3.4 Energy Use and Conservation

CEQA Guidelines Appendix G includes the topic of Energy as a required analysis topic. As such, this discussion considers the Project's consumption of energy resources, particularly electricity, natural gas and transportation fuels, during both the Project's construction and operational phases.

This section presents a summary of the potential energy-related impacts of the Project. The analysis presented herein is based on the Energy Impact Assessment (EIA) for the Construction and Operation of the Questhaven Project authored by Helix Environmental Planning (herein, "Helix"), dated June 12, 2023, and included as *Appendix E* to this EIR. NOP for the Project was released for public review on September 1, 2022 and an EIR Scoping Meeting was held on September 20, 2022. One comment letter was received related to energy use and conservation. Earthjustice (received September 7, 2022) encouraged the Project to by designed to be all-electric.

3.4.1 Existing Conditions

3.4.1.1 Units of Measure

The units of energy used in this section are the British thermal units (BTU), kilowatt hours (kWh), therms, and gallons. A BTU is the quantity of heat required to raise the temperature of one pound of water one °F at sea level. Because the other units of energy can all be converted into equivalent BTU, the BTU is used as the basis for comparing energy consumption associated with different resources and is often expressed in millions of BTUs (MMBTU). A kWh is a unit of electrical energy, and one kWh is equivalent to approximately 3,413 BTUs, taking into account initial conversion losses (i.e., from one type of energy, such as chemical, to another type of energy, such as mechanical) and transmission losses. Natural gas consumption is described typically in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1.05 MMBTU, and one therm represents 0.1 MMBTU. One gallon of gasoline/diesel is equivalent to approximately 0.125/0.139 MMBTU, respectively, taking into account energy consumed in the refining process.

3.4.1.2 State Energy Supply

Electricity

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly-owned utilities, and electric service providers. As of 2021, California electricity demand totaled 277,764 gigawatt (GWh) hours. In-state generating facilities accounted for about 194,127 GWh, or 70 percent of the total electric power used in the State, with the remaining electricity coming from out-of-State imports.

Natural Gas

Natural gas continues to play an important and varied role in California. In 2012, nearly 45 percent of the natural gas burned in California was used for electricity generation, and much of the remainder was consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors. Natural gas supplies are currently plentiful and relatively inexpensive because of technological

advances that allow recovery of natural gas from formations such as shale reservoirs that were previously inaccessible. However, potential environmental concerns are causing decision makers to reexamine the development of shale resources and consider tighter regulations, which could affect future natural gas supplies and prices.

Transportation Fuels

Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil. In addition to energy consumption associated with on-road vehicle use, energy is consumed in connection with construction and maintenance of transportation infrastructure. Passenger cars and light-duty trucks are by far the largest consumers of transportation fuel. Retail sales of transportation fuel in California totaled 13.8 billion gallons of gasoline and 1.6 billion gallons of diesel in 2021, as well as 13.6 billion gallons of gasoline and 1.6 billion gallons of diesel in 2022.

3.4.1.3 Regional Energy Supply

The primary provider of electricity and natural gas in San Diego County is the San Diego Gas and Electric Company (SDG&E). SDG&E is a regulated public utility that provides energy service to 3.6 million people in San Diego and southern Orange counties. In 2022, SDG&E delivered 6,065 GWh of electricity and 340 million therms of natural gas to residential, commercial, industrial and agricultural customers.

3.4.2 Existing Regulatory Setting

Federal

Energy Independence and Security Act of 2007

House of Representatives Bill 6 (HR 6), the federal Energy Independence and Security Act of 2007, established new standards for a few energy-consuming equipment types not already subject to a standard, and updated some existing standards. The most substantial new standard that HR 6 established was for general service lighting that is being deployed in two phases. First, phased in between 2012 through 2014, common light bulbs were required to use about 20 to 30 percent less energy than previous incandescent bulbs. Second, by 2020, light bulbs were required to consume 60 percent less energy than previous incandescent bulbs; this requirement effectively phased out the incandescent light bulb.

State

Renewable Energy Programs and Mandates (SB 1078, SB 107, SB 2 X1, SB 350, and SB 100)

A series of substantive legislative initiatives have been advanced at the State level in the last two decades. These initiatives focused on increasing the generation of electricity via renewable energy sources and promoting a shift away from fossil- or carbon-based fuels as a key strategy to reduce GHG emissions, air pollution, and water use associated with the energy sector.

In 2002, California established the Renewables Portfolio Standard (RPS) with Senate Bill (SB) 1078, requiring electric utilities in the State to increase procurement of eligible renewable energy resources to achieve a target of 20 percent of their annual retail sales by the year 2010. In 2011, Governor Jerry Brown approved the California Renewable Energy Resources Act, SB 2 X1. SB 2 X1 legislatively broadened the scope of the State RPS to include retail electricity sellers; investor- and publicly owned utilities; municipal utilities; and community choice aggregators under the mandate to obtain 33 percent of their retail electrical energy sales from renewable sources by 2020.

