3.8 Energy

Energy use (and efficiency) is an important indicator of GHG emissions and is therefore analyzed in this section in conjunction with the GHG analysis. This section considers the primary energy requirements for the proposed project; the benefit of existing regulations that require energy-efficient construction and operation; the potential for the proposed project to result in the wasteful, inefficient, and unnecessary consumption of energy; and the energy conservation measures proposed as part of the project design to reduce energy use.

3.8.1 Environmental Setting

3.8.1.1 Energy Services and Demands

Electrical and Natural Gas Services

In 2016, the total system power for California was 285,488 gigawatt-hours (GWh) of electricity, of which approximately 198,842 GWh of electricity was generated in-state (CEC 2019a).

In Placer County, including the town of Loomis, electrical and natural gas services are provided by Pacific Gas and Electric Company (PG&E), one the largest combined natural gas and electrical energy companies in the United States. PG&E generates, transmits, and distributes electrical service to approximately 16 million people throughout its approximately 70,000-square-mile service area, which stretches north to south in California from Eureka to Bakersfield and west to east from the Pacific Ocean to the Sierra Nevada (PG&E 2019a).

PG&E owns approximately 106,681 circuit miles of electrical distribution lines and 18,466 circuit miles of electrical transmission lines. In 2018, PG&E delivered approximately 79,776 GWh of electricity within its service area (CEC 2019b); Placer County consumed approximately 3.6 percent (2,905 GWh) of that total (CEC 2019c).

PG&E provides natural gas service to Loomis through portions of its approximately 42,000 miles of natural gas distribution pipelines. In 2018, natural gas consumption in the PG&E service area totaled approximately 4,794 million therms (CEC 2019d), less than 2 percent (95 million therms) of which was consumed by users in Placer County (CEC 2019e).

Energy Sources

PG&E provides power from a variety of sources, including nuclear, hydroelectric, natural gas, and renewable energy resources such as wind, geothermal, biomass, solar, and small hydro, as detailed in Table 3.8-1 (PG&E 2017c). In 2018, approximately 86 percent of energy delivered by PG&E was from non-GHG-generating sources; 39 percent of energy delivered by PG&E was from qualified renewable sources, thereby reaching the State's 2020 renewable energy goal ahead of schedule. PG&E owns and operates eight solar plants, and has connected more than 380,000 private rooftop solar customers to its energy grid. PG&E's hydroelectric system spans nearly 500 miles and has a generating capacity of nearly 3,900 megawatts total from 66 powerhouses (PG&E 2019b).

Table 3.8-1. Pacific Gas and Electric Company Electrical Power Mix, 2018

Electrical Sources	Percent
Non-emitting Nuclear	34*
Large Hydroelectric	13*
Renewable[1]	39*
Natural Gas/Other	15

Notes:

[1] Renewable energy sources include wind, geothermal, biomass, solar, and small hydro. These energy sources are considered eligible under California's Renewable Portfolio Standard Program.

* These resources are greenhouse gas–free.

Source: PG&E 2019b

Energy Conservation and Renewable Energy Programs

In addition, PG&E offers incentives, rebates, and educational resources to residents, businesses, nonprofits, and government agencies in Loomis. For nonresidential customers, PG&E offers rebates and incentives for power management software; occupancy sensors on lights; steam traps; heating, ventilation, and air conditioning (HVAC) motors and pumps; electric water heaters; process cooling; data center airflow management; boiler economizers; refrigeration; boiler heat recovery; refrigeration control; variable-frequency drive pumps; boilers; and fans.

Energy Use for Transportation

Transportation is the largest energy-consuming sector in California, accounting for approximately 40 percent of all energy use in the state (U.S. Energy Information Administration 2019). More motor vehicles are registered in California than in any other state, and commute times in California are among the longest in the country.

Types of transportation fuel have diversified in California and elsewhere. Historically gasoline and diesel fuel accounted for nearly all demand; now, however, numerous options are available, including ethanol, natural gas, electricity, and hydrogen. Despite advancements in alternative fuels and clean-vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California, with 15.1 billion gallons of gasoline and 4.2 billion gallons of diesel consumed in 2015 (CEC 2017a, 2017b).

