3.9 CLIMATE CHANGE AND ENERGY

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions, climate change science and GHG sources, quantification of project-generated GHGs and their impacts, and analysis of the project's resiliency to climate change-related risks. Mitigation measures are recommended to reduce potential impacts relative to contribution to climate change.

This section also contains an energy analysis pursuant to Appendices F and G of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether the project would result in an environmental impact from the inefficient, wasteful, and unnecessary consumption of energy, and/or would conflict with a plan to promote renewable energy and energy efficiency.

3.9.1 Regulatory Setting

FEDERAL

Lake Tahoe Basin Management Unit Land Management Plan

Management of the Lake Tahoe Basin Management Unit (LTBMU) is guided by the USDA Forest Service LTBMU Land Management Plan (also known as the Forest Plan). The Forest Plan identifies the following strategies to address climate change:

- Collaborate on local and regional vulnerability assessments. Participate in a Regional vulnerability assessment for the Sierra Nevada.
- Incorporate vulnerability assessments related to climate change into management on the LTBMU as information is synthesized. Consider and prioritize adaptation activities recommended for vulnerable resources based on funding.
- Consider restoration of species and/or habitat identified as vulnerable to climate change during project planning.
- Consider restoration of individual species during habitat restoration, especially for vulnerable resources.
- Minimize management impacts to species that are vulnerable to climate change. Reduce stress (e.g., human activities, invasive species) related to management in order to reduce the additive effects of non-climate stress.
- Incorporate adaptation actions into management to increase resiliency and adaptive capacity of vulnerable resources.

Greenhouse Gas Emission Standards

In *Massachusetts et al. v. Environmental Protection Agency et al.,* 549 U.S. 497 (2007), the Supreme Court of the United States ruled that CO_2 is an air pollutant as defined under the federal Clean Air Act (CAA) and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHG emissions. In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the CAA.

In October 2012, EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 *Federal Register* 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of CO_2 per mile for the fleet of cars and light-duty trucks by model year 2025 (77 *Federal Register* 62630).

On April 2, 2018, however, the EPA administrator announced a final determination that the current standards should be revised. On that date, the U.S. Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks by

increasing the stringency of the standards by 1.5 percent per year from models 2021 through 2026. With a change in federal administrations in early 2021, the SAFE Rule is now being reconsidered. On April 26, 2021, as directed in Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis," EPA announced plans to reconsider Part One of the SAFE Rule. At the time of preparing this document, EPA is seeking public input on its reconsideration of the action. Public comments to the Notice of Reconsideration closed on June 6, 2021, and a public hearing was held on June 2, 2021 (EPA 2021a). Nevertheless, at the time this Draft EIS/EIS/EIR was prepared, the SAFE Rule Part One is in place and it is unclear whether the SAFE Rule Part One will be revoked by EPA.

SAFE Rule Part Two was finalized on March 31, 2020 and went into effect on June 29, 2020. Part Two of the SAFE Rule sets the CAFE standards to increase in stringency by 1.5 percent per year above Model Year (MYs) 2020 levels for MYs 2021–2026. These standards are lower than the previous CAFE standards, which required that MYs 2021–2026 increase in stringency by 5 percent per year.

The CAA grants California the ability to enact and enforce more strict fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the state applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to implement its own vehicle emission standard and also established a standard to be adopted and enforced nationwide (84 Federal Register 51310). At the time of preparing this Draft EIR, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors, including legal challenges by California and other states to the revocation of California's waiver, direction provided by federal leadership, and future cabinet and administration appointments. However, the impact analysis included in this chapter assumes that the SAFE Rule would continue to be implemented, and uses emissions factors developed by the California Air Resources Board (CARB) that account for the potential for a less fuel-efficient future vehicle fleet as a result of the SAFE Rule (CARB 2020a).

