16 GREENHOUSE GASES AND CLIMATE CHANGE

This chapter presents a brief summary of the current state of climate change science and greenhouse gas (GHG) emissions sources in California; a summary of applicable regulations; quantification of project-generated GHG emissions and discussion about their potential contribution to global climate change; and analysis of the project's resiliency to climate change-related risks. In addition, mitigation measures are recommended to reduce the project's potential significant impacts.

16.1 ENVIRONMENTAL SETTING

16.1.1 GHG Emissions and Climate Change

THE PHYSICAL SCIENTIFIC BASIS

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 earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency 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. Without the greenhouse effect, earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed 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 forcings together (Intergovernmental Panel on Climate Change [IPCC] 2014:3, 5).

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 pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, 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 is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural emissions sectors (California Air Resources Board [ARB] 2014a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2014a). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, 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 and landfills. N_2O 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), respectively, two of the most common processes for removing CO_2 from the atmosphere.

16.1.2 Effects of Climate Change on the Environment

The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to provide the world with a scientific view on climate change and its potential effects. According to the IPCC global average temperature is expected to increase relative to the 1986-2005 period by 0.3–4.8°C (0.5-8.6 °F) by the end of the 21st century (2081-2100), depending on future GHG emission scenarios (IPCC 2014:SPM-8). According to the California Natural Resources Agency (CNRA), temperatures in California are projected to increase 2.7°F above 2000 averages by 2050 and, depending on emission levels, 4.1–8.6°F by 2100 (CNRA 2012:2).

Physical conditions beyond average temperatures could be indirectly affected by the accumulation of GHG emissions. For example, changes in weather patterns resulting from increases in global average temperature are expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Based upon historical data and modeling, DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050 (DWR 2008:4). An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events (CNRA 2012:5). This scenario would place more pressure on California's levee/flood control system.

Another outcome of global climate change is sea level rise. Sea level rose approximately 7 inches during the last century and, assuming that sea-level changes along the California coast continue to track global trends, sea level along the state's coastline in 2050 could be 10-18 inches higher than in 2000, and 31-55 inches higher by the end of this century (CNRA 2012:9).

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2012:11 and 12).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also expected. These changes are expected to lead to increased frequency and intensity of large wildfires (CNRA 2012:11).

Cal-Adapt is a climate change scenario planning tool developed by the California Energy Commission (CEC) that downscales global climate model data to local and regional resolution under two emissions scenarios; the A-2 scenario represents a business-as-usual future emissions scenario, and the B-1 scenario represents a lower GHG emissions future. According to Cal-Adapt, annual average temperatures in Olympic Valley are projected to rise by 3-7°F by 2100, with the range based on low and high emissions scenarios (Cal-Adapt 2014).

16.1.3 Existing Squaw Valley Ski Resort Greenhouse Gas Reduction Measures

The Squaw Valley Ski Resort has taken a number of voluntary actions to reduce GHG emissions associated with its existing operations. The resort published the *Environmental & Community Report 2014* outlining a number of actions it has undertaken to reduce GHG emissions (Squaw Valley USA 2014). All data shown below (including estimated annual reduction in CO_2 emissions) is provided in the resort's report, and has not been independently verified in this DEIR. The Squaw Valley and Alpine Meadows ski resorts (both operated by Squaw Valley USA) generated between 9,722 and 13,765 metric tons of CO_2 (equivalent) annually in the years 2010-2013. Actions implemented to reduce GHG emissions include:

- upgrade to boiler system and replacement of older heating units at the Village at Squaw Valley (39 ton CO_2 reduction);
- installation of automated heating controls to reduce temperature fluctuations at High Camp (447 metric ton CO_2 reduction);
- replacement of incandescent and other older bulbs with more efficient bulbs, including LED (82 metric ton CO_2 reduction);
- installation of four electric car charging stations (no reduction estimate provided); and
- shuttle buses between Squaw Valley and Alpine Meadows resorts (85 on CO_2 reduction).

A number of other actions have been implemented by the resort, and several more are planned (e.g., replacement of heating systems, more efficient thermostats, potential installation of solar panels, payment of fees for carbon-offsetting projects).

16.2 REGULATORY SETTING

16.2.1 Federal

SUPREME COURT RULING OF CO_2 AS A POLLUTANT

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA) and its amendments. The Supreme Court of the United States ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

NATIONAL PROGRAM TO CUT GREENHOUSE GAS EMISSIONS AND IMPROVE FUEL ECONOMY FOR CARS AND TRUCKS

On August 28, 2014, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the U.S. (NHTSA 2012). EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. This proposed national program allows automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both Federal programs and the standards of California and other states. While this program will increase fuel economy to the equivalent of 54.5 mpg for cars and light-duty trucks by Model Year 2025, additional phases are being developed by NHTS and EPA that address GHG emission standards for new medium- and heavy-duty trucks (NHTSA 2014).

16.2.2 State

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets for the State. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

As described below, legislation was passed in 2006 (Assembly Bill 32) to limit GHG emissions to 1990 levels by 2020 with continued "reductions in emissions" beyond 2020, but no specific additional reductions were enumerated in the legislation. Further, Senate Bill 375 (sustainable community strategies/transportation) established goals for emissions from light duty truck and automobiles for 2020 and 2035.

A recent California Appellate Court decision, *Cleveland National Forest Foundation v. San Diego Association of Governments* (November 24, 2014) Cal.App.4th, further examined the executive order and whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. The case has been accepted for review by the California Supreme Court, and therefore is not currently considered a precedent.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that these reductions "…shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The (Air Resources Board) shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020." [California Health and Safety Code, Division 25.5, Part 3, Section 38551]

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN AND UPDATE

In December 2008, ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of CO_2-equivalent (CO_2e) emissions, or approximately 21.7 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by 2020 will be by implementing the following measures and standards (ARB 2011):

- improved emissions standards for light-duty vehicles (estimated reductions of 26.1 MMT CO_2e),
- the Low-Carbon Fuel Standard (15.0 MMT CO_2e),
- energy efficiency measures in buildings and appliances (11.9 MMT CO_2e),
- a renewable portfolio and electricity standards for electricity production (23.4 MMT CO_2e), and
- the Cap-and-Trade Regulation for certain types of stationary emission sources (e.g., power plants).

In May 2014, ARB released and has since adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012 (ARB 2014b:4 and 5). According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 (ARB 2014b:ES-2). The update also reports the trends in GHG emissions from various emission sectors.