The Sacramento Area Council of Governments (SACOG) prepared a regional analysis of vehicle miles traveled (VMT) and found average daily VMT for Placer County, excluding the Tahoe Basin, to be approximately 8,605. This travel demand is forecast to increase to 11,360 in 2020 and to 13,762 in 2036 under the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) (SACOG 2016). Within the SACOG region (which includes Placer County), the population growth rate has been greater than the rate of increase of total VMT, resulting in a reduction in VMT per capita from 2000 through 2012. VMT forecasts project a continuation of this declining per-capita VMT trend for the region through 2036 (SACOG 2016). The SACOG 2016 MTP/SCS identifies several policies and factors as supporting this declining trend in per-capita VMT. Among these factors are the trend toward more compact development, with more residents able to find jobs, schools, shopping, and other activities closer to their place of residence, and proposed improvements in transit and walkability that promote a shift away from reliance on private vehicles for transportation.

3.8.2 Regulatory Setting

U.S. Environmental Protection Agency and National Highway Traffic Safety Administration Standards

EPA and the National Highway Traffic Safety Administration (NHTSA) implemented national GHG emission and fuel economy standards for model year 2012–2016 light-duty cars and trucks. The second phase of the standards includes GHG and fuel economy standards for model years 2017–2025. The 2017–2025 standards are anticipated to save approximately 4 billion barrels of oil and 2 billion MT of GHG emissions. In 2025, if all standards are met through fuel efficiency improvements, the average industry fleetwide fuel efficiency for light-duty cars and trucks would be approximately 54.5 miles per gallon (EPA 2012).

In addition to standards for light-duty cars and trucks, EPA and NHTSA have implemented Phase 1 of the Medium- and Heavy-Duty Vehicle GHG Emissions and Fuel Efficiency Standards, which apply to model years 2014–2018. Phase 2 of these standards apply to model years 2021–2027 (EPA 2015).

Renewable Fuel Standard Program

Created by the Energy Policy Act of 2005, which amended the CAA, the Renewable Fuel Standard program established requirements for volumes of renewable fuel used to replace petroleum-based fuels. The four renewable fuels accepted as part of the Renewable Fuel Standard program are biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. The 2007 Energy Independence and Security Act expanded the program and its requirements to include long-term goals of using 36 billion gallons of renewable fuels and extending annual renewable-fuel volume requirements to year 2022. The four renewable fuels have specific renewable fuel-blending requirements for obligated parties such as refiners and importers of gasoline or diesel fuel. EPA implements the program in consultation with U.S. Departments of Agriculture and Energy. Gasoline and diesel refiners and importers (Obligated Parties) are required to demonstrate compliance with the Renewable Fuel Standard program.

3.8.2.1 State Plans, Policies, Regulations, and Laws

The legal framework for GHG emission reductions has come about through executive orders, legislation, and regulations. The major components of California's climate change initiatives are outlined below.

Senate Bill 375

SB 375, signed by the Governor in September 2008, aligned regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 required metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPO's regional transportation plan. ARB adopted regional GHG targets for passenger vehicles and light trucks for 2020 and 2035 for the 18 MPOs in California. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate "alternative planning strategy" to meet the targets.

Senate Bills 1078 and 107, Executive Orders S-14-08 and S-21-09, and Senate Bill 350

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Executive Order S-14-08 expanded the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewable Portfolio Standard applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. Consequently, PG&E, which would be the electricity provider for the proposed project, must meet the 33 percent goal by 2020. SB 350 (2015) increased the renewable-source requirement to 50 percent by 2030, which was further increased under SB 100 in 2018 to 60 percent by 2030 and requiring all the State's electricity to come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation, and would reduce GHG emissions associated with both existing and new development, including new development on the project site.

The California Public Utilities Commission reported that California's three largest investor-owned utilities—PG&E, Southern California Edison, and San Diego Gas and Electric Company—collectively provided 36 percent of their 2017 retail electricity sales using renewable sources and are continuing progress toward meeting the future RPS requirements (CPUC 2016, CPUC 2019).

California Green Building Standards Code

In January 2010, the State of California adopted the California Green Building Standards Code, which establishes mandatory green building standards for all buildings in California. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. Part of the intent of the CalGreen code is to provide cost-effective strategies to help meet California's GHG reduction mandates.[1] These standards include a set of minimum requirements and more rigorous voluntary measures for new construction projects to achieve specific green building performance levels. This code went into effect as part of local jurisdictions' building codes on January 1, 2011. The 2013 update to the California Green Building Standards Code became effective in January 2014. Another update to the energy efficiency standards became effective January 1, 2017. The CALGreen code was most recently updated in 2018 and 2019, with new measures taking effect on January 1, 2020. Updates to the code improve energy efficiency of newly constructed buildings and of additions and alterations to existing buildings compared to previous versions of the code.