In June 2019, EPA, under the authority of the CAA Section 111(d), issued the Affordable Clean Energy rule which provides guidance to states on establishing emissions performance standards for coal-fired electric generating units. Under this rule, states are required to submit plans to EPA that demonstrate the use of specifically listed retrofit technologies and operating practices to achieve CO_2 emission reductions through heat rate improvement. Heat rate improvement is a measurement of power plant efficiency that EPA determined as part of this rulemaking to be the best system of emission reductions for CO_2 generated from coal-fired electric generating units (EPA 2021b).

TAHOE REGIONAL PLANNING AGENCY

Regional Transportation Plan and Sustainable Communities Strategy

As the Lake Tahoe region's federally designated metropolitan planning organization, TRPA completed the latest update to its RTP in 2021 (TRPA 2021). The plan seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network in the Tahoe Basin. Important directions of the plan are to reduce the overall environmental impact of transportation in the region, create walkable, vibrant communities, and provide real alternatives to driving. The plan met the challenge of California's Senate Bill (SB) 375 (2008, summarized below) and qualifies as an SCS by presenting an integrated land use and transportation strategy that will reduce vehicle miles traveled and make it possible for the California side of Lake Tahoe region to reduce its GHG emission generated by passenger cars and light duty trucks from 2005 levels 8.8 percent by 2020 and 5 percent by 2035. A smaller GHG reduction is forecast for 2035 based on the projections of increased population growth in metropolitan areas surrounding Lake Tahoe and the related increases in visitation from those areas (TRPA 2021).

Lake Tahoe Sustainability Action Plan

The Sustainability Action Plan (SAP), released in 2013, provides tools to assist local governments, agencies, businesses, residents, visitors, and community groups with prioritizing and adopting consistent sustainability actions throughout the Tahoe region. The SAP represents an integrated approach to reducing GHG emissions and striving toward zero-impact

in all aspects of sustainability. The SAP includes a GHG emissions inventory and reduction targets, and climate change and adaptation strategies vetted through the Lake Tahoe Sustainability Collaborative and the Tahoe Basin Partnership for Sustainable Communities. Within the SAP, TRPA established a GHG reduction goal for the Tahoe region of 5 percent and 49 percent below the 2005–2010 average baseline by 2020 and 2035, respectively. The SAP identifies actions that have the potential to reduce GHG emissions during construction and operation of land uses and protect against the effects of climate change. Identified actions include expanding the bicycle and pedestrian network, improving transit, supporting alternative fueled vehicles, increasing solid waste diversion, and urban forestry. None of the GHG reduction measures identified in the SAP pertain to boating activity. The recommended actions have not been officially adopted and thus are not currently required by TRPA or Tahoe Metropolitan Planning Organization (TMPO) (TRPA 2013).

STATE

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the U.S. to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other state agencies also released the *January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan* consistent with the carbon neutrality goal of Executive Order B-55-18 (CalEPA et al. 2019).

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles than EPA. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2018a). When the rules are fully implemented by 2025, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016.

Executive Order B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

The CCA requires that a waiver be provided by EPA for states to enact more stringent emissions standards for new cars, which was granted to CARB by EPA on June 14, 2011; however, in addition to the SAFE Rule, but as a separate action, on September 19, 2019, EPA issued a final action entitled the "One National Program Rule" which would institute a nationwide, uniform fuel economy and GHG standard for all automobiles and light-duty trucks. The action would include the revocation of California's waiver under the CCA which would affect the enforceability of CARB's ZEV programs. While EPA has issued an action to revoke the waiver, the outcome of any related lawsuits and how such lawsuits could delay or affect the SAFE Rule implementation or CARB's ZEV programs is unknown at this time.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO2 than other fossil fuel–based fuels such as gasoline and fossil diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations to develop and adopt sustainable communities strategies as a component of the federally prepared regional transportation plans to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035. These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Tahoe Regional Planning Agency (TRPA) serves as the metropolitan planning organization for portions of Placer and El Dorado counties located in the Tahoe Basin. The project area is in El Dorado County. Under SB 375, TRPA adopted its RTP in 2021 (TRPA 2021). TRPA was tasked by CARB to achieve a 7-percent per capita reduction compared to 2012 emissions by 2020 and a 5-percent per capita reduction by 2035, both of which CARB confirmed the region would achieve by implementing the MTP/SCS. In March 2018, CARB promulgated revised targets tasking TRPA to achieve an 8-percent and a 5-percent per capita reduction by 2020 and 2035, respectively (CARB 2018b). CARB has not yet reviewed TRPA's newest RTP.