The update also elaborates on potential GHG reduction goals beyond 2020:

> California will develop a mid-term target to frame the next suite of emission reduction measures and ensure continued progress toward scientifically based targets. This target should be consistent with the level of reduction needed [by 2050] in the developed world to stabilize warming at 2°C (3.6°F) [above pre-industrial levels] and align with targets and commitments elsewhere. The European Union has adopted an emissions reduction target of 40 percent below 1990 levels by 2030. The United Kingdom has committed to reduce its emissions by 50 percent below 1990 levels within the 2022–2027 timeframe, and Germany has set its own 2030 emissions target of 55 percent below 1990 levels. The United States, in support of the Copenhagen Accord, pledged emission reductions of 42 percent below 2005 levels in 2030 (which, for California, translates to 35 percent below 1990 levels).
>
> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions (ARB 2014b:34).
>
> As supported by many of California's climate scientists and economists, a key next step needed to build on California's framework for climate action is to establish a mid-term statewide emission reduction target. Cumulative emissions drive climate change, and a continuum of action is needed to reduce emissions not just to stated limits in 2020 or 2050, but also every year in between (ARB 2014b:ES6).

The update summarizes sector-specific actions needed to stay on the path toward the 2050 target. While the update acknowledges certain reduction targets by others (such as in the Copenhagen Accord), it stops short of recommending a specific target for California, instead acknowledging that mid-term targets need to be set "consistent with the level of reduction needed [by 2050] in the developed world to stabilize warming at 2°C (3.6°F) [above pre-industrial levels]."

Actions are recommended for the energy sector, transportation (clean cars, expanded zero-emission vehicle program, fuels policies, etc.), land use (compliance with regional sustainability planning targets), agriculture, water use (more stringent efficiency and conservation standards, runoff capture, etc.), waste (elimination of organic material disposal, expanded recycling, use of Cap and Trade program, etc.), green building (strengthen Green Building Standards), and other sectors. Many of the actions that result in meeting targets will need to be driven by new or modified regulations.

At the time of writing this DEIR, however, no specific reduction goal beyond 2020 has been recommended or formally adopted by ARB or the California State Legislature. As noted in the discussion of AB 32, above, ARB is tasked with making a recommendation for targets beyond 2020 as part of the legislation. The State Legislature is currently considering a bill to establish overall GHG targets, along the lines provided in AB 32, for the period after 2020. However, no such bills have been passed as of this writing (May 2015).

SENATE BILL 375

Senate Bill [SB] 375, signed by the Governor in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. ARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in their respective regions for 2020 and 2035.

The Sacramento Area Council of Governments (SACOG) serves as the MPO for Placer, Sacramento, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. The project site is located in Placer County and not within the Lake Tahoe Basin. SACOG adopted its Metropolitan Transportation Plan (MTP)/SCS 2035 in 2012. SACOG was tasked by ARB to achieve a 9 percent per capita reduction compared to 2012 emissions by 2020 and a 16 percent per capita reduction by 2035, which ARB confirmed the region would achieve by implementing its SCS (ARB 2013). The MTP/SCS forecasted land use development by community types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period. Olympic Valley, including the project site, is shown in the Lands Not Identified for Development category, which is defined as areas of the region that are not expected to develop to urban levels by 2035. The MTP/SCS acknowledges that some development may occur in these areas and that it is difficult to estimate where growth may occur on a parcel-by-parcel basis. (SACOG 2012)

ADVANCED CLEAN CARS PROGRAM

In January 2012, ARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016 (ARB [no date]).

SENATE BILL X1-2, THE CALIFORNIA RENEWABLE ENERGY RESOURCES ACT OF 2011

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond.

CALIFORNIA BUILDING EFFICIENCY STANDARDS OF 2013 (TITLE 24, PART 6)

Buildings in California are required to comply with California's Energy Efficiency Standards for Residential and Nonresidential Buildings established by the CEC regarding energy conservation standards and found in Title 24, Part 6 of the California Code of Regulations. California's Energy Efficiency Standards for Residential

and Nonresidential Buildings was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated on an approximately 3-year cycle to allow consideration and possible incorporation of new energy efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards (CEC 2012). Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The CEC Impact Analysis for California's 2013 Building Energy Efficiency Standards estimates that the 2013 Standards are 23.3 percent more efficient than the previous 2008 standards for multi-family residential construction and 21.8 percent more efficient for non-residential construction (CEC 2013:3).

SENATE BILL 97 OF 2007

SB 97 directed the California Natural Resources Agency to adopt amendments to the CEQA Guidelines to specifically address GHG emissions. The Amendments became effective on March 18, 2010. This DEIR complies with these Amendments and the CEQA checklist questions added to Appendix G of the CEQA Guidelines in response to SB 97 are discussed under the Significance Criteria heading below.

16.2.3 Local

Currently, Placer County and the Placer County Air Pollution Control District (PCAPCD) have no adopted climate change- or GHG-related laws, regulations, policies, programs, or plans that are applicable to the proposed Specific Plan. However, as explained in Section 16.3.1, "Significance Criteria," PCAPCD participated with other local air districts in development of a GHG threshold of significance for CEQA.

16.3 IMPACTS

16.3.1 Significance Criteria

CEQA DIRECTION

Establishment of a GHG significance threshold for a single project has been a challenge ever since this issue was first addressed in CEQA. No single project is large enough to meaningfully affect climate change (caused by many years of cumulative global emissions of GHG). For example, although Executive Order S-3-05 establishes 2050 statewide goals for reducing GHG emissions, agencies are not required to use those goals to evaluate GHG emissions. In 2008, the Schwarzenegger administration issued guidance regarding this issue; that guidance stated that the adoption of appropriate significance thresholds was a matter of discretion for the lead agency. The guidance states:

> "[T]he global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions. To this end, OPR has asked ARB technical staff to recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. Until such time as state guidance is available on thresholds of significance for GHG emissions, we recommend the following approach to your CEQA analysis."
>
> Determine Significance
>
> - When assessing a project's GHG emissions, lead agencies must describe the existing environmental conditions or setting, without the project, which normally constitutes the baseline physical conditions for determining whether a project's impacts are significant.

- As with any environmental impact, lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a "significant impact," individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.

- The potential effects of a project may be individually limited but cumulatively considerable. Lead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence. Documentation of available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).

- Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. CEQA authorizes reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions to a less than significant level as a means to avoid or substantially reduce the cumulative impact of a project.

(Governor's Office of Planning and Research, Technical Advisory, CEQA AND CLIMATE CHANGE: Addressing Climate Change through California Environmental Quality Act (CEQA) Review (June 19, 2008) (OPR, CEQA and Climate Change), pp. 4-6.)

OPR's Guidance did not require Executive Order S-3-05 to be used as a significance threshold under CEQA. Rather, OPR recognized that, until CARB establishes a state-wide standard, selecting an appropriate threshold was within the discretion of the lead agency.