[1] For more detail, please see the California Building Standards Commission website: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen.

3.8.2.2 Regional and Local Plans, Policies, Regulations, and Ordinances

Sacramento Area Council of Governments

SACOG is designated by the U.S. government and the State of California as the MPO for the area and is responsible for developing a regional transportation plan (i.e., MTP) in coordination with Sacramento, Yolo, Yuba, Sutter, El Dorado, and Placer counties and the 22 cities within those counties (excluding the Tahoe Basin). This plan incorporates countywide transportation planning covering a 20-year planning horizon, which must be updated every 4 years. As a requirement of SB 375, MPOs need to develop a sustainable communities strategy as part of the MTP to identify strategies and policies to reduce GHG emissions from passenger vehicles to meet state targets established by ARB.

SACOG's MTP/SCS for 2035 was adopted on April 19, 2012. SACOG's MTP/SCS calls for meeting and exceeding ARB's GHG reduction goals for passenger vehicles and light-duty trucks of 7 percent by 2020 and 16 percent by 2035, where 2005 is the baseline year for comparison (SACOG 2012). SACOG's 2016 MTP/SCS was adopted on February 18, 2016 (SACOG 2016). The 2016 MTP/SCS demonstrates how the region can accommodate expected regional population growth and the increased demand for transportation in the region, while also showing that the region could achieve a reduction in per-capita passenger VMT.

SACOG has created a framework for describing the MTP/SCS that is made up of community types. Local land use plans (e.g., adopted and proposed general plans, specific plans, master plans, corridor plans) were divided into one of five community types based on the location of the plans. The project site is in the community type identified by the MTP/SCS as a "Developing Community" (SACOG 2016 :27):

> Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely though many Developing Communities are designed with dedicated pedestrian and bicycle trails.

Town of Loomis General Plan

The *Town of Loomis General Plan* (Town of Loomis 2001) contains goals, policies, and programs that address important community issues and is the basis for land use and public policy decisions. The following policies from the *Town of Loomis General Plan* are related to energy:

Chapter III, "Land Use and Community Development"

- **Policy F.6:** Loomis shall require landscaping throughout off-street parking lots to mitigate the adverse visual impact of large paved areas and provide shading to assist in energy conservation within adjacent buildings.

Chapter VI, "Public Services, Facilities, and Finance"

- **Policy 8:** New construction and reconstruction/restoration shall consider energy conservation in the selection of building materials, building orientation, and landscaping.
- **Policy 9:** The Town shall identify the potential for energy conservation measures for the use of renewable energy sources and alternatives to fossil fuels.
- **Policy 10:** The Town shall actively participate in the energy conservation programs of the local, state, and federal agencies.

Town of Loomis Strategic Energy Resources Report

The Town of Loomis approved the *Loomis Strategic Energy Resources Report* on March 17, 2015 (Town of Loomis 2015). The report presents the following goals and supporting strategies as a roadmap for expanding efforts to increase energy efficiency and use of renewable energy efforts in Loomis:

Goal 1: Increase Energy Efficiency in Existing Structures.

- **Strategy 1.1:** Expand outreach and education to increase participation in voluntary home energy-efficiency programs.
- **Strategy 1.2:** Expand outreach and education to increase participation in voluntary non-residential energy-efficiency programs.
- **Strategy 1.3:** Identify and promote programs that help finance energy efficiency and renewable energy projects.

Goal 2: Increase the Energy Performance of New Construction.

- **Strategy 2.1:** Improve compliance with Title 24 Green Building and Energy Efficiency Standards.
- **Strategy 2.2:** Provide incentives for buildings to exceed the current Title-24 Energy Efficiency Standards.
- **Strategy 2.3:** Reduce the heat island effect and related summer heat gain in residential and non-residential projects.

Goal 3: Increase Renewable Energy Use.

- **Strategy 3.1:** Evaluate the Town's residential, non-residential, and municipal solar potential and assess barriers to increased solar energy use.
- **Strategy 3.2:** Develop a comprehensive renewable energy program that provides outreach, financing, and technical assistance.
- **Strategy 3.3:** Encourage new development projects to meet 70% of their energy needs from renewable sources.

