Forklifts	82	6	8	0.2	787	8,298
			Generator Sets	14	2	8	0.74	166	1,747
			Cranes	367	2	8	0.29	1,703	17,949
			Welders	46	2	8	0.45	331	3,491
			Tractors/Loaders/Backhoes	84	6	8	0.37	1,492	15,725
	Paving	75	Pavers	81	2	8	0.42	544	2,207
			Paving Equipment	89	2	8	0.36	513	2,078
			Rollers	36	2	8	0.38	219	887
	Architectural Coating	75	Air Compressors	37	1	8	0.48	142	576
PHASE 1 TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									88,774

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A AND OPTION B (3 OF 5)

Phase	Construction Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Fuel Consumption (gallons)
2	Remedial Grading	60	Graders	148	2	8	0.41	971	3,149
			Excavators	36	3	8	0.38	328	1,065
			Scrapers	423	4	8	0.48	6,497	21,072
			Rubber Tired Dozers	367	2	8	0.4	2,349	7,618
			Crawler Tractors	87	3	8	0.43	898	2,912
	Building Construction	352	Forklifts	82	6	8	0.2	787	14,978
			Generator Sets	14	2	8	0.74	166	3,154
			Cranes	367	2	8	0.29	1,703	32,401
			Welders	46	2	8	0.45	331	6,302
			Tractors/Loaders/Backhoes	84	6	8	0.37	1,492	28,385
	Paving	110	Pavers	81	2	8	0.42	544	3,236
			Paving Equipment	89	2	8	0.36	513	3,048
			Rollers	36	2	8	0.38	219	1,301
	Architectural Coating	110	Air Compressors	37	1	8	0.48	142	845
PHASE 2 TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									129,466

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A AND OPTION B (4 OF 5)

Phase	Construction Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Fuel Consumption (gallons)
3	Remedial Grading	60	Graders	148	2	8	0.41	971	3,149
			Excavators	36	3	8	0.38	328	1,065
			Scrapers	423	4	8	0.48	6,497	21,072
			Rubber Tired Dozers	367	2	8	0.4	2,349	7,618
			Crawler Tractors	87	3	8	0.43	898	2,912
	Building Construction	310	Forklifts	82	6	8	0.2	787	13,191
			Generator Sets	14	2	8	0.74	166	2,778
			Cranes	367	2	8	0.29	1,703	28,535
			Welders	46	2	8	0.45	331	5,550
			Tractors/Loaders/Backhoes	84	6	8	0.37	1,492	24,998
	Paving	110	Pavers	81	2	8	0.42	544	3,236
			Paving Equipment	89	2	8	0.36	513	3,048
			Rollers	36	2	8	0.38	219	1,301
	Architectural Coating	110	Air Compressors	37	1	8	0.48	142	845
PHASE 3 TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									119,298

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A AND OPTION B (5 OF 5)

Phase	Construction Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Fuel Consumption (gallons)
4	Remedial Grading	60	Graders	148	2	8	0.41	971	3,149
			Excavators	36	3	8	0.38	328	1,065
			Scrapers	423	4	8	0.48	6,497	21,072
			Rubber Tired Dozers	367	2	8	0.4	2,349	7,618
			Crawler Tractors	87	3	8	0.43	898	2,912
	Building Construction	463	Forklifts	82	6	8	0.2	787	19,701
			Generator Sets	14	2	8	0.74	166	4,148
			Cranes	367	2	8	0.29	1,703	42,618
			Welders	46	2	8	0.45	331	8,289
			Tractors/Loaders/Backhoes	84	6	8	0.37	1,492	37,336
	Paving	110	Pavers	81	2	8	0.42	544	3,236
			Paving Equipment	89	2	8	0.36	513	3,048
			Rollers	36	2	8	0.38	219	1,301
	Architectural Coating	110	Air Compressors	37	1	8	0.48	142	845
PHASE 4 TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									156,339
OPTION A AND OPTION B (MASS GRADING + PHASE 1-4) TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)									741,280

4.3.4 CONSTRUCTION TRIPS AND VMT

Construction generates on-road vehicle emissions from vehicle usage for workers, hauling, and vendors commuting to and from the site. The number of workers, hauling, and vendor trips are presented below in Table 4-6 for Option A and Option B.

Daily Worker and Vendor Trips were estimated using CalEEMod, based on project size, construction phase, and equipment. Worker Trips are calculated as 2.5 times the number of equipment for most phases, or based on the project size for building construction, and architectural coating trips are 20% of building construction trips. The construction Vendor Trip assumptions used in this analysis are based on trip rates derived from the Sacramento Metropolitan Air Quality Management District's construction survey, as reference in Appendix D (Technical Source Documentation for Emissions Calculations) of the CalEEMod User Guide, and the project size. It should be noted that within this survey, Vendor Trips are specifically defined as trips made by cement and water trucks. Accordingly, all water truck activity associated with construction is captured within the Vendor Trip category, and no separate trip classification is required for these vehicles.