CEQA Guidelines Section 15064.4 was later added, in 2010, to address GHGs. The Guidelines state:

> (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project…
>
> (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
>
> (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
>
> (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
>
> (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Thus, one threshold that may be used to analyze the project's GHG emissions is whether the project would conflict with or obstruct the goals or strategies of the California Global Warming Solutions Act of 2006 (AB 32) or its governing regulation. (Health & Saf. Code, §§ 38500-38599.)

PLACER COUNTY

Appendix G of the State CEQA Guidelines indicates that a proposed project would result in a potentially significant impact 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.

PCAPCD recently developed the following recommendations for thresholds of significance for evaluating construction- and operation-related GHG emissions for proposed land use development projects in their jurisdiction. These thresholds were developed in collaboration with the Sacramento Metropolitan Air Quality Management District (SMAQMD), the Yolo Solano Air Quality Management District (YSAQMD), and the Feather River Air Quality Management District (FRAQMD) (Green, pers. comm., 2014a). These thresholds are intended to evaluate a project for consistency with GHG targets established in AB 32, particularly for emissions occurring by 2020. The term "no action taken" is used here to reflect conditions, including regulations, in place when GHG reduction targets were established by ARB; ARB evaluated potential GHG in 2020 if no actions were taken, and determined the level of reduction that would be needed to attain 2020 targets.

- for the evaluation of construction-related emissions, PCAPCD recommends using the mass emission threshold of 1,100 MTCO2e/year (metric tons of carbon dioxide-equivalent per year);

- for the evaluation of operational emissions PCAPCD recommends a 2-tier approach:

  - (Tier I) Operational emissions of a project would not have a significant impact on the environment if they are less than 1,100 $MTCO_2e$/year, and

  - (Tier II) Projects with operational emissions that exceed 1,100 $MTCO_2e$/year, but are able to demonstrate a 21.7 percent reduction from a "no action taken" (NAT) scenario compared to the proposed project operating in 2020 would not conflict with ARB's Scoping Plan.

For projects with operational emissions that exceed 1,100 $MTCO_2e$/year, but are able to demonstrate a 21.7 percent reduction from the NAT scenario, PCAPCD allows lead agencies discretion about whether an exceedance of the Tier I threshold (i.e., 1,100 MT/year) constitutes a significant impact (Green, pers. comm., 2014a).

For the evaluation of this project, the County bases its significance determination for operational emissions on the two-tier method above, but considers that an impact would be significant if both Tier I and Tier II thresholds are exceeded.

The County's impact conclusion is based on the GHG-efficiency of the proposed project based on full buildout during the state's current AB 32 target threshold year of 2020, as well as estimation of operational GHG emissions in 2037, which is the projected year for full project buildout. This methodology is explained in further detail below. Because full buildout would not occur until after the 2020 comparison year, this analysis also includes a qualitative discussion of potential GHG impacts in the timeframe beyond 2020, a period for which there is currently no state-adopted GHG emissions reduction target.

16.3.2 Methods and Assumptions

POLICIES PROPOSED IN THE SPECIFIC PLAN THAT COULD AFFECT PROJECT IMPACTS

The following policies from *The Village at Squaw Valley Specific Plan* (Squaw Valley Real Estate, LLC 2015) are applicable to the evaluation of greenhouse gases and climate change effects:

Energy Efficiency

- **Policy CC-1**: All new and remodeled resort-residential, commercial, institutional, and civic construction is encouraged to exceed current Title 24 State energy-efficiency requirements by at least 15 percent.
- **Policy CC-2**: All new resort-residential buildings and major renovations are encouraged to meet or exceed the guidelines for the California Energy Star Certified Homes Program or other equivalent programs.
  - The Energy Star Certified Homes Program is a joint program of the United States Environmental Protection Agency and the Department of Energy. The program establishes criteria for energy efficiency for household products and labels energy efficient products with the Energy Star seal. Homes can be qualified as Energy Star homes as well if they meet efficiency standards.
  - In California, Energy Star homes must use at least 15 percent less energy than Title 24 regulations, pass the California Energy Star Homes Quality Insulation Installation Thermal Bypass Checklist Procedures, have Energy Star windows, and have minimal duct leakage.
- **Policy CC-3**: Resort-residential development of more than 6 units is encouraged to participate in the California Energy Commission's New Solar Homes Partnership (NSHP).
- **Policy CC-4**: New construction of commercial buildings over 10,000 square feet in size is encouraged to incorporate renewable energy generation to provide at least 25% of the project's needs.
- **Policy CC-5**: Incorporating on-site renewable energy production, including installation of photovoltaic cells or other solar options installed in appropriate high sunlight locations, is encouraged. Small single-cell applications typical for use in landscape, pathway and plaza lighting are acceptable.
- **Policy CC-6**: A building's orientation, massing, and fenestration shall be designed to reduce building energy requirements, by maximizing daylighting and/or controlling heat produced by sunlight, to the extent feasible given the building's location, including its relationship to courtyards and paths, other buildings and natural features. Daylighting shall not be maximized to the extent that it causes glare and/or electric lighting loads needed to offset glare. The selection and extent of window glazing should vary depending on the criteria required by the window's location, including solar heat gain, energy performance, daylighting, views, and glare factors. Exterior sun controls (including porches, overhangs, trellises, balconies, and shutters) may be integrated into the building's fenestration design to effectively admit and block sun penetration as required.

Mechanical Systems

- **Policy CC-7**: A high level of individual occupant control for thermal, ventilation, and lighting systems shall be incorporated. Occupancy sensors and time clock controls shall be incorporated into the building's mechanical design to reduce energy usage.
- **Policy CC-8**: The need for air conditioning may be reduced through effective ventilation design and the use of trees and architectural devices for shading. Such designs can reduce heat absorption and maximize exposure to summer breezes by facilitating internal air circulation and effective shading.

- **Policy CC-9**: Using chloroflourocarbon-free heating, ventilation, air conditioning, and refrigeration base building systems is required. Intakes shall be located and designed to assure maximum levels of indoor air quality. The use of carbon monoxide monitoring sensors is required.

- **Policy CC-10**: Separating ventilation and plumbing systems for those rooms containing contaminants, such as artist studios, from those in the rest of the building is required.

- **Policy CC-11**: Retaining a commissioning agent (a professional qualified to evaluate and certify that a building is designed, constructed, and functions in accordance with the building's specified operational requirements) is required. Owners may choose to have the commissioning agent produce a recommissioning manual for the building to assure it continues to meet established standards such as energy conservation and indoor air quality.

Building Envelope

- **Policy CC-12**: The building envelope (which defines the conditioned and unconditioned spaces) should form a continuous insulated barrier and a continuous air barrier. The two barriers are usually formed by different materials. Standard insulation products, such as batt or loose fill products, do not seal against air leakage. For most units, the sheet goods that form the decking, sheathing, and finish materials are the primary air barrier. Holes between materials will be sealed with durable caulks, gaskets, and foam sealants.