Legislation Associated with Electricity Generation

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California's Renewable Portfolio Standard (RPS) Program was established in 2002 (SB 1078) with the initial requirement to generate 20 percent of their electricity from renewable by 2017, 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011), 52 percent by 2027 (SB 100 of 2018), 60 percent by 2030 (also SB 100 of 2018), and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Code of Regulations Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Commission (CEC) updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current California Energy code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. CEC estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 standards, primarily through the transition to high-efficacy lighting (CEC 2018).

LOCAL

El Dorado County Air Quality Management District

The El Dorado County Air Quality Management District (EDCAQMD) has not adopted specific thresholds of significance for analyzing GHG emissions under CEQA. At present, the Sacramento Metropolitan Air Quality Management District (SMAQMD) along with a committee of EDCAQMD and other regional air districts (i.e., Placer County Air Pollution Control District (PCAPCD), Feather River Air Quality Management District, and Yolo-Solano Air Quality Management District) use guidance from the California Air Pollution Control Officers Association to develop draft threshold concepts for evaluating project-level GHG emissions. The goal of the thresholds is to capture at least 90 percent of GHG emissions from new stationary sources and land development projects. The nearby PCAQMD has developed thresholds of significance for analyzing climate change impacts in consideration of this strategy. As discussed in greater detail in Section 3.9.3, "Environmental Impacts and Mitigation Measures," PCACPD has adopted a 10,000 and 1,100 metric tons of carbon dioxide equivalent ($MTCO_2e$) bright line thresholds of significance for analyzing construction and operational emissions, respectively. In lieu of adopted thresholds of significance governed by EDCAQMD and TRPA, these thresholds of significance will be applied to the project. These thresholds are discussed further under Section 3.9.3, "Environmental Impacts and Mitigation Measures."

3.9.2 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2018 was 425 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) (CARB 2020b). This is less than the 2020 target of 431 $MMTCO_2e$. Table 3.9-1 summarizes the statewide GHG inventory for California by percentage.

Table 3.9-1 Statewide GHG Emissions by Economic Sector

Sector	$MMTCO_2e$	Percent
Transportation	174	41
Industrial	102	24
Electricity generation (in state)	38	9
Agriculture	34	8
Residential	30	7
Electricity generation (imports)	26	6
Commercial	21	5
Total	425	100

Notes: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent

Source: CARB 2020b.

As shown in Table 3.9-1, transportation, industry, and in-state electricity generation are the largest GHG emission sectors.

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and forest fires. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water) and are two of the most common processes for removing CO_2 from the atmosphere.

Lake Tahoe GHG Emissions Inventory

According to the Lake Tahoe Greenhouse Gas Inventory Update Final Report, GHG emissions in 2018 for the Lake Tahoe region totaled 795,793 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year) (TRPA 2021). Breakdowns by sector are presented in Table 3.9-2. These emissions are the result of activity associated with residents and businesses operating in the Lake Tahoe region.

Table 3.9-2 Lake Tahoe GHG Emissions by Sector

Sector	$MTCO_2e$	Percent
Energy	469,379	59.0
Transportation	288,207	36.2
Solid Waste	37,244	4.7
Wastewater	963	0.1
Total	795,793	100

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: TRPA et al. 2021.

The largest source of GHG emissions in the Lake Tahoe region was from the energy sector (59 percent), followed by the transportation sector (36 percent) (TRPA 2021).

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate California will experience average daily high temperatures that are warmer than the historic average by 2.5°F from 2006 to 2039, by 4.4°F from 2040 to 2069, and by 5.6°F from 2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006 to 2039, by 5.8°F from 2040 to 2069, and by 8.8°F from 2070 to 2100 (OPR et al. 2018).