It should be noted that for Vendor Trips specifically, CalEEMod only assigns Vendor Trips to the Building Construction phase. Vendor trips would occur primarily during Remedial Grading as well. As such, the CalEEMod defaults for Vendor Trips from Building Construction have been adjusted based on a ratio of the total vendor trips to the number of days for Remedial Grading for Phases 1-4.

TABLE 4-6: CONSTRUCTION TRIPS AND VMT – OPTION A AND OPTION B

Phase	Construction Activity	Worker Trips Per Day	Vendor Trips Per Day
Mass Grading	Site Preparation	85	16
	Mass Grading	53	0
Phase 1	Remedial Grading	35	25
	Building Construction	269	80
	Paving	15	0
	Architectural Coating	54	0
Phase 2	Remedial Grading	35	33
	Building Construction	582	194
	Paving	15	0
	Architectural Coating	116	0
Phase 3	Remedial Grading	35	40
	Building Construction	625	204
	Paving	15	0
	Architectural Coating	125	0
Phase 4	Remedial Grading	35	31

	Building Construction	700	242
	Paving	15	0
	Architectural Coating	140	0

4.3.5 CONSTRUCTION WORKER FUEL ESTIMATES

With respect to estimated VMT for the Project, the construction worker trips (personal vehicles used by workers commuting to the Project from home) would generate an estimated 15,735,101 VMT for Option A and Option B during Project construction (2). Based on CalEEMod methodology, it is assumed that 50% of all construction worker trips are from light-duty-auto vehicles (LDA), 25% are from light-duty-trucks (LDT1⁴), and 25% are from light-duty-trucks (LDT2⁵). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA, LDT1, and LDT2 were estimated using information generated within the 2021 version of the EMFAC developed by CARB. EMFAC2021 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (28). EMFAC2021 was run for the LDA, LDT1, and LDT2 vehicle class within the Riverside (SC) County for the years 2026 through 2032. Data from EMFAC2021 is shown in Appendix 4.4.

As shown in Table 4-7, the estimated fuel consumption resulting from Project construction worker trips is 496,300 gallons for Option A and Option B. It should be noted that construction worker trips would represent a “single-event” gasoline fuel demand and would not require ongoing or permanent commitment of fuel resources for this purpose.

⁴ Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

⁵ Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDA) – OPTION A AND OPTION B

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Mass Grading						
2026						
Site Preparation	40	27	18.5	19,980	33.43	598
Mass Grading	114	43	18.5	90,687	33.43	2,712
2027						
Mass Grading	6	43	18.5	4,773	34.29	139
Phase 1						
2027						
Remedial Grading	60	18	18.5	19,980	34.29	583
Building Construction	195	135	18.5	487,013	34.29	14,204
Paving	75	8	18.5	11,100	34.29	324
Architectural Coating	75	27	18.5	37,463	34.29	1,093
Phase 2						
2028						
Remedial Grading	60	18	18.5	19,980	35.14	569
Building Construction	200	291	18.5	1,076,700	35.14	30,637
2029						
Building Construction	152	291	18.5	818,292	35.96	22,754
Paving	110	8	18.5	16,280	35.96	453
Architectural Coating	110	58	18.5	118,030	35.96	3,282
Phase 3						
2029						
Remedial Grading	60	18	18.5	19,980	35.96	556
Building Construction	49	313	18.5	283,735	35.96	7,890
2030						

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	261	313	18.5	1,511,321	36.74	41,134
Paving	110	8	18.5	16,280	36.74	443
Architectural Coating	110	63	18.5	128,205	36.74	3,489
Phase 4						
2031						
Remedial Grading	60	18	18.5	19,980	37.47	533
Building Construction	201	350	18.5	1,301,475	37.47	34,732
2032						
Building Construction	262	350	18.5	1,696,450	38.16	44,459
Paving	110	8	18.5	16,280	38.16	427
Architectural Coating	110	70	18.5	142,450	38.16	3,733
TOTAL CONSTRUCTION WORKER (LDA) FUEL CONSUMPTION						214,744

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT1) – OPTION A AND OPTION B

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Mass Grading						
2026						
Site Preparation	40	14	18.5	10,360	25.70	403
Mass Grading	114	22	18.5	46,398	25.70	1,805
2027						
Mass Grading	6	22	18.5	2,442	26.22	93
Phase 1						
2027						
Remedial Grading	60	9	18.5	9,990	26.22	381
Building Construction	195	68	18.5	245,310	26.22	9,356