- **Policy CC-13**: The use of Energy Star or equivalent rated windows is required within standard residential units, and other areas where feasible.

Waste Minimization

- **Policy CC-14**: Efforts to reduce construction waste are encouraged. All building projects within the Plan Area are shall recycle or reuse a minimum of 15 percent of unused or leftover building materials.

Indoor Lighting and Appliances

- **Policy CC-15**: It is required that all units utilize Energy Star rated appliances and the most energy-efficient Energy Star rated water heater and air conditioning systems that are feasible, including but not limited to dishwashers, refrigerators, ceiling fans, washing machines, water heaters, and air conditioning systems.

- **Policy CC-16**: It is intended that all buildings utilize natural gas should it become available within the Plan Area, or propane where feasible, for clothes dryers, cooking stoves, heating, central air furnaces, water heaters, and/or boilers.

- **Policy CC-17**: Using Energy Star or equivalent light fixtures is required. A broad range of choices and styles are available through many lighting manufactures, which can be found at www.energystar.gov.

- **Policy CC-18**: Use of high-efficiency bulbs, such as compact fluorescent bulbs or LEDs in recessed can lights is required.

Water Efficient Appliances

- **Policy CC-19**: Utilize water-conserving appliances and plumbing fixtures. The following average flow rates shall be met by installing high-efficiency fixtures and/or fittings:
  - Lavatory faucets must be </= 2.0 gpm
  - Showers must be </= 2.0 gpm
  - Toilets must be </= 1.3 gpf

- **Policy CC-20**: Utilize flow restrictors and/or reduced flow aerators on lavatory, sink, and shower fixtures.

- **Policy CC-21**: Commercial buildings are required to utilize automatic fixture sensors and low-consumption fixtures.

A minimum of 25 percent of new shuttle services within the Olympic Valley would use alternative fuels (Policy CP-5) and bike racks would be provided at main locations throughout the Village (identified in VSVSP Section 5.5). Although implementation of these measures would likely result in reduced GHG emissions, because of multiple variables associated with many of these items (e.g., would the 25 percent minimum use of alternative fuels in shuttles be exceeded; how much solar power generation would ultimately be installed), they often could not be considered with sufficient certainty to be included in quantified GHG emissions calculations conducted for this analysis. Therefore, implementation of various policies and project elements within the VSVSP related to reductions in GHG emissions could further reduce the project's emissions below those estimated in the following analysis.

Additionally, Chapter 8, "Implementation," of the VSVSP includes the following requirement (Squaw Valley Real Estate, LLC 2015) that is applicable to the evaluation of greenhouse gases and climate change effects:

> The Draft EIR analyzed a project buildout scenario which assumed that no more than 20 percent of the project would be developed in any single year. Each application for project entitlements shall include a projected timeline for project construction activities, including demolition, site preparation, grading, paving, building construction and architectural coatings. This inventory shall include the projections for construction of any other VSVSP projects that would involve construction activities that are foreseeable to occur concurrent with the project for which the application is submitted, including approved Tentative Small-Lot Subdivision Maps that have not recorded but remain within the valid exercise period and any approved projects not requiring a Small-Lot Tentative Map that are within the valid exercise period. If the total amount of construction in any construction year would exceed 20 percent of the total VSVSP buildout, then the application shall be accompanied by air quality and greenhouse gas analyses to determine if emissions would exceed applicable thresholds in any of the construction years of the project application. If the thresholds are exceeded, additional CEQA review may be required.

ESTIMATION OF GREENHOUSE GAS EMISSIONS

Short-term construction-generated GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2013.2 computer program (SCAQMD 2013a), as recommended by PCAPCD and other air districts in California. Modeling was based on project-specific information (e.g., size, amounts of demolition, area to be graded, area to be paved), 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 types.

Operational GHG emissions were estimated using a variety of sources and models. Mobile-source emissions were estimated using the emission factors provided in CalEEMod and the CalEEMod User Guide (SCAQMD 2013b:D-86 to D-265); estimates of project-generated vehicle trips and total vehicle miles traveled (VMT) that were developed as part of the analysis presented in Chapter 9, Transportation and Circulation; and the vehicle fleet mix observed along Squaw Valley Road during field work conducted as part of the noise analysis. Development of the projected number of vehicle trips and VMT generated by the Specific Plan took into account the many policies in the Specific Plan that would result in less reliance on passenger vehicles. As explained in Chapter 5, Circulation and Parking, of the Specific Plan, the Specific Plan emphasizes pedestrian circulation by providing ample sidewalks and paths between key destinations, particularly between parking, ski operations, and trail heads. The Village would be designed to be compact and provide lodging and related amenities, restaurants, ski facilities, and other recreational facilities in close proximity to one another so that visitors could park once and then access desired services and amenities on foot. In addition, the Specific Plan provides easy transit access to ski facilities and other amenities, through provision of new transit services as well as a new transit center. For instance, as stated in Policy CP-6, the Specific Plan would extend the existing Class 1 multi-purpose biking/walking trail along Squaw Valley Road to the west (it currently terminates northeast of the Village at the Squaw Valley Meadows condos). Also, providing more employee housing on the East Parcel would effectively shorten VMT associated with worker commute trips. Moreover, bike racks would be provided at main locations throughout the Village, as well as at the Shirley Canyon and Granite Chief Trailheads, and at all major lodging properties.

Emissions from propane combustion used for space heating, water heating, and cooking were estimated based on the consumption levels provided in a dry utilities study prepared for the Specific Plan (MacKay & Somps 2015:20), using GHG emission factors published by The Climate Registry (The Climate Registry 2014:10,17). As indicated in Chapter 3, "Project Description," liquefied natural gas (LNG) may be used as an alternative or supplemental energy source. LNG would be delivered, refueled, stored, and distributed as natural gas, in the same manner as described above for propane. Although natural gas has lower energy content per volume than propane, overall GHG emissions to achieve equal heating of rooms/water/etc. is not significantly different between the two gasses (i.e., amount of CO_2 released during combustion to generate a unit of heat not significantly different). Therefore, GHG emissions were not calculated separately for the potential use of LNG.

Emissions from landscape maintenance equipment were estimated using the applicable module in CalEEMod (SCAQMD 2013a). Winter-time emissions from the operation of snow removal equipment were estimated using the off-road equipment screen in the operations module of CalEEMod.