Since the previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014-2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR et al. 2018). According to CNRA's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). According to the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, 2016, 2017, 2018, 2019, and 2020 were the hottest recorded years in history (NOAA 2022). In contrast, the northern Sierra Nevada experienced one of its wettest full years on record during the 2016-2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods that lower the moisture content of fuel loads. As a result, the

frequency, size, and devastation of forest fires increases. In November 2018, the Camp Fire destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 inches of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018).

The following key climate impacts are projected for the Tahoe Basin (California Tahoe Conservancy 2020):

- Both minimum and maximum daily average temperatures will continue to increase by the end of the century.
- Interannual variability in precipitation will increase, leading to more extreme droughts and storms.
- Increased temperatures will lead to reduced precipitation falling as snow and will ultimately reduce snowpack.
- Drought stress will increase significantly by the end of the century.
- The timing of peak runoff will shift one to five months earlier in the year.
- By the end of the century, the total area burned by wildfires each decade will be 61 percent larger than in the beginning of the century.
- The surface level of Lake Tahoe will be more frequently outside of the operable range of the Lake Tahoe Dam, including an increase in amount of years being above the dam's maximum legal elevation limit of 6,299.1 feet.

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats thus outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders) which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

ENERGY

Electricity and Natural Gas Use

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2019, approximately 43 percent of natural gas consumed in the state was used to generate electricity. Large hydroelectric powered approximately 17 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 32 percent (CEC 2021a).

Liberty Utilities

Electric and natural gas services are provided to the project area through Liberty Utilities. In 2019, Liberty Utilities provided its customers with 25 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and the remaining power from unspecified sources of power (electricity that has been purchased through open market transactions and is not traceable to a specific generation source) (CEC 2020).

The proportion of Liberty Utilities-delivered electricity generated from eligible renewable energy sources is anticipated to increase over the next three decades to comply with the RPS and Senate Bill (SB) 100 goals described in Section 3.9.1.

Energy Use for Transportation

In 2019, the transportation sector comprised the largest end-use sector of energy in the state totaling 39.4 percent, followed by the industrial sector totaling 23.1 percent, the commercial sectors at 18.8 percent, and the residential sector of 18.7 percent (EIA 2022). On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 74 and 10 million gallons of gasoline and diesel, respectively, in El Dorado County in 2019 (the most recent data available) (CEC 2021b). The California Department of Transportation (Caltrans) projects that 118 million gallons of gasoline and diesel will be consumed in El Dorado County in 2025 (Caltrans 2008).

3.9.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Greenhouse Gas Emissions

GHG emissions associated with the project would be generated during project construction and by operation of the Meeks Bay Marina, Meeks Bay Resort, and Meeks Campground.

Construction-related emissions of GHGs were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020,41 computer program, in accordance with recommendations by EDCAQMD. Modeling was based on project-specific information (e.g., area to be disturbed) by alternative, where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. As discussed in Chapter 2, "Description of the Proposed Action and Alternatives," construction is anticipated to occur over an up to 10-year period commencing as early as 2024. All excavation, filling and clearing of vegetation, or other disturbance of the soil would be limited to the May 1–October 15 timeframe. For the purposes of this analysis, it was conservatively assumed that all construction would occur over a 5-year period, which would result in greater annual emissions than would occur if construction occurred over a greater period of time.

Operation-related emissions of GHG were estimated using CalEEMod. Project-related operational emissions of GHGs were estimated for the following sources: area sources (e.g., landscaping-related fuel combustion sources), water use, solid waste, and mobile sources. Operational mobile-source GHG emissions were modeled based on the estimated level of daily VMT per capita by visitors and employees to the project area and extrapolated to an annual value by multiplying daily VMT by 365 days. Project-specific VMT estimates were available in the traffic impact analysis conducted for the project (See Section 3.12, "Transportation and Circulation"). Mobile-source emissions were calculated using EMFAC 2017 emissions factors with trip generation rates that would match the project's projected annual VMT.

Refer to Appendix C for detailed assumptions and modeling results.

Energy

Energy consumed by the project during construction and operation would include gasoline and diesel fuel, measured in gallons. Fuel use estimates were calculated using the mobile-source emissions factors generated using CARB's EMFAC 2017 program and the estimated level of VMT associated with the project.

