



5.7 Greenhouse Gas Emissions

5.7 GREENHOUSE GAS EMISSIONS

This section evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section. Greenhouse gas technical data is included as [Appendix 11.5, *Air Quality/Greenhouse Gas Emissions Data*](#).

5.7.1 EXISTING SETTING

The Town of Mammoth Lakes (Town) is located in the Great Basin Valley Air Basin (Basin), which is bounded by the Sierra Nevada mountain range to the west, the White, Inyo, and Coso ranges to the east, Mono Lake to the north, and Little Lake to the south. The Basin includes Mono County, where the project site is located, as well as Alpine and Inyo Counties.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

SCOPE OF ANALYSIS FOR CLIMATE CHANGE

The study area for climate change and the analysis of GHG emissions is broad as climate change is influenced by world-wide emissions and their global effects. However, the study area is also limited by the CEQA Guidelines [Section 15064(d)], which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact which may be caused by the project.

The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities that have grown more than 70 percent between 1970 and 2004. The State of California is leading the nation in managing GHG emissions. Accordingly, the impact analysis for this project relies on guidelines, analyses, policy, and plans for reducing GHG emissions established by the California Air Resources Board (CARB).

GLOBAL CLIMATE CHANGE – GREENHOUSE GASES

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."¹ The greenhouse effect traps heat in the troposphere through a three-fold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and GHG in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This

¹ The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

“trapping” of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO₂). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential for each GHG based on its ability to absorb and re-radiate long wave radiation.

GHGs normally associated with the proposed project include the following:²

- Water Vapor (H₂O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, it does not contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.
- Carbon Dioxide (CO₂). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, CO₂ emissions from fossil fuel combustion increased by a total of 7.4 percent between 1990 and 2014.³ Carbon dioxide is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
- Methane (CH₄). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. The United States’ top three methane sources are landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, used for space and water heating, steam production, and power generation. The Global Warming Potential of methane is 25.
- Nitrous Oxide (N₂O). Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. The Global Warming Potential of nitrous oxide is 298.
- Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 12 for HFC-161 to 14,800 for HFC-23.⁴

² All Global Warming Potentials are given as 100 year GWP. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change.

³ U.S. Environmental Protection Agency, “Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2014”, April 15, 2016.

⁴ Ibid.

- Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine, and are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).⁵ The Global Warming Potential of PFCs range from 7,390 to 12,200.⁶
- Sulfur hexafluoride (SF₆). Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a Global Warming Potential of 22,800.⁷ However, its global warming contribution is not as high as the Global Warming Potential would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).⁸

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone (O₃) depleters; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.⁹
- 1,1,1 trichloroethane. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 146 times that of carbon dioxide.¹⁰
- Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the U.S. Environmental Protection Agency's (EPA) Final Rule (57 FR 3374) for the phase out of O₃ depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with 100-year Global Warming Potentials ranging from 3,800 for CFC 11 to 14,400 for CFC 13.¹¹

⁵ U.S. Environmental Protection Agency, *Overview of Greenhouse Gas Emissions*, May 26, 2016, <http://www.epa.gov/climatechange/ghgemissions/gases/fgases.html#Trends>, accessed on August 3, 2016.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Intergovernmental Panel on Climate Change, "*Climate Change 2007: Working Group I: The Physical Science Basis, 2.10.2, Direct Global Warming Potentials*", 2007, https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html, accessed August 3, 2016.

¹⁰ Ibid.

¹¹ Ibid.

5.7.2 REGULATORY SETTING

FEDERAL

The Federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The EPA actively participates in multilateral and bilateral activities by establishing partnerships and providing leadership and technical expertise. Multilaterally, the United States is a strong supporter of activities under the United Nations Framework Convention on Climate Change (UNFCCC) and the IPCC.

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In December 2007, Congress passed the first increase in corporate average fleet fuel economy (CAFE) standards. The new CAFE standards represent an increase to 35 miles per gallon (mpg) by 2020. In March 2009, the Obama Administration announced that for the 2011 model year, the standard for cars and light trucks will be 27.3 mpg, the standard for cars will be 30.2 mpg; and standard for trucks would be 24.1 mpg. Additionally, in May 2009 President Barack Obama announced plans for a national fuel-economy and GHG emissions standard that would significantly increase mileage requirements for cars and trucks by 2016. The new requirements represent an average standard of 39 mpg for cars and 30 mpg for trucks by 2016.

In September 2009, the EPA finalized a GHG reporting and monitoring system that began on January 1, 2010. In general, this national reporting requirement would provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of carbon dioxide (CO₂) per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective emissions reduction strategies. This new program covers approximately 85 percent of the nation's GHG emissions and applies to approximately 10,000 facilities.