Approved by Governor Brown on October 7, 2015, SB 350 increased California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

Approved by Governor Brown on September 10, 2018, SB 100 extended the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sale of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and/or zero-carbon resources by the end of 2045.

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 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 fewest environmental and energy costs. To further this policy, the plan identifies a number of strategies, including providing assistance to public agencies and fleet operators.

California Energy Code

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24 standards occurred in 2022 and went into effect on January 1, 2023. The Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards include improvements for attics, walls, water heating, and lighting, and the requirement for on-site photovoltaic (solar) energy generation for new residential buildings three or

fewer stories high. The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards–the energy budgets–that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for new residential and nonresidential buildings throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the CCR. The current 2022 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2023.

CALGreen is intended to (1) cause a reduction in greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, adherence to CALGreen reduces construction waste; makes buildings more efficient in the use of materials and energy; and reduces environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing architects, engineers, and other designers to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

Regional

San Diego Association of Governments Regional Energy Strategy

The San Diego Association of Governments' (SANDAG's) 2009 Regional Energy Strategy (RES) serves as the energy policy blueprint for the San Diego region through 2050. The RES identifies priority early implementation actions, essential to meeting the region's energy goals:

- Pursue a comprehensive building retrofit program to improve efficiency and install renewable energy systems;

- Create financing programs to pay for projects and improvements that save energy;

- Utilize the SANDAG-SDG&E Local Government Partnership to help local governments identify opportunities and implement energy savings at government facilities and throughout their communities;

- Support land use and transportation planning strategies that reduce energy use and GHG emissions;

- Support planning of electric charging and alternative fueling infrastructure; and

- Support use of existing unused reclaimed water to decrease the amount of energy needed to meet the water needs of the San Diego region.

The RES identified the main drivers of the strategy, including the state's preferred loading order for meeting new energy needs and global climate change and its policy implications. The California Public Utilities Commission (CPUC) and CEC adopted a preferred loading order to meet the goals for satisfying the state's growing demand for electricity, which would place top priority on increasing energy efficiency and demand response (i.e., temporary reduction or shift in energy use during peak hours), generating new energy from renewable and distributed generation resources, and improvements to clean fossil-fueled generation and infrastructure.

County of San Diego General Plan

The Conservation and Open Space Element of the County of San Diego General Plan contains goals and policies for energy conservation and sustainable development. Goals and policies relevant to the Project involve air pollutant and/or GHG reduction, which in turn would reduce energy consumption. Such policies include the following:

- COS-14.4, Sustainable Technology and Projects: Require technologies and projects that contribute to the conservation of resources in a sustainable manner, which are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.

- COS-14.10, Low-Emission Construction Vehicles and Equipment: Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.

3.4.3 Analysis of Project Effects and Determinations as to Significance

Guideline for the Determination of Significance

The Project would result in a significant impact to energy conservation if it would:

- Result in the wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Guideline Source

The identified guideline is based on Appendix G of the CEQA Guidelines.

Analysis

Construction Energy

Energy consumed for Project construction would primarily consist of fuels in the form of diesel and gasoline. Fuel consumption would result from: the use of on-road trucks for the transportation of construction materials and water; construction worker vehicles traveling to and from the Project site; and from the use of off-road construction equipment. A complete description of the Project construction equipment use and vehicle trips, as well as the full construction energy consumption calculation sheets, are included in *Appendix E*. The estimated fuel and total energy consumed during Project construction is shown in Table 3.4-1, *Total Construction Energy Use*.

While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. The petroleum consumed during Project construction would be typical of similar residential projects constructed in San Diego and across the southwestern United States, as there are no unique construction practices or energy-intensive construction characteristics proposed. The Project would not require the use of new petroleum resources beyond those typically consumed in California annually for construction activities. Based on these considerations, construction of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and the impact would be less than significant.

Operational Energy

During long-term operation of the Project, energy would be consumed in the form of diesel and gasoline used by vehicles traveling to and from the Project site; electricity required to source and treat water used by the Project; and electricity used directly by the Project. The Project's estimated annual operational energy use (for the first full year of operation—2029) in gallons of fuel, electricity, and equivalent MMBTU is shown in Table 3.4-2, *Annual Operational Energy Use*. Energy calculation sheets can be found in *Appendix E*.

The Project is calculated to consume approximately 11,922 MMBTU annually. While the Project would result in the consumption of gasoline, diesel, and electricity, the amount of energy consumed to operate the Project would be consistent overall with the energy projections for the State and the region to meet the demands of anticipated future residential growth in the State and region. Further, because the Project would be constructed in accordance with CALGreen, energy efficient features are required to be incorporated into the Project's design including the design of residential homes, resulting in energy efficiencies and lowered consumption of energy associated with Project operation. The 2022 Title 24 Part 6, Building Energy Efficiency Standards, and 2022 Title 24 Part 11, CALGreen, include provisions applicable to all buildings, which are mandatory requirements for efficiency and design.