Refer to Appendix C for detailed assumptions and modeling results.

THRESHOLDS OF SIGNIFICANCE

Greenhouse Gases

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As discussed above, SMAQMD, along with a committee of EDCAQMD and other regional air districts, have issued guidance for addressing GHG emissions in CEQA documents. The guidance outlines a numeric threshold for construction activities of 1,100 $MTCO_2e$, which has been adopted by SMAQMD and is recommended by EDCAQMD staff. Accordingly, annual construction emissions would be considered significant if they exceeded 1,100 $MTCO_2e$.

EDCAQMD has not adopted a threshold of significance for evaluating operational emissions of GHGs within El Dorado County. PCAPCD governs air pollution in nearby Placer County. PCAPCD recommends a de minimis threshold of significance of 1,100 $MTCO_2e$/year to determine whether a project would have significant GHG impact. According to the PCAPCD, this level of emissions was developed in consideration of the state's SB 2030 goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030. Because the project's first full year of operation would occur before 2030 (i.e., 2028), emissions below 1,100 $MTCO_2e$ would be consistent with longer term statewide reduction goals according to PCAPCD. Using this threshold of significance, operational emissions of GHGs would be considered significant if they exceeded 1,100 $MTCO_2e$ for the first full year of operation.

Based on these parameters, the project would have a significant impact on climate change if it would:

- generate GHG emissions during construction that would exceed 1,100 $MTCO_2e$/year, or
- generate GHG emissions during operation that would exceed 1,100 $MTCO_2e$/year.

Energy

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on energy if it would:

- result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation; or
- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Project-Generated GHG Emissions

Alternatives 1 through 4 would generate construction emissions to reconfigure the campground and associated roads and parking areas; replace the SR 89 bridge; remove the marina; restore Meeks Creek, lagoon, and barrier beach; and construct new piers and cabins under certain alternatives. Each alternative, including the No Action Alternative, would generate operational emissions from vehicles accessing the project area, electricity consumption, solid waste generation, and wastewater treatment. However, these levels of emissions would be less than under existing conditions or would not exceed that applicable 1,100 $MTCO_2e$ threshold of significance applied to each alternative. This impact would be less than significant for all alternatives.

No Action Alternative

Though no construction activities would occur with the no action alternative, continued maintenance of the marina would require the use of heavy-duty equipment and maintenance vehicles. The marina would continue to operate and would be accessed by motorized boats. Additionally, the upland features would remain in their current configuration, which includes cabins, 76 campsites in two campgrounds, and two day-use areas. These recreational areas would continue to support automobiles and recreational vehicles and would be maintained with landscaping and maintenance equipment. Under the No Action Alternative, no GHG emissions would be generated from construction activities associated with the various alternatives discussed below. Operational levels of emissions would be similar to baseline levels as operation of the recreational facilities under the No Action Alternative would not be expected to increase. Because construction-related GHG emissions would not occur and operational emissions would not be greater than the existing level of emissions at the project area, the No Action Alternative's contribution to climate change would be less than significant.

Alternative 1: Restoration with Boating Pier

Construction

Alternative 1-related construction activities would result in the generation of GHG emissions. Alternative 1 would involve construction activities such as removal of Meeks Bay Marina and restoration of Meeks Creek, replacement of SR 89 bridge, demolition and reconstruction of cabins, realignment of the roads, relocation of the utility infrastructure, and stabilization of the shoreline. In addition, a new boating pier would be constructed. Heavy-duty off-road construction equipment, materials transport, and worker commute during construction of the project would result in exhaust emissions of GHGs. Construction activities would require the use of various types of equipment, such as a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, trucks (haul and passenger), and pile drivers. Based on modeling conducted with CalEEMod, it is estimated that project-related construction would generate an approximate total of 1,546 $MTCO_2e$, respectively, over the construction period (2024–2028). See Appendix C for detailed input parameters and modeling results.