Indirect emissions associated with electricity consumption were calculated based on utility emission factors for Sierra Pacific Power for CO_2, N_2O, and CH_4 as contained in CalEEMod, and estimates of project-related electricity consumption estimated by the dry utilities study prepared for the Specific Plan (MacKay & Somps 2015:15). The amount of electricity used to operate the ground water wells that would serve the Specific Plan area was estimated based on the volume of water that would be required by the Specific Plan and the average well depth, as determined by the water supply assessment (Farr West Engineering et al. 2014:ES-4; included as Appendix C) and energy intensity factors for well operation published by CEC (CEC 2006:40). Indirect GHG emissions associated with the treatment of wastewater generated by the project were estimated using emission factors from the wastewater module of CalEEMod and the volume of wastewater generation estimated in a sewer report prepared for the Specific Plan (MacKay & Somps 2014:5). Indirect GHG emissions associated with the quantity of solid waste generated by the land uses was estimated using the applicable module in CalEEMod.

The loss in sequestered carbon was also estimated in CalEEMod using the vegetation module. The types and amounts of vegetation that would be removed permanently due to construction were estimated as part of the biological impact analysis presented in Table 6-1 of Chapter 6, Biological Resources. This analysis does not account for the increase in carbon sequestration associated with the restoration of Squaw Creek, which is also part of the Specific Plan. Total one-time GHG emissions from the loss in carbon sequestration were then amortized over the operational life of the project (assumed to be 40 years for this analysis) to be tallied with on-going operational emissions. The total construction-related emissions associated with full buildout were also amortized over the operational life of the project (assumed to be 40 years for this analysis). Accounting for the loss in sequestered carbon and construction emissions in this way allows for the evaluation of whether ongoing operation of the proposed land uses would be efficient enough to "recoup" these one-time emissions.

Because the proposed land uses would not operate at full capacity on a year-round basis, annual emission estimates were generated using the monthly occupancy rates presented in the Specific Plan's water supply assessment (Farr West Engineering et al. 2014:11). Operational emissions from all sources were estimated for full buildout of the Specific Plan, which could occur as early as 2037.

These methods for estimating operational GHG emissions are a conservative representation of the true emissions, because the analysis assumes that all project GHG emissions are new. In reality, the project will generate some new GHGs, and some project-related GHGs will replace emissions from other locations. Because GHGs affect climate on a global level, the location where they are generated is not relevant, but total net quantity is. As stated in Chapter 3, "Project Description," the underlying purpose of the project is to develop a year-round destination resort that is on par with peer world class North American ski destinations. It is likely the project will cater to people who, for the most part, are already likely to vacation, and the project provides another destination option. It may increase total vacation travel and use, but it would also likely displace some travel to other locations. However, there is no method to account for the degree to which project-related GHG emissions would replace GHG emissions that would otherwise occur, and any attempt to do so would involve

intense speculation. Thus, the analysis does not attempt to estimate the level of net new emissions associated with the proposed project and instead treats all GHG emissions from the project as new.

GREENHOUSE GAS EFFICIENCY ANALYSIS

For this DEIR, a GHG efficiency analysis is conducted by estimating emissions for two separate emission scenarios, as recommended by PCAPCD (Green, pers. comm., 2014a, 2014b). One is a "no action taken" (NAT) scenario, a hypothetical scenario which estimates operational GHG emissions in 2020 (assuming buildout by that year) without implementation of regulations that have been put in place since 2006 to help achieve the statewide GHG reduction goal mandated by AB 32. Regulations that have been put in place under the AB 32 mandate, but not accounted for in the NAT scenario include the Low-Carbon Fuel Standard for transportation fuels; the fuel economy standards of the Advanced Clean Cars regulation that result in new vehicles being more GHG-efficient; the renewable electricity standard which requires California utilities to generate 33 percent of their electricity from renewables by 2020; and the California Building Efficiency Standards (Title 24, Section 6) that result in increased efficiency in heating and cooling of buildings. The other scenario, referred to in this DEIR as the full-buildout 2020 scenario, estimates operational GHG emissions with implementation of these regulations if the project were built out and became fully operational in 2020. This scenario is also hypothetical because full buildout of the Specific Plan would occur no sooner than 2037. The 2020 analysis year is used to compare these two scenarios because 2020 is the target year for achieving the GHG reduction goal identified by AB 32. As described in Section 16.2.2, "State," of the Regulatory Setting above, AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. However, in recognition of these unrealistic buildout assumptions, this DEIR also examines what may occur beyond 2020, including a discussion of GHG reduction targets that may be established by ARB and/or the California State Legislature beyond 2020, what specific regulations may be developed to achieve those targets, and the ability and likelihood the project would comply with those regulations to meet those targets.

The purpose of the efficiency analysis is to determine whether the full-buildout 2020 scenario is at least 21.7 percent more GHG efficient than the NAT scenario. An efficiency target of 21.7 percent is used because, as explained in Section 16.2.2, "State," of the Regulatory Setting, above, ARB calculated that a reduction of 21.7 percent from 2020 NAT emissions is needed for California to reach 1990 emission levels (ARB 2011).

Refer to Appendix H of this DEIR for a detailed description of all calculations, model runs, and assumptions used to support the efficiency analysis.

16.3.3 Issues or Potential Impacts Not Discussed Further

All GHG and climate change issues addressed in the significance criteria are evaluated below. As described further in Section 18.1, "Cumulative Impacts," analysis of the GHGs associated with the Specific Plan is inherently a cumulative impact analysis.

16.3.4 Impact Analysis

Impact 16-1: Construction-generated greenhouse gas emissions.

Construction-generated GHG emissions would not exceed PCAPCD's recommended Tier I mass emission threshold. Therefore, GHG emissions from project-related construction would not be substantial. This impact would be **less than significant**.

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Construction of the land uses proposed under the Specific Plan would occur over a 20-

to 25-year period with some construction to begin no earlier than spring of 2016. While the rate in which various land uses and facilities are constructed would be market driven, it is not expected that any more than 20 percent of total construction activity would occur during the single most active construction year (see Section 3.4.6, "Project Construction"). Chapter 8, "Implementation," in the Specific Plan (Squaw Valley Real Estate, LLC 2015) supports this limit to peak single year construction activity (see Section 16.3.2, above). Demolition, site preparation, grading, and paving activities would typically occur only during months when snow is unlikely to be present (approximately May 1 to October 15). However, interior work on buildings, including the indoor application of architectural coatings, could potentially occur during all months of the year. Maximum annual construction emissions are summarized in Table 16-1. Refer to Appendix H for a detailed summary of the modeling assumptions, inputs, and outputs.

Table 16-1 Summary of Maximum Annual GHG Emissions Associated with Project Construction Activities

Construction Activity	MT CO_2e/year
Demolition	59
Site Preparation	56
Grading	87
Paving	33
Building Construction	624
Architectural Coatings	81
Total Maximum Annual Emissions	**940**
PCAPCD Tier I Threshold of Significance	1,100

Notes: Modeled values represent maximum GHG emissions that could occur if up to 20 percent of the land uses are under construction during any single year. See Appendix H for detail on model inputs, assumptions, and project specific modeling parameters.