Goal 4: Increase Energy Efficiency in Municipal Structures and Operations.

- **Strategy 4.1:** Improve energy efficiency of existing municipal structures.
- **Strategy 4.2:** Evaluate feasibility of improving energy efficiency of traffic signals and public lighting.

Goal 5: Increase Community Water Conservation and Efficiency to Reduce Associated Energy Use.

- **Strategy 5.1:** Encourage residents and businesses to conserve water used indoors.
- **Strategy 5.2:** Encourage residents and businesses to conserve water used outdoors.

Loomis Municipal Code

The Loomis Municipal Code provides regulations regarding land and structures to promote the health, safety, and welfare of the public and ensure the orderly development of the town. The following provisions of the Municipal Code related to energy are applicable to the proposed project:

- Section 13.30.080(B) in Section 13.30.080, "Outdoor Lighting," begins by stating: "Lighting shall be energy efficient…"
- Section 13.34.050(A), "Landscape Design," in Section 13.34.050, "Landscape Standards," states: "The required landscape plan shall be designed to integrate all elements of the project (e.g., buildings, parking lots, and streets) to achieve their aesthetic objectives, desirable microclimates, and minimize water and energy demand."
- Section 13.38.050(F)(8) in Section 13.38.050, "General Requirements for All Signs," states: "Light sources shall utilize energy efficient fixtures to the greatest extent possible."

3.8.3 Impact Analysis

3.8.3.1 Methodology

The evaluation of potential energy impacts was based on a review of the following planning documents and regulations pertaining to the project site and surrounding area:

- *California Energy Demand 2010–2020, Adopted Forecast* (CEC 2009)
- *Town of Loomis General Plan* (Town of Loomis 2001)
- *Loomis Strategic Energy Resources Report (*Town of Loomis 2015)
- CCR Title 24, including the 2016 California Green Building Code (CCR Title 24, Part 11)

Future energy demand was calculated based on the GHG emissions modeling conducted using CalEEMod Version 2016.3.2. The primary energy demands identified are associated with construction of the proposed project, operations of the warehouse and fueling center facilities, and transportation for deliveries and staff and customer trips. Estimates of future transportation energy demand depend on a variety of factors such as fuel prices, vehicle technologies and prices, regulatory requirements, and consumer demand and preferences. Energy-related impacts were identified by comparing existing capacity against future demand.

3.8.3.2 Thresholds of Significance

Appendix G of the State CEQA Guidelines provides guidance for assessing impacts related to energy supplies, focusing on the goal of conserving energy by ensuring that projects use energy wisely and efficiently, including a list of six environmental impacts related to use of energy in Section II(c). For the purposes of this EIR, energy impacts are considered significant if the proposed 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.

3.8.3.3 Environmental Impacts and Mitigation Measures

Impact 3.8-1: Consumption of Energy. *Implementing the proposed project would result in energy consumption in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel) during construction phases. The project's operational phases would also require energy. The proposed project would not result in an unnecessary, inefficient or wasteful use of energy. This impact would be* ***less than significant****.*

Construction-Related Energy Consumption

Implementing the proposed project would increase consumption of energy in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel) during construction and operation. Energy demands during construction are primarily driven by construction equipment and vehicle fueling. During this period, energy would be consumed by construction vehicles and equipment operating on-site, trucks delivering equipment and supplies to the project site, and construction workers driving to and from the site. The proposed project would not require any demolition, and the project grading plan does not call for the import or export of soils.

Table 3.8-2 presents the total fuel consumption anticipated for the proposed construction activities, shown both for the overall construction period and amortized over an assumed 20-year period of building operation. Over the anticipated 6-month construction period, the proposed project would require approximately 22,215 gallons of diesel and 4,033 gallons of gasoline. When amortized over a period of 20 years, fuel consumption would equal 1,111 gallons of diesel and 202 gallons of gasoline per year. These calculations are based on the CalEEMod emissions estimates for proposed construction activities and application of U.S. Energy Information Administration CO_2 emissions coefficients (U.S. Energy Information Administration 2016) to estimate fuel consumption for each phase of construction activities.