Operation

Operation of Alternative 1 would result in mobile-source GHG emissions associated with vehicle trips to and from the project area (i.e., project-generated VMT); area-source emissions from operation of landscape maintenance equipment; water-source emissions from water use and the conveyance and treatment of wastewater; and waste-source emissions from the transport and disposal of solid waste. Alternative 1 would also result in the removal of the existing Meeks Bay Marina, which would eliminate emissions from boats that currently launch or moor at the marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. Based on modeling performed for Alternative 1 and shown in Table 3.9-3, emissions generated from operation of Alternative 1 would result in a total of 99 $MTCO_2e$/year, which is below the threshold of significance of 1,100 $MTCO_2e$.

As shown above in Table 3.9-3 and described above, Alternative 1 would not generate construction or operation emissions in exceedance of the 1,100 $MTCO_2e$ threshold for any year. This impact would be less than significant.

Table 3.9-3 Construction- and Operation-Generated GHG Emissions for Alternative 1

Year	$MTCO_2e$
2024 (Construction)	298
2025 (Construction)	374
2026 (Construction)	373
2027 (Construction)	372
2028 (Construction)	129
2029 (Operation)	99
Threshold of Significance	1,100
Exceeds Thresholds?	No

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Alternative 2: Restoration with Pedestrian Pier

Construction

Similar to Alternative 1, Alternative 2 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities. These actions would entail the use of similar construction equipment identified above under the discussion of Alternative 1. Table 3.9-4 summarizes the emissions associated with construction of Alternative 2 over the 5-year construction period. Total emissions were estimated to be 1,543 $MTCO_2e$.

Table 3.9-4 Construction- and Operation-Generated GHG Emissions for Alternative 2

Construction Year	$MTCO_2e$
2024 (Construction)	297
2025 (Construction)	373
2026 (Construction)	372
2027 (Construction)	371
2028 (Construction)	130
2029 (Operation)	112
Threshold of Significance	1,100
Exceeds Thresholds?	No

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Operation

Alternative 2 would result in similar operational activities generating emissions from vehicles accessing the project area, maintenance activities, wastewater treatment, and solid waste generation. Like Alternative 1, Alternative 2 would result in the removal of the existing Meeks Bay Marina, which would eliminate emissions from boats that currently launch or moor at the Marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-4, operational emissions associated with these activities would generate approximately 112 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 2 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be less than significant.

Alternative 3: Restoration with No Pier

Construction

Similar to Alternatives 1 and 2, Alternative 3 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities, including the expanded campgrounds. Alternative 3 would expand the existing parking by 14 spaces, would add up to 22 campsites, and would not entail the construction of a boat or pedestrian pier or the demolition and reconstruction of cabins. Table 3.9-5 summarizes the emissions associated with construction of Alternative 3 over the 5-year construction period. Total emissions were estimated to be 1,493 $MTCO_2e$.

Table 3.9-5 Construction-Generated GHG Emissions for Alternative 3

Construction Year	$MTCO_2e$
2024 (Construction)	246
2025 (Construction)	374
2026 (Construction)	373
2027 (Construction)	371
2028 (Construction)	129
2029 (Operation)	115
Threshold of Significance	1,100
Exceeds Thresholds?	No

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: Modeled by Ascent Environmental in 2021.

Operation

Alternative 3 would result in similar operational activities generating emissions from vehicles accessing the project area, wastewater treatment, and solid waste generation. Alternative 3 would also result in the removal of the existing Meeks Bay Marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-5, operational emissions associated with these activities would generate approximately 115 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 3 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be less than significant.

Alternative 4: Preferred Alternative

Construction

Similar to Alternatives 1, 2, and 3, Alternative 4 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities, including reconstructed cabins. Alternative 3 would expand the existing parking by 14 spaces and would not entail the construction of a boat or pedestrian pier. These actions would entail the use of similar construction equipment identified above under the discussion of Alternative 1. Table 3.9-6 summarizes the emissions associated with construction of Alternative 4 over the 5-year construction period. Total emissions were estimated to be 1,493 $MTCO_2e$.