MT CO_2e/year = metric tons of carbon dioxide-equivalent per year, **PCAPCD = Placer County Air Pollution Control District**
Source: Modeling conducted by Ascent Environmental in 2014

As shown in Table 16-1, maximum annual GHG emissions generated by project-related construction would not exceed PCAPCD's Tier I Threshold of Significance. Therefore, GHG emissions from project-related construction would not be substantial. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 16-2: Operational greenhouse gas emissions.

GHGs associated with operation of the Specific Plan would exceed the Tier I mass-emission threshold of 1,100 MT CO_2e/year; however, operational GHGs would not exceed the GHG efficiency-based Tier II threshold recommended by PCAPCD for 2020. Nevertheless, GHG emissions would be substantial and may be less efficient than needed to achieve GHG reduction targets that could be in place after 2020, when the project is completed. Therefore, operation of the Specific Plan has the potential to result in a substantial contribution to GHG emissions. This impact would be **potentially significant**.

Operation of the facilities developed under the Specific Plan would result in GHG emissions associated with motor vehicle trips to and from the Specific Plan area, the combustion of propane for space and water heating, the consumption of electricity and water, the generation of wastewater and solid waste, and equipment used for landscaping and snow removal. The removal of vegetation would also result in the loss of sequestered carbon. Table 16-2 summarizes all the direct and indirect sources of GHG emissions associated with the Specific Plan upon full buildout in 2037. The emissions estimates are based on the application of existing regulations pertaining to vehicle emissions, building standards, and electricity generation. This is explained further below.

Table 16-2 Summary of Annual Greenhouse Gas Emissions Associated with the Specific Plan at Full Buildout in 2037

Emissions Activity	MT CO_2e/year
Vehicle Trips (mobile sources)	14,241
Propane Combustion	19,732
Electricity Consumption	10,941
Water Consumption	25
Wastewater Treatment	147
Solid Waste Generation	92
Landscaping Equipment	10
Snow Removal Equipment	56
Construction[1]	118
Loss in Carbon Sequestration from Vegetation Removal[1]	40
Total Maximum Yearly Emissions	**45,403**
PCAPCD's Tier 1 Threshold of Significance	1,100

Notes: See Appendix H for detail on model inputs, assumptions, and project specific modeling parameters.

MT CO2e/year = metric tons of carbon dioxide-equivalent per year

[1] Construction emissions and the loss in sequestered carbon from removed vegetation are amortized over an estimated 25-year build out period of the Specific Plan.

Source: Modeling conducted by Ascent Environmental in 2014

As shown in Table 16-2, upon full buildout, GHG emissions associated with operation of the proposed project would exceed the Tier I mass emission threshold of 1,100 MT CO_2e/year. Therefore, this analysis evaluates the GHG efficiency in which the proposed project would operate compared to the NAT scenario in 2020 (Tier II). Table 16-3 summarizes the results of emissions estimates for both scenarios.

As shown in Table 16-3, emissions from many sources would be less under the full-buildout scenario than the NAT scenario due to the GHG regulations under the AB 32 mandate that would decrease operational GHG emissions. Emissions from project-related vehicle trips would be less in the full-buildout scenario due to implementation of regulations governing vehicle emission standards for GHGs, including the GHG vehicle standards in Advanced Clean Cars and the Low-Carbon Fuel Standard. Approximately 25 percent less propane would be needed for space and water heating and 25 to 30 percent less electricity would be needed to power appliances and lighting in the full-buildout scenario due to implementation of the California Building Efficiency Standards (Title 24, Section 6) (Green, pers. comm. 2014b). It is noted that the emissions in 2020 full-buildout scenario are slightly higher than estimated for full buildout in 2037, although the same GHG reduction regulatory standards are applied. This is because a certain percentage of older vehicles projected to be on the road in 2020 would be replaced by newer vehicles over time that better meet emissions standards and have higher gas mileage, resulting in less GHG emissions from the overall vehicle fleet in later years.

Overall, the total GHG emissions under the full-buildout scenario in 2020 would be approximately 25 percent less than the NAT scenario. Therefore, GHG emissions associated with operation of the proposed project would not conflict with ARB's Scoping Plan for 2020 targets.

Table 16-3 Summary of Annual Greenhouse Gas Emissions Associated with the No Action Taken (NAT) and Full-Buildout Scenarios in 2020 (MT CO_2e/year)

Emissions Activity	No Action Taken Scenario	Full-Buildout 2020 Scenario
Vehicle Trips (mobile sources) [1]	21,004	15,832
Propane Combustion [2]	26,309	19,732
Electricity Consumption [2, 3]	14,588	10,941
Water Consumption [4]	25	25
Wastewater Treatment [5]	147	147
Solid Waste Generation [5]	92	92
Landscaping Equipment [5]	10	10
Snow Removal Equipment [5]	56	56
Construction [6]	118	118
Loss in Carbon Sequestration from Vegetation Removal [6]	40	40
Total Maximum Yearly Emissions	**62,931**	**46,994**
Percent Less than Building-As-Usual Scenario	—	*25.3%*

Notes: See Appendix H for detail on model inputs, assumptions, and project specific modeling parameters.

MT CO_2e/year = metric tons of carbon dioxide-equivalent per year

1 Emissions from vehicle trips would be less in the full-buildout scenario due to implementation of regulations governing vehicle emission standards for GHGs, including the vehicle emission standards from Advanced Clean Cars and the Low-Carbon Fuel Standard. These regulations provide increasingly stringent emission standards over time.

2 In the full-buildout scenario, consumption of both propane for space and water heating and electricity for powering appliances and lighting would be approximately 25 percent less due to implementation of the California Building Efficiency Standards (Title 24, Section 6) (Green, pers. comm. 2014b).

3 Emissions associated with electricity consumption would be lower in the full-buildout scenario due to implementation of renewable requirements in the electric power generation industry; however, this reduction is not accounted for in this analysis because complete information about the GHG intensity factors (historical and projected) for the local utility, California Pacific Electric Company (CalPeco), are not available. CalPeco became the electric service provider to Olympic Valley in 2011 after it acquired assets from Sierra Pacific Power Company (Liberty Energy 2010). For both scenarios, emissions associated with electricity consumption were estimated using the GHG intensity factor for Sierra Pacific Company for 2008 in CalEEMod.

4 Emissions associated with water consumption would not differ among the two scenarios because the level of water consumption is ultimately determined by the limited supply of groundwater in Olympic Valley as discussed in the water supply assessment (Farr West Engineering et al. 2014), and water conservation measures would be implemented under both the NAT and full-buildout scenarios.

5 No substantial difference would be expected in emissions associated with wastewater treatment, the generation of solid waste, landscaping and snow removal activities, construction, or the loss in carbon sequestration associated with removal of vegetation during construction.