Table 3.8-2. Modeled Construction Fuel Consumption, Total and Amortized over 20 Years-All Site Options

Phase	Source	MT CO_2e/ Year [a]	Fuel Type	Factor (MT CO_2/Gallon) [b]	Gallons/Year
Rough Grade	Off-Road Equipment	178.21	Diesel	0.01016	17,541
	Hauling	0.00	Diesel	0.01016	-
	Vendors	78.77	Diesel	0.01016	7,753
	Workers	4.75	Gasoline	0.008887	534
Base for Paving	Off-Road Equipment	4.51	Diesel	0.01016	444
	Hauling	0.00	Diesel	0.01016	-
	Vendors	8.57	Diesel	0.01016	843
	Workers	0.22	Gasoline	0.008887	25
Paving - Asphalt	Off-Road Equipment	4.03	Diesel	0.01016	396
	Hauling	0.00	Diesel	0.01016	-
	Vendors	3.87	Diesel	0.01016	381
	Workers	0.22	Gasoline	0.008887	25
Concrete Foundations / Slab on Grade	Off-Road Equipment	11.06	Diesel	0.01016	1,089
	Hauling	0.00	Diesel	0.01016	-
	Vendors	8.29	Diesel	0.01016	816
	Workers	0.44	Gasoline	0.008887	50

Table 3.8-2. Modeled Construction Fuel Consumption, Total and Amortized over 20 Years-All Site Options

Phase	Source	MT CO_2e/ Year [a]	Fuel Type	Factor (MT CO_2/Gallon) [b]	Gallons/Year
Building Erection	Off-Road Equipment	54.95	Diesel	0.01016	5,408
	Hauling	0.00	Diesel	0.01016	-
	Vendors	5.53	Diesel	0.01016	544
	Workers	15.19	Gasoline	0.008887	1,709
Architectural Coating	Off-Road Equipment	3.41	Diesel	0.01016	336
	Hauling	0.00	Diesel	0.01016	-
	Vendors	0.00	Diesel	0.01016	-
	Workers	3.05	Gasoline	0.008887	343
			Total Gallons	**Diesel**	35,551
				Gasoline	2,686
			Amortized Demands (over 20 years)	**Diesel**	1,778
				Gasoline	134

Notes:
CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons
Assumed amortization period is 20 years, based upon timeline used in analysis of US Green Building Council's *Green Building Costs and Financial Benefits (US Green Building Council 2002)*.
Sources:
[a] Modeled by AECOM in 2019
[b] U.S. Energy Information Administration 2016

Consistent with the *Town of Loomis General Plan*, which has a policy requiring new development to consider energy conservation during the selection of building materials, among other design elements, the proposed project intends to incorporate the use of locally sourced, renewable, and pre-manufactured building components. As part of the project design, the following actions are proposed for the construction phase, as detailed in Chapter 2, "Project Description."

- New and renewable building materials typically would be extracted and manufactured within the region. The materials for the masonry concrete would be purchased locally, minimizing transportation-related emissions and impacts on the local roadway system.
- Pre-manufactured building components, including structural framing and metal panels, would be used during construction, thus minimizing waste generation.

Using locally sourced materials would reduce the project's energy requirements for transporting materials to the project site. In addition, using renewable materials would reduce overall energy demand in extracting and manufacturing demands for such materials relative to new materials. Finally, using pre-manufactured materials would reduce overall waste because the manufacturing process would be streamlined to reduce generation of waste materials and would allow excess materials from one process to be used in another. Alternatively, with on-site construction, excess materials would be less likely to be reused and more likely to be diverted to recycling and landfill facilities. Although this is not quantified in Table 3.8-2, fuel savings would be achieved through the proposed use of locally sourced materials, and the amount of waste to be hauled off-site would be reduced. The proposed project does not include unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region. As noted, the grading plan does not call for the import or export of soils. Emissions regulations to control air pollutant emissions would require that engines be more efficient which results in reduced fuel consumption. In addition, on-road vehicles (i.e., haul trucks, worker vehicles) would be subject to federal fuel efficiency requirements. Construction activities would comply with existing energy standards with regard to transportation fuel consumption. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be inefficient, wasteful, or unnecessary. This impact would be **less than significant.**

As described in Section 3.3, "Air Quality," existing regulations minimize the idling time of heavy-duty construction equipment. Construction contractors are required to shall shut off equipment when not in use and reduce idling time to 5 minutes, as required by 13 CCR Sections 2449(d) and 2485. This existing regulation would also reduce the consumption of energy by reducing fuel consumption by construction equipment, and thus, would further support the less-than-significant impact for the proposed project's construction-related energy consumption.