Operation

Alternative 4 would result in similar operational activities generating emissions from vehicles accessing the project area, maintenance activities, wastewater treatment, and solid waste generation. Alternative 4 would also result in the removal of the existing Meeks Bay Marina. The removal of the marina would eliminate emissions from boats that currently access the project area through the marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-6, operational emissions associated with these activities would generate approximately 100 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 4 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be less than significant.

Table 3.9-6 Construction-Generated GHG Emissions for Alternative 4

Construction Year	$MTCO_2e$
2024 (Construction)	246
2025 (Construction)	373
2026 (Construction)	373
2027 (Construction)	372
2028 (Construction)	129
2029 (Operation)	100
Threshold of Significance	1,100
Exceeds Thresholds?	No

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-2: Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation

Implementation of Alternatives 1 through 4 would result in the short-term consumption of energy during project construction. Additionally, gasoline and diesel fuel would be consumed by vehicles accessing the project area. The gasoline and diesel fuel consumed during project construction and operation would facilitate the project meeting its primary objectives to restore the ecology of Meeks Bay Creek and provide recreational opportunities to visitors to the project area. As such, energy consumption from construction and operation of the alternatives would not be considered wasteful, inefficient, or unnecessary. This impact would be less than significant. With the No Action Alternative, continued maintenance and operation of the marina and upland recreational facilities would consume energy. However, this energy would be consistent with existing conditions and would be necessary to achieve the project area's purpose as a recreation site. This would not be considered wasteful, inefficient, or unnecessary use of energy and the No Action Alternative would have a less-than-significant impact.

No Action Alternative

Though no construction activities would occur with the No Action Alternative, continued maintenance of the marina would require the use of heavy-duty equipment and maintenance vehicles. The marina would continue to operate and would be accessed by motorized boats. Additionally, the upland features would remain in their current configuration, which includes cabins, 76 campsites in two campgrounds, and two day-use areas. These recreational areas would continue to support automobiles and recreational vehicles and would be maintained through landscaping and maintenance equipment. Under the No Action Alternative, additional gasoline or diesel fuel would not be consumed from construction activities associated with the various alternatives discussed below. Operational levels of gasoline and electricity consumption would be similar to baseline levels as operation of the recreational facilities under the no project alternative would not be expected to increase. For these reasons, the No Action Alternative would not result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. This impact would be less than significant.

Alternative 1: Restoration with Boating Ramp

Most of the construction-related energy consumption for Alternative 1 would be associated with off-road equipment and the transport of equipment and materials using on-road haul trucks. An estimated 23,000 gallons of gasoline and 115,000 gallons of diesel fuel would be used during construction of this alternative (see Appendix C for a summary of construction calculations). The energy needs for project construction would occur over up to 10 years and are not anticipated to require additional capacity or substantially increase peak or base period demands for electricity and

other forms of energy. Gasoline and diesel would also be consumed during worker commute trips. Energy would be required to transport demolition waste and excavated materials. The one-time energy expenditure required to construct the project (spread over the buildout period) would be nonrecoverable. There is no atypical construction-related energy demand associated with the project. Nonrenewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activity in the region. Additionally, as shown in Appendix C, on-road gasoline and diesel fuel consumption associated with construction activity would go down every year as the vehicle fleet becomes more fuel-efficient over time.

Alternative 1 would result in the consumption of gasoline and diesel fuel from visitors accessing the project area. In total, Alternative 1 would generate vehicle activity that would consume 2,755 and 635 gallons of gasoline and diesel fuel, respectively. This level of gasoline and diesel fuel consumption would facilitate access to the project area for the recreational enjoyment of visitors which is an objective of the project. Therefore, energy consumption would not be considered wasteful, inefficient, or unnecessary. Additionally, the removal of the marina would result in decreased boating activity, as described under Impact 3.9-1, above. This would reduce the overall fuel consumption associated with operation of boats in the project area. This impact would be less than significant.

Alternative 2: Restoration with Pedestrian Pier

An estimated 27,000 gallons of gasoline and 1,121,000 gallons of diesel fuel would be used during construction of Alternative 2. Alternative 2 would generate the same level of VMT as Alternative 1, which would consume the same number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 2 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant.