6 Construction emissions and the loss in sequestered carbon from removed vegetation are amortized over an estimated 40-year operational life of the Specific Plan.

Source: Modeling conducted by Ascent Environmental in 2015

Post 2020 Considerations

As described in Section 16.2.2, ARB is working toward recommending goals that extend beyond 2020 and, further, Executive Order SB-3-05 set a target of reducing emissions to 80 percent below 1990 levels by 2050. New legislation is proposed to establish post-2020 goals, but no action on the legislation has been taken, as of this writing (May 2015). While project design and specific plan policy implementation contribute to reducing potential GHG emissions from the project, achievement of future GHG efficiency standards is largely dependent on regulatory controls applied to all sectors of the California economy. As stated above in the summary of the updated Scoping Plan and repeated here:

> California will develop a mid-term target to frame the next suite of emission reduction measures and ensure continued progress toward scientifically based targets. This target should be consistent with the level of reduction needed [by 2050] in the developed world to stabilize warming at 2°C (3.6°F) [above pre-industrial levels] and align with targets and commitments elsewhere. The European Union has adopted an emissions reduction target of 40 percent below 1990 levels by 2030. The United Kingdom

> has committed to reduce its emissions by 50 percent below 1990 levels within the 2022–2027 timeframe, and Germany has set its own 2030 emissions target of 55 percent below 1990 levels. The United States, in support of the Copenhagen Accord, pledged emission reductions of 42 percent below 2005 levels in 2030 (which, for California, translates to 35 percent below 1990 levels).
>
> This level of reduction is achievable in California. **In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050**. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions (ARB 2014b:34, **emphasis added**).

Thus, the ability of this project—and all land use development—to achieve any goals beyond 2020 is partially out of the control of the project and its developer. First, a specific goal has not been established, beyond the Executive Order Goal of 80 percent below 1990 GHG levels by 2050. ARB has stated in its Update, cited above, that additional "mid-term" targets (such as when this project is expected to buildout) must still be established, and it would be speculative to do so for this DEIR.

There is a question as to whether the SACOG MTP/SCS, which establishes GHG emissions goals for automobiles and light duty trucks for 2020 and 2035, establishes an overall GHG target for the project past 2020. As previously described, SACOG was tasked by ARB to achieve a 9 percent per capita reduction compared to 2012 vehicle emissions by 2020 and a 16 percent per capita reduction by 2035, which ARB confirmed the region would achieve by implementing its SCS (ARB 2013). However, this target cannot be directly translated to an overall threshold, given it is geared toward GHG emissions from transportation only. The project area, including the project site, is shown in the SCS as "Lands Not Identified for Development" in the SCS planning period (through 2035). While the MTP/SCS acknowledges it cannot predict land use on a parcel-by-parcel basis throughout the SACOG region, the project is apparently not included in the SCS growth predictions. If development follows the trends and predictions for growth in the SCS for the SAGOC region over the next 20 years, development at the project site would be additional to SCS assumptions.

The project would produce substantial levels of GHG emissions. Implementation of Mitigation Measure 10-2, which requires construction and operation of land uses and facilities developed under the Specific Plan to not generate emission of ozone precursors that exceed PCAPCD's mass emission thresholds, would likely have the co-benefit of reducing project-related GHG emissions as well. Also, as previously stated, the Specific Plan contains many policies that, if strictly implemented, would result in additional GHG reductions, including the requirement that a minimum of 25 percent of new shuttle services within the Olympic Valley will use alternative fuels (Policy CP-5), that individual buildings would be designed to a level equivalent to at least the Silver rating of the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) certification program or other comparable rating, and other actions are taken to reduce GHG emissions (Policies CC-13 and CC-15). The efficacy of the Specific Plan policies cannot be predicted, in large part because several are not mandatory (in some instances, actions are "encouraged," "should" be implemented, would be implemented "if feasible," etc.). The implementation of these policies, as well as Mitigation Measure 10-2, would result in additional GHG efficiency beyond what is shown in Table 16-3. While the proposed project would meet the GHG efficiency standard tied to the current 2020 statewide GHG emissions target, this DEIR cannot determine if the project would meet future thresholds that have not been established because it would be purely speculative to do so

Therefore, the ability of the project to meet GHG targets beyond 2020 is unknown, and cannot be known because these targets have not been established and, further, attainment would at least be partially reliant on potential new regulations that would be adopted in the future. It is unlikely that the project could meet long-term GHG efficiency aspirations, such as those expressed in EO-3-05 (80 percent below 1990 GHG levels in 2050) without substantial statewide regulations, such as those that may result in more electric vehicles in the fleet mix, more stringent energy efficiency standards for buildings, and an increase in the generation of renewable electricity. In addition, the project would generate emissions well above PCAPCD's current Tier 1 level. Because the project would generate substantial GHG emissions, and because it is not known if the project would be consistent with future GHG reduction targets, the impact would be **potentially significant**.

Mitigation Measure 16-2: Implement ongoing operational greenhouse gas review and reduction program.

The state legislature or Governor's Office may establish new GHG targets that apply for the period after 2020, as discussed in the *First Update to the Climate Change Scoping Plan*, released by ARB in May 2014 (and discussed above in Section 16.2.2). Any projects processed by the County after 2020 will be required to reduce, to the extent needed and feasible, GHG emissions such that the project operates within the targets established at the time the project is submitted for approval.

The County shall require the following actions for all subdivision maps submitted for approval after December 31, 2020:

- In consultation with the PCAPCD and Placer County, the applicant shall demonstrate, based on currently adopted regulations and industry-accepted GHG calculation methods, whether operation of the subdivision would be consistent with GHG targets adopted by the State. "Adopted" means that a specific GHG reduction target, such as is currently specified in the Global Warming Solutions Act of 2006 (achieve 1990 levels by 2020), is required by state legislative action, state administrative action, by legislative action of Placer County, or an applicable qualified Climate Action Plan or similar GHG reduction plan approved by Placer County. "Within GHG targets" means that the subdivision, using methods such as a comparison between No Action Taken and the subdivision as proposed scenarios, would achieve or exceed the target.

- If the subdivision achieves or exceeds the reduction target, no further actions shall be required.

- If the subdivision does not meet the target, then measures shall be incorporated into the subdivision to reduce GHG emissions to the target level, if it is feasible to do so. Emissions reductions provided by these measures shall be calculated to determine if targets can be achieved. These measures may include any combination of GHG reduction actions needed to achieve the target, including:

  - Actions included in Mitigation Measure 10-2 that also reduce GHG emissions (menu of options to reduce ROG and NO_X emissions to a specified level such as trip reduction and energy management; nearly all of these measures would similarly reduce GHG emissions);

  - Actions specified in Specific Plan Section 7.6, "Climate Change Initiatives," but with mandated actions (instead of "should" or "encourage" the actions, use "shall"), such as requiring that all buildings exceed Title 24 energy-efficiency requirements by 15 percent; requiring incorporation of on-site renewable energy production to meet at least 25 percent of the subdivision's electricity needs, etc.