Building Operational Energy Consumption

The proposed warehouse would include up to approximately 155,000 square feet of floor space dedicated to retail goods and services. Using CalEEMod, electrical and natural gas demands were modeled to estimate energy use (Table 3.8-3). The electrical demands created by the proposed facilities would total approximately 1,972,158 kilowatt-hours per year. This would be approximately 0.07 percent of the total amount of electricity consumed within Placer County in 2018 (2,905.65 GWh) (CEC 2019c). The natural gas demand generated by the proposed project would be approximately 1,892,445 thousand British thermal units (kBtu) per year, or about 0.02 percent of the total amount of natural gas consumed within Placer County in 2018 (9,093,134,100 kBtu) (CEC 2019e).

Table 3.8-3. Estimated Annual Electrical and Natural Gas Demands All Site Options

Proposed Project Component	Demands	
	Electrical (kWh/year)	Natural Gas (kBtu/year)
Warehouse	1,827,450	1,813,500
Fueling Center	35,788	78,945
Parking	108,920	0
Total	**1,972,158**	**1,892,445**

Notes: kBtu = thousand British thermal units; kWh = kilowatt-hours
Source: Data compiled by AECOM in 2019

Consistent with the *Town of Loomis General Plan*, which has a policy requiring new development to consider energy conservation during the selection of building materials, building orientation, and landscaping, the proposed project includes several energy-conserving features. Landscaping would include a mix of drought-tolerant shrubs and grasses, and a variety of shade trees to be dispersed throughout the parking lot area and along the site perimeter; reducing water demands through these landscaping strategies also reduces off-site energy requirements for the treatment and movement of water to the site by the water utility company. Additional project design features are described in Chapter 2, "Project Description," and detailed below. However, to avoid an overestimate of energy savings, these project design features are not factored into the operational energy demands shown in Table 3.8-3. Specific energy conservation and sustainability features incorporated into the project include the following:

- Parking lot light standards would be designed to distribute light evenly and use less energy than are used by a larger number of fixtures at lower heights. LED lamps would be used to provide a higher level of perceived brightness with less energy than other lamps such as the high-pressure sodium type.
- Pre-manufactured metal wall panels with insulation would be use and carry a higher energy efficiency rating (R-Value) and greater solar reflectivity to help conserve energy consumed to heat and cool the structure. Building heat absorption would be reduced further by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall.
- A reflective "cool roof" material would be used to produce lower heat absorption, thereby lowering energy requirements during the summer when the HVAC system is running hard. This roofing material meets the requirements of the U.S. Environmental Protection Agency's Energy Star energy efficiency program.
- HVAC comfort systems would be controlled by a computerized building management system to maximize efficiency.
- HVAC units would be high-efficiency directed duct units.
- Parking lot lights would be controlled by the project's energy management system
- Energy-efficient transformers (i.e., Square D Type EE transformers) would be used.
- Variable-speed motors would be used on make-up air units and booster pumps.
- Gas and water heaters would be direct vent and 94% efficient or greater.
- Tanks would be used to capture heat released by refrigeration equipment to heat domestic water in lieu of venting heat to the outside.

The parking lot light standards and control system would reduce energy requirements by improving the distribution of lighting throughout the space, and using the more energy-efficient LED technology rather than standard lighting

fixtures. Selected building materials would reduce heat absorption and increase solar reflectivity, thereby lowering energy use during the warmer months of the year. Installing a computerized building management system to control HVAC and other similar operational systems would reduce energy requirements for building operations because the systems could be adjusted automatically in response to actual requirements, rather than relying on manual adjustments. Other energy conservation systems for building operations, such as the capture of heat released by refrigeration equipment to heat water, would provide additional energy savings by using what otherwise would be wasted energy to replace a building energy requirement. The warehouse will be constructed to be solar-ready to support the future installation of renewable energy generation facilities. To not overestimate energy savings, the project design features outlined in the project description are not factored into the energy demands shown in Table 3.8-3.

In addition, irrespective of the many project design features incorporated to ensure energy efficiency in building and site operations of the proposed project, energy efficiency requirements for new construction have increased over time; therefore, the proposed buildings would generally be more energy efficient than existing similar buildings in the area. The proposed buildings would be constructed to meet or exceed all energy efficiency standards applicable at the time of construction, including the energy performance standards found in CCR Title 24, including the Building Energy Efficiency Standards in the California Green Building Standards Code (CCR Title 24, Part 11).