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Paving	75	4	18.5	5,550	26.22	212
Architectural Coating	75	14	18.5	19,425	26.22	741
Phase 2						
2028						
Remedial Grading	60	9	18.5	9,990	26.76	373
Building Construction	200	146	18.5	540,200	26.76	20,183
2029						
Building Construction	152	146	18.5	410,552	27.31	15,032
Paving	110	4	18.5	8,140	27.31	298
Architectural Coating	110	29	18.5	59,015	27.31	2,161
Phase 3						
2029						
Remedial Grading	60	9	18.5	9,990	27.31	366
Building Construction	49	157	18.5	142,321	27.31	5,211
2030						
Building Construction	261	157	18.5	728,075	27.86	27,215
Paving	110	4	18.5	8,140	27.86	292
Architectural Coating	110	32	18.5	65,120	27.86	2,338
Phase 4						
2031						
Remedial Grading	60	9	18.5	9,990	28.38	352
Building Construction	201	175	18.5	650,738	28.38	22,926
2032						
Building Construction	262	175	18.5		28.90	29,354
Paving	110	4	18.5	8,140	28.90	282
Architectural Coating	110	35	18.5	71,225	28.90	2,465
TOTAL CONSTRUCTION WORKER (LDT1) FUEL CONSUMPTION						141,840

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT2) – OPTION A AND OPTION B

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Mass Grading						
2026						
Site Preparation	40	14	18.5	10,360	26.01	398
Mass Grading	114	22	18.5	46,398	26.01	1,784
2027						
Mass Grading	6	22	18.5	2,442	26.63	92
Phase 1						
2027						
Remedial Grading	60	9	18.5	9,990	26.63	375
Building Construction	195	68	18.5	245,310	26.63	9,213
Paving	75	4	18.5	5,550	26.63	208
Architectural Coating	75	14	18.5	19,425	26.63	730
Phase 2						
2028						
Remedial Grading	60	9	18.5	9,990	27.23	367
Building Construction	200	146	18.5	540,200	27.23	19,838
2029						
Building Construction	152	146	18.5	410,552	27.79	14,773
Paving	110	4	18.5	8,140	27.79	293
Architectural Coating	110	29	18.5	59,015	27.79	2,124
Phase 3						
2029						
Remedial Grading	60	9	18.5	9,990	27.79	359
Building Construction	49	157	18.5	142,321	27.79	5,121
2030						
Building Construction	261	157	18.5	758,075	28.31	26,777

Construction Activity	Duration (Days)	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Paving	110	4	18.5	8,140	28.31	288
Architectural Coating	110	32	18.5	65,120	28.31	2,300
Phase 4						
2031						
Remedial Grading	60	9	18.5	9,990	28.79	347
Building Construction	201	175	18.5	650,738	28.79	22,603
2032						
Building Construction	262	175	18.5	848,225	29.24	29,013
Paving	110	4	18.5	8,140	29.24	278
Architectural Coating	110	35	18.5	71,225	29.24	2,436
TOTAL CONSTRUCTION WORKER (LDT2) FUEL CONSUMPTION						139,716
OPTION A AND OPTION B (MASS GRADING + PHASES 1-4) TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION						496,300

4.3.6 CONSTRUCTION VENDOR AND HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction vendor trips (vehicles that deliver materials to the site during construction) would generate an estimated 2,730,887 VMT for Option A and Option B along area roadways during Project construction (2). It is assumed that 50% of all vendor trips are from medium-heavy duty trucks (MHD) and 50% of all vendor trips are from heavy-heavy duty trucks (HHD). These assumptions are consistent with the CalEEMod defaults utilized within the within the AQIA (2). Vehicle fuel efficiencies for MHDs and HHDs were estimated using information generated within EMFAC2021. EMFAC2021 was run for the MHD and HHD vehicle classes within the Riverside (SC) for the 2026 through 2032 calendar years. Data from EMFAC2021 is shown in Appendix 4.4.

Based in Table 4-8, it is estimated that 336,576 gallons of fuel for Option A and Option B will be consumed related to construction vendor and hauling trips during construction. It should be noted that Project construction vendor trips would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-8: VENDOR FUEL CONSUMPTION ESTIMATES (MHDT) – OPTION A AND OPTION B

Construction Activity	Duration (Days)	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Mass Grading						
2026						
Site Preparation	40	8	10.2	3,264	8.72	374
Phase 1						
2027						
Remedial Grading	60	13	10.2	4,896	8.72	561
Building Construction	195	40	10.2	46,481	8.72	5,327
Phase 2						
2028						
Remedial Grading	60	17	10.2	10,404	9.09	1,145
Building Construction	200	97	10.2	197,880	9.09	21,777
2029						
Building Construction	152	97	10.2	150,389	9.37	16,056
Phase 3						
2029						
Remedial Grading	60	20	10.2	12,240	9.37	1,307
Building Construction	49	102	10.2	50,980	9.37	5,443
2030						
Building Construction	261	102	10.2	271,544	9.72	27,934
Phase 4						
2031						
Remedial Grading	60	16	10.2	9,792	10.15	965
Building Construction	201	121	10.2	248,074	10.15	24,440
2032						
Building Construction	262	121	10.2	323,360	10.63	30,419
TOTAL CONSTRUCTION VENDOR (MHDT) FUEL CONSUMPTION						139,722