  - Payment of GHG offset fees to an ARB-approved GHG reduction program. Project applicant will consent to any GHG reduction fees that may be applicable after January 1, 2020.

Significance after Mitigation

As stated above, the proposed project would achieve a reduction in greenhouse gas emissions of 24.7 percent by 2020, which would be a less-than-significant impact. However, it is not known whether the proposed project would achieve threshold targets identified for the years after 2020, because such targets do not yet exist and it would be speculative to assume what they might be and/or what regulations will be in place to help achieve them. Implementation of Mitigation Measure 16-2 would reduce GHG emissions associated with subdivisions proposed after 2020. However, important factors are not currently known: the GHG emissions target in effect at the time that subdivisions are submitted after 2020; the effectiveness of regulatory actions already adopted as part of the implementation of the Global Warming Solutions Act of 2006; and the potential for application of new regulations and their effectiveness. Further, the cost and feasibility of certain policies that would be mandated as mitigation are not known. Therefore, it would be speculative to determine that GHG impacts, if they were to occur, would be feasibly mitigated to adopted GHG target levels beyond 2020. For this reason, and because the project would emit a substantial level of GHG emissions, the residual impact is **potentially significant and unavoidable**.

Impact 16-3: Impacts of climate change on the project.

Climate change is projected to result in a variety of effects that would influence conditions in the Specific Plan area including increased temperatures, leading to increased wildland fire risk; changes to timing and intensity of precipitation, resulting in increased stormwater runoff and flood risk; and potentially changes to snow pack conditions that could be more favorable to avalanche formation. However, there are numerous programs and policies in place to protect against and respond to wildland fire, as well as to protect new land uses and facilities from flooding and avalanche exposure. This impact would be **less than significant**.

As discussed previously in this chapter, there is substantial evidence that human-induced increases in GHG concentrations in the atmosphere have led to increased global average temperatures (climate change) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions.

Although there is a strong scientific consensus that global climate change is occurring and is influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of the climate phenomena, particularly at specific locations. Scientists have identified several ways in which global climate change could alter the physical environment in California (CNRA 2012, DWR 2006, IPCC 2014). These include:

- increased average temperatures;
- modifications to the timing, amount, and form (rain vs. snow) of precipitation;
- changes in the timing and amount of runoff;
- reduced water supply;
- deterioration of water quality; and
- elevated sea level.

Many of these changes may translate into a variety of issues and concerns that may affect the project area, including but not limited to:

- increased frequency and intensity of wildfire as a result of changing precipitation patterns and temperatures;
- increased stormwater runoff associated with changes to precipitation patterns and snowmelt patterns; and
- increased risk of avalanches associated with changes to precipitation and snowmelt patterns.

Fire protection in the plan area, including the East Parcel, would be provided by the Squaw Valley Fire Department, which has implemented its Defensible Space Program for the past 20 years and would subject the plan area to all the requirements of the program. This program entails annual physical inspections of every property in the district's jurisdiction for compliance with California's defensible space laws. The California Department of Forestry and Fire Protection's (CAL FIRE) plans for Pacer County include continued provision of fire protection and prevention services for areas surrounding the plan area. See Chapter 14, "Public Services and Utilities," and Chapter 15, "Hazardous Materials and Hazards," for additional information on plans and policies related to wildfire. Implementation of these plans would reduce the likelihood of wildland fire through management of fuels and implementation of best practices, and would ensure that resources to respond to occurrence of wildland fire would be available.

In addition, the project would also include adequate water storage facilities to store water for peak day plus fire flows for the plan area. Moreover, the Specific Plan states that fire-resistant building materials would be used to construct new facilities in the plan area in accordance with International Building Code requirements, which includes specific standards for facilities constructed in urban interface and wildland areas where there is elevated fire risk. The Specific Plan will also comply with Emergency Vehicle Access standards required by the Squaw Valley Fire Department (again see Chapter 15, "Hazardous Materials and Hazards," for more details), as stated in Specific Plan Policy CP-12; and no wood-burning stoves or fireplaces

would be installed in resort-residential or lodging units, as stated in Policy AQ-1. Therefore, the proposed project would be resilient to potential increases in wildfire risk that might result from climate change.

With regards to flood risk associated with increased stormwater runoff and changes to precipitation patterns and snowmelt patterns, the restoration of Squaw Creek, which would be part of the Specific Plan, would serve to reduce the level of flood risk for the areas that would be developed under the Specific Plan. As part of its restoration, the Squaw Creek channel would be widened such that a 150 to 200-foot-wide corridor would be provided for the length of the creek through the main Village area. Widening of the channel would increase the flood conveyance capacity of Squaw Creek during high-water events. Although current flood risk in the plan area is low, implementing the proposed creek restoration would further reduce this risk (see Chapter 13, "Hydrology and Water Quality").

With regard to avalanche risk, the Squaw Valley Ski Patrol already regularly monitors avalanche hazards and implements avalanche forecasting and prevention measures on an ongoing basis, such as triggering small slides to reduce excessive buildup of snow. If climate change would result in conditions that are more prone to avalanches, the existing avalanche management program implemented by the Squaw Valley Ski Patrol would continue to purposely trigger avalanches at smaller sizes. In addition, avalanche paths and runouts were identified for the Village and surrounding area, based on analyses of recent and historic data that delineated High and Moderate Zones of avalanche risk. The Specific Plan contains multiple policies to ensure that people and structures within the plan area are not subjected to substantial risk of injury or damage from avalanches (Squaw Valley Real Estate, LLC 2015:7-20 to 7-21). Policy AH-1 in the VSVSP requires that no structures or winter parking areas be permitted in High Hazard avalanche areas and Policy AH-2 requires all structures constructed in areas identified as subject to a Moderate Hazard shall be designed to withstand avalanches, consistent with the Placer County Code. Policy AH-3 requires that outdoor gathering spaces, paths, and trails within the Moderate Hazard zone shall be designed so that access to those areas can be quickly and easily prohibited when there is a high risk of avalanche. Policy AH-4 requires that developments under the Specific Plan cooperate with the Squaw Valley Ski Patrol as needed to disseminate information about avalanche risks and to limit access to areas that are considered to be of heightened risk of avalanche due to weather conditions.

As discussed above, inclusion of the features in the design and operation of the Specific Plan would reduce the extent and severity of climate change-related impacts to the land uses and facilities by providing methods for adapting to these changes (e.g., manage wildfire and avalanche risk, increase flood conveyance capacity). These design features would reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire, flooding, and avalanches. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

This page intentionally left blank.