Energy consumption associated with the space heating and cooling, lighting, and other operational energy uses for the proposed project's buildings is closely tied to the design of the buildings. As a result of the project-specific energy efficient design features, the proposed building site operations and would not result in an unnecessary, inefficient or wasteful use of energy. However, to maximize energy efficiency in all practicable ways relevant to the proposed project, the buildings would also meet or exceed the energy performance standards found in CCR Title 24, including the Building Energy Efficiency Standards in the California Green Building Standards Code (CCR Title 24, Part 11). The impact is **less than significant**.

Transportation-Related Energy Consumption

The proposed project would be constructed on an undeveloped site southeast of the intersection of Sierra College Boulevard and Brace Road, and one-half mile from the nearest exit and entry point for Interstate 80. Sierra College Boulevard is a four-lane main thoroughfare for residents in the region and Interstate 80 provides the primary southwest-to-northeast route between more rural communities in the area and the more urban centers of Roseville and Sacramento. The project site was selected for the purposes of traffic control, as this location is near the main interstate to facilitate the coming and going of daily delivery trucks and consumers, and to limit the distance traveled on surface streets, where idling and increased emissions would be more likely. In addition, truck deliveries to the warehouse would be made using a Costco-managed truck fleet; these trucks are equipped with engine idle shutoff timers, which would minimize the use of fuel and related energy consumption during deliveries.

Transportation fuel consumption during operation of the proposed warehouse and fueling center was estimated based on the CalEEMod emissions calculations for operational mobile activities, the EMFAC2017 vehicle fleet mix for Placer County, and application of U.S. Energy Information Administration CO_2 emissions coefficients (U.S. Energy Information Administration 2016). Table 3.8-4 shows the estimate of diesel and gasoline fuel consumption during project operations.

Table 3.8-4. Estimated Annual Fuel Consumption for Operations All Three Options

	MT CO_2e/ Year [a]	% Average Fleet Mix [b]	Factor (MT CO_2/Gallon) [c]	Gallons/Year
Gross Project Fuel Consumption (New VMT for proposed project, inclusive of customers, employees, and warehouse and fueling center delivery truck trips and idling.)	5,059			
Diesel		22.87%	1.02E-02	114,698
Gasoline		76.37%	8.89E-03	437,834

Notes: CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons; VMT = vehicle miles traveled

Sources:

[a] Modeled by AECOM in 2019

[b] EMFAC2017 (v1.0.1) web database

[c] U.S. Energy Information Administration 2016

The proposed project would generate additional VMT and would have associated fuel demands for operational transportation. The majority of energy demand by the proposed project is attributable to mobile operations, primarily those from consumer trips to and from the warehouse and fueling center. While the proposed project would incorporate many energy-saving features into the design of the facility, the overall operations would generate an increase in mobile operations. However, as part of the project design, Costco delivery trucks would be equipped with engine-idle shutoff timers, thereby reducing overall fuel use and fuel-related energy demands by mobile operations associated with delivery of goods to the proposed warehouse. In addition, project siting is such that the proposed warehouse and fueling center are along Sierra College Boulevard near I-80 minimizing the off-highway distance for warehouse goods and fuel delivery trucks, as well as for employees and customers travelling to and from the site. There is also access between the proposed site and a planned transit stop to provide opportunity for employees to access the site via public transportation rather than personal vehicles. Therefore, transportation energy requirements for the proposed project would not be an unnecessary, inefficient or wasteful use of energy. Finally, there is no adverse physical environmental effect associated with transportation-related energy uses that is not addressed in a topic-specific section of this EIR (greenhouse gas emissions, air quality, transportation noise, etc.). Thus, this impact would be **less than significant.**

In addition, as described in Impact 3.5.1, “Generation of Greenhouse Gas Emissions,” Mitigation Measure GHG-1 includes promotion of transportation demand management strategies to reduce employee VMT and installation of electric vehicle charging stations with priority parking access on-site to encourage a reduction in fuel use resulting from consumer trips. This mitigation measure would also reduce energy demands related to employee and customer transportation-related energy consumption.