TABLE 4-8: VENDOR FUEL CONSUMPTION ESTIMATES (HHDT) – OPTION A AND OPTION B

Construction Activity	Duration (Days)	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Mass Grading						
2026						
Site Preparation	40	8	10.2	3,264	6.33	516
Phase 1						
2027						
Remedial Grading	60	13	10.2	7,956	6.45	1,233
Building Construction	195	40	10.2	79,560	6.45	12,333
Phase 2						
2028						
Remedial Grading	60	17	10.2	10,404	6.60	1,577
Building Construction	200	97	10.2	197,880	6.60	29,990
2029						
Building Construction	152	97	10.2	150,389	6.76	22,246
Phase 3						
2029						
Remedial Grading	60	20	10.2	12,240	6.76	1,811
Building Construction	49	102	10.2	50,980	6.76	7,541
2030						
Building Construction	261	102	10.2	271,544	6.93	39,160
Phase 4						
2031						
Remedial Grading	60	16	10.2	9,792	7.12	1,375
Building Construction	201	121	10.2	248,074	7.12	34,843
2032						
Building Construction	262	121	10.2	323,360	7.31	44,228
TOTAL CONSTRUCTION VENDOR (HHDT) FUEL CONSUMPTION						196,854

Construction Activity	Duration (Days)	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
OPTION A AND OPTION B (MASS GRADING + PHASES 1-4) TOTAL CONSTRUCTION VENDOR FUEL CONSUMPTION						336,576

4.3.7 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

Starting in 2014, CARB adopted the nation's first regulation aimed at cleaning up off-road construction equipment such as bulldozers, graders, and backhoes. These requirements ensure fleets gradually turnover the oldest and dirtiest equipment to newer, cleaner models and prevent fleets from adding older, dirtier equipment. As such, the equipment used for Project construction would conform to CARB regulations and California emissions standards. It should also be noted that there are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in the construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

Construction contractors would be required to comply with applicable CARB regulations regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additional construction-source energy efficiencies would occur due to required California regulations and best available control measures (BACM). For example, CCR Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Section 2449(d)(3) requires that grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are required to be informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing, and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.4 OPERATIONAL ENERGY DEMANDS

Energy consumption in support of or related to Project operations would include transportation fuel demands (fuel consumed by passenger car and truck vehicles accessing the Project site), fuel demands from operational equipment, and facilities energy demands (energy consumed by building operations and site maintenance activities).

4.4.1 TRANSPORTATION FUEL DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. The VMT per vehicle class can be determined by evaluating the vehicle fleet mix and the total VMT. As with worker and vendors trips, operational vehicle fuel efficiencies were estimated using information generated within EMFAC2021 developed by CARB (28). EMFAC2021 was run for the Riverside (SC) for the 2028, 2029, 2030, 2032 calendar years. Data from EMFAC2021 is shown in Appendix 4.4. In order to calculate fuel usage from transport refrigeration units (TRUs) accessing the site under Option B, fuel consumption data from CARB's Off-Road Web Platform was utilized (33).

The estimated transportation energy demands are summarized in Table 4-9 and 4-10. As summarized in Tables 4-9 and 4-10 the Project would result in 146,948,271 annual VMT and 6,562,778 gallons per year for Option A and 183,563,276 annual VMT and 9,817,813 gallons per year for Option B during operations.

TABLE 4-9: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION – OPTION A

Phase	Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual Vehicle Miles Traveled	Estimated Annual Fuel Consumption (gallons)
Phase 1	LDA	35.14	7,885,967	224,394
	LDT1	26.76	575,215	21,491
	LDT2	27.23	3,377,590	124,034
	MDV	21.91	2,484,324	113,372
	LHDT1	17.78	932,987	52,488
	LHDT2	16.65	267,098	16,042
	MHDT	9.09	1,479,965	101,807
	HHDT	6.60	4,410,618	668,450
	MCY	42.30	358,631	8,478
PHASE 1 FUEL CONSUMPTION (ALL VEHICLES)			21,772,396	1,330,557