Alternative 3: Restoration with No Pier

An estimated 26,000 gallons of gasoline and 1,117,000 gallons of diesel fuel would be used during construction of Alternative 3. Alternative 3 would generate a similar level of VMT as Alternative 1, which would consume a similar number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 3 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant.

Alternative 4: Preferred Alternative

An estimated 24,000 gallons of gasoline and 1,111,000 gallons of diesel fuel would be used during construction of Alternative 4. Alternative 4 would generate a similar level of VMT as Alternative 1, which would consume a similar number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 4 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-3: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

Energy would be consumed during construction of Alternatives 1 through 4, as well as in the form of gasoline and diesel fuel combustion from construction vehicle trips. Renewable energy and energy efficiency plans generally target operational forms of energy from electricity and natural gas consumption, which would not occur from operation of the alternative. Implementation of the alternatives would not preclude the implementation of efficacy of transportation-related energy measures, such as those that may be included in an RTP/SCS. For these reasons, implementation of all alternatives would not obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant for all alternatives.

No Action Alternative

Under the No Action Alternative, the existing facilities would continue to function at current levels. Boats that currently access the marina would continue to operate and consume fossil fuel and vehicles would continue to access the campground and other recreational features at the project area. The continued operation of the project area would not impede or obstruct the deployment of mechanisms contained in a state or local plan for renewable energy or energy efficiency. Under the No Action Alternative, the heavy-duty equipment required to construct facilities on the project area and facilitate restoration efforts, as proposed under each alternative, would not operate and would thus not consume gasoline or diesel fuel. Because the No Action Alternative would not result in a conflict with a state or local plan that promotes renewable energy or energy efficiency, this impact would be less than significant.

Alternative 1: Restoration with Boating Pier

The primary energy that would be used to implement Alternative 1 would be expended during project construction. Statewide plans, policies, and initiatives that support the use of renewable energy or efficient energy use, such as the 2017 California Climate Change Scoping Plan (2017 Scoping Plan) or the triennial updates to Part 6 of the Title 24 California Building Code (California Energy Code), inherently target operational forms of energy, which would not apply to the project, nor would implementing the project affect the goals and policies contained therein.

Energy would be consumed during project construction; however, this one-time energy expenditure would not impede or conflict with an applicable renewable energy or energy efficiency plan. Applicable plans, such as the 2017 Scoping Plan, address renewable energy and energy efficiency from an operational perspective with the understanding that construction-related energy consumption is inherently short term. Therefore, projects for which construction activities comprise the bulk of energy consumption, such as Alternative 1, are not the focus of such plans. While Alternative 1 would result in consumption of gasoline and diesel fuel, such products would be governed by local, regional, and statewide mechanisms such as the low carbon fuel standard and various transportation strategies implemented throughout the Lake Tahoe region by the Tahoe Metropolitan Planning Organization (TMPO) as components of its existing and future RTP/SCSs. Alternative 1 would not prevent TMPO or other agencies from addressing gasoline and diesel fuel consumption.

Because the use of gasoline and diesel fuel during project implementation would be short term and project implementation would not generate notable new operational energy demand, implementing the project would not conflict with a renewable energy or energy efficiency plan. This impact would be less than significant.

Alternative 2: Restoration with Pedestrian Pier

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 2 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 2 would not conflict with a renewable energy or energy efficiency plan. This impact would be less than significant.

Alternative 3: Restoration with No Pier

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 3 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 3 would not conflict with a renewable energy or energy efficiency plan. This impact would be less than significant.

Alternative 4: Preferred Alternative

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 4 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 4 would not conflict with a renewable energy or energy efficiency plan. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

3.9.4 Cumulative Impacts

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change, described above, is addressed as a cumulative impact. The cumulative effects of all alternatives would be the same as those described in Impacts 3.9-1 through 3.9-3, above. Because the action alternatives would not result in a significant impact related to climate change and energy, the alternatives would not make a considerable contribution to cumulative impacts associated with climate change and energy.