The Project would be consistent with the requirements of Title 24 through implementation of energy-reduction measures, such as energy efficient lighting and appliances, water efficient appliances and plumbing fixtures, water efficient landscaping and irrigation, and the onsite generation of renewable solar energy. Implementation of the Project would not require the construction of new regional facilities and sources of energy. Therefore, operation of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and the impact would be less than significant.

Guideline for the Determination of Significance

The Project would result in a significant impact to energy conservation if it would:

- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Guideline Source

The identified guideline is based on Appendix G of the CEQA Guidelines.

Analysis

The 2022 Title 24 Part 6, Building Energy Efficiency Standards, and 2022 Title 24 Part 11, CALGreen, include provisions applicable to all buildings, which are mandatory requirements for efficiency and design. The Project would be consistent with the mandatory requirements of Title 24 as described above.

The RES is a regional measure that supports planning and financing programs that save energy and support local governments to implement energy saving measures at government facilities and throughout their jurisdictions. No feature of the Project would interfere with implementation of the RES.

The County of San Diego General Plan include several energy efficiency policies. However, many of these policies are not applicable to a single development and are intended to focus County efforts in reducing energy consumption in the larger San Diego County community. Table 3.4-3, *County of San Diego General Plan Consistency*, provides a summary of the Project's consistency with the General Plan policies.

Therefore, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and the impact would be less than significant.

3.4.4 Cumulative Impact Analysis

The geographic scope for energy conservation analysis is the County of San Diego. Short-term and long-term cumulative development is expected to result in an increase in the demand for energy resources throughout the County. Several County programs and policies and SDG&E initiatives would

serve to reduce total energy demand among cumulative projects. Additionally, minimum standards for energy efficiency are outlined in California's Title 24 energy efficiency standards for residential and nonresidential buildings. SDG&E as well as state and federal agencies offer incentive programs, such as the California Advanced Homes Partnership and California Electric Homes Program, to encourage developers to exceed Title 24 standards.

The Project's construction and operational energy usage would not be carried out in a wasteful, inefficient, or unnecessary manner. In addition, the predominant consumer of energy for the Project would be on-road vehicle travel. On-road vehicle efficiency is regulated at the State and federal level, with a progression away from fossil fuels and towards electric-powered vehicles. Although it is out of the County's jurisdictional authority to regulate on-road vehicle efficiencies, it supports the progression of consumer choice towards renewable energies including electric vehicles through various policies and programs such as the Electric Vehicle Roadmap. Therefore, the Project's cumulative impacts related to energy usage would be less than cumulatively considerable.

3.4.5 Significance of Impacts Prior to Mitigation

Based on the analysis provided above, all potential Project-specific and cumulative energy-related impacts would be less than significant.

3.4.6 Mitigation

Based on the above analysis, all energy-related impacts would be less than significant and no mitigation would be required.

3.4.7 Conclusion

Based on the analysis above, no significant Project-specific or cumulatively considerable impacts related to energy would result from implementation of the Project.

Table 3.4-1 Total Construction Energy Use

Source	Gallons Diesel	Gallons Gasoline	MMBtu
Off-Road Construction Equipment	24,155	-	3,357
On-Road Construction Traffic	9,533	6,746	2,162
Total[1]	**33,688**	**6,746**	**5,519**

Source: CalEEMod; CARB 2023
[1] Totals may not sum due to rounding.
MMBtu = million British thermal units
(Helix, 2023b)

Table 3.4-2 Annual Operational Energy Use

Source	Diesel (gallons)	Gasoline (gallons)	Electricity (kWh)	Total Energy (MMBtu)
Mobile	65,580	12,359	-	10,648
Water/Wastewater	-	-	241,372	824
Direct Electricity Use	-	-	131,943	450
Total[1]	65,580	12,359	**373,315**	**11,922**

Source: CalEEMod; CARB 2023
[1] Totals may not sum due to rounding.
kWhr = kilowatt-hours; MMBtu = million British thermal units
(Helix, 2023b)

Table 3.4-3 County of San Diego General Plan Consistency

General Plan Policy	Project Consistency
COS-14.3 Sustainable Development. Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.	**Consistent.** The Project is designed to conserve open space and natural resources by clustering development in the northern portion of the Project site.
COS-14.4, Sustainable Technology and Projects: Require technologies and projects that contribute to the conservation of resources in a sustainable manner, which are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.	**Not applicable.** This measure is aimed at government agencies to encourage the construction of alternative energy projects.
COS-14.7 Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy .	**Consistent.** The Project would comply with Title 24 standards which require photovoltaic panels for energy generation.
COS-15.1 Design and Construction of New Buildings. Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate	**Consistent.** The Project would comply with the Title 24 energy standards and CALGreen standards as discussed in the analysis section above.

techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.	
COS-15.4 Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.	**Consistent.** The Project would comply with the Title 24 energy standards as discussed in the analysis section above.
COS-15.5 Energy Efficiency Audits. Encourage energy conservation and efficiency in existing development through energy efficiency audits and adoption of energy saving measures resulting from the audits	**Not applicable.** This measure is aimed at energy conservation in existing development. Thus, this policy is not applicable to the Project.