Phase	Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual Vehicle Miles Traveled	Estimated Annual Fuel Consumption (gallons)
Phase 1 + Phase 2	LDA	35.96	24,473,567	680,536
	LDT1	27.31	1,748,213	64,011
	LDT2	27.79	10,666,780	383,819
	MDV	22.42	7,676,054	342,378
	LHDT1	18.31	2,950,508	161,156
	LHDT2	17.06	845,538	49,571
	MHDT	9.37	4,650,483	101,807
	HHDT	6.76	13,811,222	2,043,037
	MCY	42.43	1,100,950	25,950
PHASE 1 + PHASE 2 FUEL CONSUMPTION (ALL VEHICLES)			67,923,315	3,852,264
Phase 1 + Phase 2 + Phase 3	LDA	36.74	43,433,102	1,182,127
	LDT1	27.86	3,042,796	109,236
	LDT2	28.31	19,246,782	679,831
	MDV	22.91	13,580,115	592,843
	LHDT1	18.91	5,017,547	265,389
	LHDT2	17.52	1,438,215	82,079
	MHDT	9.72	7,934,226	101,807
	HHDT	6.93	24,004,715	3,461,743
	MCY	42.56	1,931,591	45,385
PHASE 1 + PHASE 2 + PHASE 3 FUEL CONSUMPTION (ALL VEHICLES)			119,629,090	6,520,440
Phase 1 + Phase 2 + Phase 3 + Phase 4 (Buildout)	LDA	38.16	62,120,287	1,627,994
	LDT1	28.90	4,208,399	145,639
	LDT2	29.24	28,341,961	969,406
	MDV	23.80	19,359,685	813,341
	LHDT1	20.32	3,914,984	192,649
	LHDT2	18.66	1,118,645	59,939
	MHDT	10.63	6,249,838	101,807
	HHDT	7.31	18,926,972	2,588,760
	MCY	42.81	2,707,501	63,244
PROJECT BUILDOUT (PHASES 1-4) FUEL CONSUMPTION (ALL VEHICLES)			146,948,271	6,562,778

TABLE 4-10: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION - OPTION B

Phase	Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual Vehicle Miles Traveled	Estimated Annual Fuel Consumption (gallons)
Phase 1	LDA	35.14	8,043,937	228,889
	LDT1	26.76	586,738	21,922
	LDT2	27.23	3,445,249	126,519
	MDV	21.91	2,534,090	115,643
	LHDT1	17.78	1,434,349	80,694
	LHDT2	16.65	410,630	24,662
	MHDT	9.09	1,359,013	101,807
	HHDT	6.60	4,664,810	706,974
	MCY	42.30	365,815	8,648
	TRUs	-	-	43,743
PHASE 1 FUEL CONSUMPTION (ALL VEHICLES)			22,844,631	1,459,500
Phase 1 + Phase 2	LDA	35.96	25,363,951	705,295
	LDT1	27.31	1,811,816	66,340
	LDT2	27.79	11,054,853	397,783
	MDV	22.42	7,955,320	354,834
	LHDT1	18.31	4,458,784	243,538
	LHDT2	17.06	1,277,770	74,911
	MHDT	9.37	4,200,315	101,807
	HHDT	6.76	14,550,401	2,152,381
	MCY	42.43	1,141,004	26,894
	TRUs	-	-	137,105
PHASE 1 + PHASE 2 FUEL CONSUMPTION (ALL VEHICLES)			71,814,214	4,260,886
Phase 1 + Phase 2 + Phase 3	LDA	36.74	43,884,767	1,194,420
	LDT1	27.86	3,074,439	110,372
	LDT2	28.31	19,446,931	686,901
	MDV	22.91	13,721,336	599,008
	LHDT1	18.91	7,732,500	408,988
	LHDT2	17.52	2,216,420	126,491
	MHDT	9.72	7,284,617	101,807
	HHDT	6.93	25,234,799	3,639,134
	MCY	42.56	1,951,678	45,857

Phase	Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual Vehicle Miles Traveled	Estimated Annual Fuel Consumption (gallons)
	TRUs	-	-	142,314
PHASE 1 + PHASE 2 + PHASE 3 FUEL CONSUMPTION (ALL VEHICLES)			124,547,487	7,055,293
Phase 1 + Phase 2 + Phase 3 + Phase 4 (Buildout)	LDA	38.16	64,373,261	1,687,038
	LDT1	28.90	4,361,029	150,922
	LDT2	29.24	29,369,866	1,004,564
	MDV	23.80	20,061,821	842,839
	LHDT1	20.32	11,404,482	561,193
	LHDT2	18.66	3,258,651	174,605
	MHDT	10.63	10,736,372	101,807
	HHDT	7.31	37,192,098	5,086,995
	MCY	42.81	64,373,261	1,687,038
	TRUs	-	-	142,314
PROJECT BUILDOUT (PHASES 1-4) FUEL CONSUMPTION (ALL VEHICLES)			183,563,276	9,817,813

4.4.2 ON-SITE CARGO HANDLING EQUIPMENT FUEL DEMANDS

It is common for industrial buildings to require the operation of exterior cargo handling equipment in the building's truck court areas. For this Project, both Option A and Option B were assumed to include 3 pieces of equipment in Phase 1, 8 pieces of equipment in Phase 2, 14 pieces of equipment in Phase 3, and 20 pieces of equipment in Phase 4⁶. Each piece of equipment was modeled as a 175-horsepower natural gas-powered port tractor and assumed to operate 4 hours a day⁷ for 365 days of the year. Based on usage factors from EMFAC 2021, it is estimated that on-site cargo handling equipment would consume 92,838 gallons of fuel per year for both Option A and Option B.