Summary of Energy Demand

Energy would be consumed through all phases of project construction and operations. Energy-requiring activities range from equipment operation, to building operations and lighting of the parking lot, to transportation during all phases of the proposed project. Table 3.8-5 summarizes total energy requirements for the proposed project. For comparison purposes, Table 3.8-5 shows conversion of all energy requirements to a common energy unit of British thermal units (Btu).

Operational transportation is a substantially greater energy-consuming factor than construction or building operations. However, there is no adverse physical environmental effect associated with energy demand or use that is not already addressed in detail in this EIR. As described above, the proposed project would incorporate several processes and design elements specifically selected with the goal of reducing the proposed project’s overall energy requirements. Implementing Mitigation Measure GHG-1 would further reduce transportation-related energy requirements during operations. To maximize energy efficiency in all practicable ways relevant to the proposed project, the buildings would also meet or exceed the energy performance standards found in CCR Title 24, including the Building Energy Efficiency Standards in the California Green Building Standards Code (CCR Title 24, Part 11).

Existing Regulations

The project is required to comply with relevant portions of the CalGreen code, which are designed to promote energy conservation.

> **CCR Title 24.** The applicant is required to design and construct the buildings to meet or exceed all energy efficiency standards applicable at the time of construction and shall comply with the energy performance standards found in CCR Title 24, including the Building Energy Efficiency Standards in the California Green Building Standards Code (CCR Title 24, Part 11).

Table 3.8-5. Summary of Proposed Project Energy Requirements All Site Plan Options

Phase	Energy Requirement [a]	Unit	Annual Energy Consumption (MMBtu) [b]
Construction (amortized over 20 years)			
Diesel	1,778	gallons/year	245
Gasoline	134	gallons/year	17
		Subtotal	*262*
Building Operations			
Warehouse			
Electrical	1,827,450	KWh/year	6,237
Natural Gas	1,813,500	kBtu/year	1,814
Fueling Center			
Electrical	35,788	KWh/year	122
Natural Gas	78,945	kBtu/year	79
Parking			
Electrical	108,920	KWh/year	372
Natural Gas	–	kBtu/year	–
		Subtotal	*8,623*
Operational Transportation			
Diesel	114,698	gallons/year	15,839
Gasoline	437,834	gallons/year	54,729
		Subtotal	70,568
		Total	***79,454***

Notes:
kBtu/year = thousand British thermal units per year; KWh/year = kilowatt-hours per year; MMBtu = million British thermal units
Totals do not add due to rounding.

Sources:

[a] Modeled by AECOM in 2019

[b] U.S. Energy Information Administration 2016

Conclusion

As described above, the proposed project does not include unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region. Furthermore, the proposed project would incorporate construction practices that would reduce the waste generated during construction and reduce overall VMT for material deliveries to the project site. Building operations are designed through various site features to be energy efficient. In addition, there is no adverse physical environmental effect associated with energy demand or use that is not already addressed in detail in other topic-specific sections of this EIR. Energy efficiency is a possible indicator of environmental impacts. The actual adverse physical environmental effects associated with energy use and the efficiency of energy use are detailed throughout this EIR in the environmental topic–specific sections. For example, the use of energy for transportation leads to air pollutant and greenhouse emissions, the impacts of which are addressed in Sections 3.3 and 3.5 of this EIR. There is no physical environmental effect associated with energy use that is not addressed in the environmental topic–specific sections of this EIR. Compliance with CCR Title 24 will ensure implementation of energy efficiency measures in building design and construction. Compliance with existing regulations will ensure that the proposed project would not be inefficient, wasteful, or unnecessary. This impact would be **less than significant**.

Impact 3.8-2: Conflicts with Energy Plans. *The project site is privately owned property designated and zoned for development consistent with what is proposed as a part of the project. There is **no impact**.*

The project site is privately owned property designated and zoned for development consistent with what is proposed as a part of the project. The Town does not have any renewable energy plan or energy efficiency plan that would conflict with construction or operation of the proposed project. There is **no impact**.

3.8.4 Significance after Mitigation

Project construction and operation would not result in wasteful or inefficient consumption of energy due to the many project features incorporated into the design to improve energy efficiency and the reduction in vehicle miles traveled associated with placement of the project at the project site. Compliance with CCR Title 24 will ensure implementation of energy efficiency measures in building design and construction. Compliance with existing regulations will ensure that the proposed project would not be inefficient, wasteful, or unnecessary. Impact 3.8-1 would be **less than significant.**