TABLE 4-11: ON-SITE CARGO HANDLING EQUIPMENT FUEL CONSUMPTION – OPTION A AND OPTION B

Duration (Days)	Equipment	Quantity	Usage Hours	Fuel Consumption (gals./hr.)	Activity (hrs./yr)	Total Fuel Consumption
365	Cargo Handling Equipment - Port Tractor	20	4	3.18	29,200	92,838

⁶ Based on SCAQMD's April 2021 Second Draft Report for Rule 2305, it is estimated that warehouses operate an average of 3.6 yard trucks per million square feet of warehouse space.

⁷ Based in Table II-3, Port and Rail Cargo Handling Equipment Demographics by Type, from CARB's Technology Assessment: Mobile Cargo Handling Equipment document, a single piece of equipment could operate up to 2 hours per day (Total Average Annual Activity divided by Total Number Pieces of Equipment). As such, the analysis conservatively assumes that the tractor/loader/backhoe would operate up to 4 hours per day.

4.4.3 STATIONARY SOURCE ENERGY DEMANDS

Fuel consumption estimates from stationary sources are presented in Table 4-12 and 4-13. As previously stated, the aggregate fuel consumption rate for all equipment is estimated at 18.5 hp-hr-gal., obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines. The proposed Project, for both Option A and Option B, was conservatively assumed to include installation of four, 300-horsepower diesel-powered fire pumps at Project buildout (one for each building proposed for development). Additionally, in order to account for the possibility of refrigerated uses under Option B and based on client provided information, installation of four diesel-powered emergency generators rated at 2,680-horsepower each was assumed. The fire pumps and emergency generators were each estimated to operate for up to 1 hour per day, 1 day per week for up to 50 hours per year for maintenance and testing purposes. Diesel fuel would be supplied by existing commercial fuel providers serving the region. As presented in Table 4-12 and 4-13, Project stationary sources would consume an estimated 2,260 gallons of diesel fuel for Option A and 22,446 gallons of diesel fuel for Option B.

TABLE 4-12: STATIONARY SOURCE EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION A

Equipment	HP Rating	Quantity	Usage Hours	Annual Hourly Usage	Load Factor	HP-hrs/day	Total Fuel Consumption
Fire Pump	300	4	1	50	0.73	1,200	2,260
OPTION A 1 STATIONARY SOURCE FUEL DEMAND (GALLONS DIESEL FUEL)							2,260

TABLE 4-13: STATIONARY SOURCE EQUIPMENT FUEL CONSUMPTION ESTIMATES – OPTION B

Equipment	HP Rating	Quantity	Usage Hours	Annual Hourly Usage	Load Factor	HP-hrs/day	Total Fuel Consumption
Fire Pump	300	4	1	50	0.73	1,200	2,260
Emergency Generator	2,680	4	1	50	0.73	10,720	20,186
OPTION B STATIONARY SOURCE FUEL DEMAND (GALLONS DIESEL FUEL)							22,446

4.4.4 FACILITY ENERGY DEMANDS

Project building operations activities would result in the consumption of electricity, which would be supplied to the Project by SCE. It should be noted that there is no natural gas usage associated with the proposed Project. With implementation of MM AQ-13, the analysis assumed that building 1 would include installation of a 250 kW solar photovoltaic system, and buildings 2 through 4 would each include a 500 kW solar photovoltaic system. Annual electricity demands for the Project are summarized in Table 4-14 and 4-15; consumptions is estimated to be 28,810,138 kWh/year of electricity demand for Option A and 40,302,336 kWh/year of electricity demand for Option B.

TABLE 4-14: PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY – OPTION A

Phase	Land Use	Electricity Demand (kWh/year)
Phase 1	High-Cube Fulfillment (Non-Sort)	885,893
	High-Cube Fulfillment (Sort)	885,893
	Warehouse	1,181,184
	Parking Lot	282,297
	Solar Photovoltaic	-412,500
PHASE 1 PROJECT ENERGY DEMAND		2,822,767
Phase 1 + Phase 2	High-Cube Fulfillment (Non-Sort)	2,799,610
	High-Cube Fulfillment (Sort)	2,799,610
	Warehouse	3,732,811
	Parking Lot	798,124
	Solar Photovoltaic	-1,237,500
PHASE 1 + PHASE 2 PROJECT ENERGY DEMAND		8,892,656
Phase 1 + Phase 2 + Phase 3	High-Cube Fulfillment (Non-Sort)	4,855,370
	High-Cube Fulfillment (Sort)	4,855,370
	Warehouse	6,473,824
	Parking Lot	1,377,829
	Solar Photovoltaic	2,062,500
PHASE 1 + PHASE 2 + PHASE 3 PROJECT ENERGY DEMAND		19,624,894
Phase 1 + Phase 2 + Phase 3 + Phase 4 (Buildout)	High-Cube Fulfillment (Non-Sort)	7,156,049
	High-Cube Fulfillment (Sort)	7,156,049
	Parking Lot	9,541,392
	Solar Photovoltaic	2,069,148
PROJECT BUILDOUT (PHASES 1-4) PROJECT ENERGY DEMAND		28,810,138

kWh – kilowatt hours

TABLE 4-15: PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY – OPTION B

Phase	Land Use	Electricity Demand (kWh/year)
Phase 1	High-Cube Cold Storage	2,707,363
	High-Cube Fulfillment (Non-Sort)	885,893

Phase	Land Use	Electricity Demand (kWh/year)
	High-Cube Fulfillment (Sort)	885,893
	Warehouse	611,436
	Parking Lot	282,297
	Solar Photovoltaic	-412,500
PHASE 1 PROJECT ENERGY DEMAND		4,960,382
Phase 1 + Phase 2	High-Cube Cold Storage	8,555,871
	High-Cube Fulfillment (Non-Sort)	2,799,610
	High-Cube Fulfillment (Sort)	2,799,610
	Warehouse	1,932,265
	Parking Lot	798,124
	Solar Photovoltaic	-1,237,500
PHASE 1 + PHASE 2 PROJECT ENERGY DEMAND		15,647,981
Phase 1 + Phase 2 + Phase 3	High-Cube Cold Storage	14,838,467
	High-Cube Fulfillment (Non-Sort)	4,855,370
	High-Cube Fulfillment (Sort)	4,855,370
	Warehouse	3,351,133
	Parking Lot	1,377,829
	Solar Photovoltaic	-2,062,500
PHASE 1 + PHASE 2 + PHASE 3 PROJECT ENERGY DEMAND		27,215,670
Phase 1 + Phase 2 + Phase 3 + Phase 4 (Buildout)	High-Cube Cold Storage	21,869,550
	High-Cube Fulfillment (Non-Sort)	7,156,049
	High-Cube Fulfillment (Sort)	7,156,049
	Warehouse	4,939,041
	Parking Lot	2,069,148
	Solar Photovoltaic	-2,887,500
PROJECT BUILDOUT (PHASES 1-4) PROJECT ENERGY DEMAND		40,302,336

kWh – kilowatt hours

4.4.5 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title 24 and the California Green Building Standards Code).

ENHANCED VEHICLE FUEL EFFICIENCIES

Project annual fuel consumption estimates presented previously in Table 4-9 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project site can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. The location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the Project is assumed to be approximately \$250,450.62 for Option A and Option B. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project buildout, is calculated to be approximately 1,565,316 kWh for Option A and Option B.

Construction equipment used by the Project would result in single event consumption of approximately 741,280 gallons of diesel fuel for Option A and Option B during construction. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. BACMs inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the Project would result in the estimated fuel consumption of 496,300 gallons for Option A and Option B. Additionally, fuel consumption from construction vendor trips (MHDs and HHDs) will total approximately 336,576 gallons of fuel for Option A and Option B will be consumed related to construction vendor and hauling trips construction. Diesel fuel would be supplied by City and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved using bulk purchases, transport and use of construction materials. The 2023 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (34). As supported by the preceding discussions, Project

construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Annual vehicular trips and related VMT generated by the operation of the Project would result in 146,948,271 annual VMT and a fuel demand 6,562,778 gallons per year for Option A and 183,563,276 annual VMT and 9,817,813 gallons per year for Option B during operations.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other industrial uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed., 2021); and CalEEMod. As such, Project operations would not result in excessive and wasteful vehicle trips and VMT, nor excess and wasteful vehicle energy consumption compared to other industrial uses.

It should be noted that the state strategy for the transportation sector for medium and heavy-duty trucks is focused on making trucks more efficient and expediting truck turnover rather than reducing VMT from trucks. This is in contrast to the passenger vehicle component of the transportation sector where both per-capita VMT reductions and an increase in vehicle efficiency are forecasted to be needed to achieve the overall state emissions reductions goals.

Heavy duty trucks involved in goods movements are generally controlled on the technology side and through fleet turnover of older trucks and engines to newer and cleaner trucks and engines. The first battery-electric heavy-heavy duty trucks are being tested this year and SCAQMD is looking to integrate this new technology into large-scale truck operations. The following state strategies reduce GHG emissions from the medium and heavy-duty trucks:

- CARB's Mobile Source Strategy focuses on reducing GHGs through the transition to zero and low emission vehicles and from medium-duty and heavy-duty trucks.
- CARB's Sustainable Freight Action Plan establishes a goal to improve freight efficiency by 25% by 2030, deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- CARB's Emissions Reduction Plan for Ports and Goods Movement (Goods Movement Plan) in California focuses on reducing heavy-duty truck-related emissions focus on establishment of emissions standards for trucks, fleet turnover, truck retrofits, and restriction on truck idling (CARB 2006). While the focus of Goods Movement Plan is to reduce criteria air pollutant and air toxic emissions, the strategies to reduce these pollutants would also generally have a beneficial effect in reducing GHG emissions.
- CARB's On-Road Truck and Bus Regulation (2010) requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent (35).

- CARB's Heavy-Duty (Tractor-Trailer) GHG Regulation requires SmartWay tractor trailers that include idle-reduction technologies, aerodynamic technologies, and low-rolling resistant tires that would reduce fuel consumption and associated GHG emissions.

The proposed Project would implement mitigation measures that would facilitate the accessibility, parking, and loading of trucks on-site.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. The location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. In compliance with the California Green Building Standards Code and City requirements, the Project would promote the use of bicycles as an alternative means of transportation by providing short-term and/or long-term bicycle parking accommodations. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

FACILITY ENERGY DEMANDS

Project facility operational energy demands with mitigation are estimated at: 28,810,138 kWh/year of electricity demand for Option A and 40,302,336 kWh/year of electricity demand for Option B which would be supplied by SCE. Under MM AQ-10, all operational cargo handling equipment is required to be electrically powered. It should be noted that such equipment is more efficient than natural-gas powered equipment and would result in a reduction in energy use compared to the 92,838 gallons of fuel use per year for operational cargo handling equipment under both Option A and Option B. Additionally, it is expected that stationary sources would result in approximately 2,260 gallons of fuel usage per year under for Option A and 22,446 gallons of fuel usage per year under for Option B. It should be noted that there is no natural gas usage associated with the proposed Project. The Project proposes conventional industrial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The Project does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other industrial uses of similar scale and configuration.

Lastly, the Project will comply with the applicable Title 24 standards. Compliance itself with applicable Title 24 standards will ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

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5 CONCLUSIONS

5.1 ENERGY IMPACT 1

Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

As supported by the preceding analyses, Project construction and operations would not result in the inefficient, wasteful, or unnecessary consumption of energy, as the Project would be designed to incorporate several energy-saving features, and would include the installation of a solar photovoltaic system on all four buildings. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. Therefore, energy impacts associated with the proposed Project would be less than significant and mitigation is not required.

5.2 ENERGY IMPACT 2

Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The Project's consistency with the applicable state and local plans is discussed below.

CONSISTENCY WITH ISTE A

Transportation and access to the Project site is provided by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be realized pursuant to the ISTE A because SCAG is not planning for intermodal facilities on or through the Project site.

CONSISTENCY WITH TEA-21

The Project site is located along major transportation corridors with proximate access to the Interstate freeway system. The site selected for the Project facilitates access, acts to reduce vehicle miles traveled, takes advantage of existing infrastructure systems, and promotes land use compatibilities through collocation of similar uses. The Project supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct implementation of TEA-21.

CONSISTENCY WITH IEPR

Electricity would be provided to the Project by SCE. SCE's *Clean Power and Electrification Pathway* (CPEP) white paper builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation of the goals presented in the 2023 IEPR.

Additionally, the Project will comply with the applicable Title 24 standards which would ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

As such, development of the proposed Project would support the goals presented in the 2023 IEPR.

CONSISTENCY WITH STATE OF CALIFORNIA ENERGY PLAN

The Project site is located along major transportation corridors with proximate access to the Interstate freeway system. The site selected for the Project facilitates access and takes advantage of existing infrastructure systems. The Project therefore supports urban design and planning processes identified under the State of California Energy Plan, is consistent with, and would not otherwise interfere with or obstruct, implementation of the State of California Energy Plan.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

The 2022 version of Title 24 was adopted by the CEC and became effective on January 1, 2023. The proposed Project would be required to comply with the Title 24 standards in place at the time plan check submittals are made. Therefore, the Project is would not result in a significant impact on energy resources (36). The proposed Project would be subject to Title 24 standards.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 11, CALGREEN

As previously stated, CCR, Title 24, Part 11: CALGreen is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2009, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that were published on July 1, 2022, and became effective on January 1, 2023. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made.

CONSISTENCY WITH AB 1493

AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.

CONSISTENCY WITH RPS

California's RPS is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.

CONSISTENCY WITH SB 350

The proposed Project would use energy from SCE, which have committed to diversify their portfolio of energy sources by increasing energy from wind and solar sources. No feature of the Project would interfere with implementation of SB 350. Additionally, the Project would be designed and constructed to implement the energy efficiency measures for new industrial developments and would include several measures designed to reduce energy consumption.

As shown above, the Project would not conflict with any of the state or local plans. As such, a less than significant impact is expected.

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7 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Beaumont Heights Business Centre. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Professionals
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 4.1:

CALEEMOD PROJECT CONSTRUCTION EMISSIONS MODEL OUTPUTS

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APPENDIX 4.2:

CALEEMOD PROJECT OPERATIONAL EMISSIONS MODEL OUTPUTS – OPTION A

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APPENDIX 4.3:

CALEEMOD PROJECT OPERATIONAL EMISSIONS MODEL OUTPUTS – OPTION B

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APPENDIX 4.4:

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