In addition to EPA efforts to implement GHG reporting and monitoring systems, the Obama Administration released *The President's Climate Action Plan* that promotes efforts to reduce GHG emissions by deploying clean energy solutions, developing and deploying advanced transportation technologies, and cutting energy waste in homes, businesses, and factories. Additionally, federal agencies are committing to release Climate Change Adaptation Plans, which promote the construction of stronger and safer communities and infrastructure, protect the economy and natural resources, and use sound science to manage climate impacts. The Obama Administration also plans to work with other countries to help lead the way toward reduced GHG emissions.



STATE

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-1-07. Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Executive Order S-3-05. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various State agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-13-08. Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

Executive Order S-14-08. Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.



Executive Order S-20-04. Executive Order S-20-04, the California Green Building Initiative, (signed into law on December 14, 2004), establishes a goal of reducing energy use in State-owned buildings by 20 percent from a 2003 baseline by 2015. It also encourages the private commercial sector to set the same goal. The initiative places the California Energy Commission (CEC) in charge of developing a building efficiency benchmarking system, commissioning and retro-commissioning (commissioning for existing commercial buildings) guidelines, and developing and refining building energy efficiency standards under Title 24 to meet this goal.

Executive Order S-21-09. Executive Order S-21-09, 33 percent Renewable Energy for California, directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002) which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006) which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). California passed the California Global Warming Solutions Act of 2006 (AB 32; *California Health and Safety Code* Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

Assembly Bill 1493. AB 1493 (also known as the Pavley Bill) requires that CARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 and adoption of 13 CCR Section 1961.1 require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty weight classes for passenger vehicles (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily to transport people), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term standards will result in a reduction of about 30 percent.

Assembly Bill 3018. AB 3018 established the Green Collar Jobs Council (GCJC) under the California Workforce Investment Board (CWIB). The GCJC will develop a comprehensive approach to address California's emerging workforce needs associated with the emerging green economy. This bill will ignite the development of job training programs in the clean and green technology sectors.

Senate Bill 97. SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

Senate Bill 375. SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG 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 (APS) that will prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

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

Senate Bill 1368. SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.



Senate Bill 32 (SB 32). Signed into law on September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

CARB Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve the California GHG reductions required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California would implement to reduce the projected 2020 BAU emissions to 1990 levels, as required by AB 32. These strategies are intended to reduce CO₂eq¹² emissions by 174 million metric tons (MT) This reduction of 42 million MT CO₂eq, or almost ten percent from 2002 to 2004 average emissions, would be required despite the population and economic growth forecasted through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as those expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. When CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32. On February 10, 2014, CARB released the draft proposed first update. On May 22, 2014, CARB approved the First Update to the AB 32 Scoping Plan. The update also defines CARB's climate change priorities for the next five years, and sets the groundwork to each long-term goals set forth in Executive Orders S-3-05 and B-15-2012. Lastly, the update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan, and evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities in water, waste, natural resources, clean energy, transportation, and land use.

LOCAL

Great Basin Unified Air Pollution Control District

The Great Basin Unified Air Pollution Control District (GBUAPCD) has jurisdiction over the counties of Mono, Alpine, and Inyo and is primarily responsible for comprehensive air pollution control in the Basin. However, GBUAPCD lacks the authority to directly regulate factors leading to global climate change or GHG emission issues associated with plans and new development projects throughout the Basin.

¹² Carbon Dioxide Equivalent (CO₂eq) - A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.



Town of Mammoth Lakes

TOWN OF MAMMOTH LAKES GENERAL PLAN

The Town does not have any plans, policies, regulations, significance thresholds, or laws addressing climate change at this time. The Resources Management and Conservation Element of the *Town of Mammoth Lakes General Plan 2007* (General Plan) includes goals and policies addressing energy resources, energy conservation, green technology, and air quality. The General Plan states that energy demands and consumption can be reduced through education, energy audits, incentives, and innovative measures. In addition, green building technology, renewable energy resources, and conservation of existing energy sources are encouraged through education, research, cost-benefit analysis, and establishing regulatory framework and implementation standards. The Town also promotes reduction of GHG emissions by supporting the objectives of the U.S. Mayors Climate Protection Agreement, AB 32, and Executive Order S-3-05. The Resources Management and Conservation Element policies that are relevant to the proposed project are as follows:

- Reduce energy demand by promoting energy efficiency in all sectors of the community (R.6.A).
- Encourage energy efficiency in new building and retrofit construction, as well as resource conservation and use of recycled materials (R.6.C).
- Reduce the use of fossil fuels and energy consumption of Town fleet through innovative measures (R.6.D).
- Use green building practices to greatest extent possible in all construction projects (R.7.A).
- Encourage development of housing close to work, commercial services, recreation areas and transit routes to reduce fuel consumption (R.7.B).
- Educate community, both residents and visitors, on economic and environmental benefits of energy efficiency, use of renewable resources and potential cost savings with energy efficient retrofits and remodels (R.8.A).
- Educate building industry professionals on value of energy efficient building construction and use of renewable resource heating and power systems both in new and retrofit construction (R.8.B).
- Research and facilitate cost-benefit analysis for energy and resource conservation in new and existing building systems (R.8.C).
- Encourage use of renewable fuels such as biodiesel (R.8.D).
- Support development of a geothermal heating district for the town including seeking grant-funding sources for geothermal heating projects (R.8.E).
- Encourage building design and orientation for passive solar heating (R.8.F).

- Encourage use of decentralized solar electric power production systems (R.8.G).
- Support the objectives of the U.S. Mayors Climate Protection Agreement, Assembly Bill 32, and California Executive Order S-03-05 and implement actions to reduce Mammoth Lakes' carbon footprint.

Mobility Element

The Mobility Element establishes the goals, policies, actions, and infrastructure necessary to achieve a progressive and complete multimodal transportation system that serves the needs of all users by implementing “feet-first,” sustainability, and smart-growth oriented principles. The Mobility Element goals, policies, and actions that are relevant to the proposed project are as follows:

- Emphasize feet first, public transportation second, and car last in planning the community transportation system while still meeting Level of Service standards (M.3).
- Reduce automobile trips by promoting and facilitating:
 - Walking,
 - Bicycling,
 - Local and regional transit,
 - Innovative parking management,
 - Gondolas and trams,
 - Employer-based trip reduction programs,
 - Alternate work schedules,
 - Telecommuting,
 - Ride-share programs,
 - Cross-country skiing and snowshoeing,
 - Encouraging clustered and infill development (M.3.B).
- Reduce automobile trips by promoting land use and transportation strategies such as: implementation of compact pedestrian-oriented development; clustered and infill development; mixed uses and neighborhood-serving commercial mixed use centers (M.3.C).
- Require development to implement Transportation Demand Management (TDM) measures (M.3.E).
- Encourage feet first by providing a linked year-round recreational and commuter trail system that is safe and comprehensive (M.4).
- Improve safety of sidewalks, trails, and streets (M.4.A).
- Provide safe travel for pedestrians to schools and parks (M.4.D).
- Update trail, streetscape and roadway design standards as well as the Circulation, Trail System and General Bikeway Plans to:

- Establish a system of bicycle routes and pedestrian trails for recreation, commuting and shopping that is comprehensive and safe.
- Develop a townwide maintenance, grooming and/or snow removal program for sidewalks and trails to provide year-round pedestrian access.
- Design and construct streetscapes and roadways to reduce long-term maintenance costs in a harsh climate (M.4.D.1).
- Provide a year-round local public transit system that is convenient and efficient (M.5).
- Encourage transit use by requiring development and facility improvements to incorporate features such as shelters, safe routes to transit stops, and year-round access (M.5.B).
- Improve snow and ice management (M.9).
- Increase year-round pedestrian access to sidewalks and transit stops (M.9.B).

Eastern Sierra Energy Initiative

The Eastern Sierra Council of Governments (ESCOG), representing the Town of Mammoth Lakes, Bishop, Inyo County, and Mono County, launched the Eastern Sierra Energy Initiative (ESEI), a multi-agency, local energy partnership between Southern California Edison (SCE) and the Eastern Sierra Council. The initiative will be a rurally oriented partnership covering over 13,000 square miles and serving a total population of about 25,000. ESEI's scope and objective is to reduce energy use and demand by focusing on three key areas: (1) establishing a “culture” of energy efficiency; (2) working closely with SCE to more effectively implement existing programs; and (3) seeking innovative approaches to energy efficiency in our alpine environment.

High Sierra Energy Initiative

On January 18, 2005, the Town Council of Mammoth Lakes passed a resolution supporting an energy partnership between Southern California Edison (SCE) and the Town of Mammoth Lakes. The resolution designates the local nonprofit High Sierra Energy Foundation to implement the High Sierra Energy Initiative (HSEI) mission to “support a commitment to sustainable practices through energy efficiency, and will provide leadership and guidance in promoting, facilitating, and instituting such practices in the community.” This partnership is part of \$675 million in SCE energy efficiency programs authorized by the California Public Utilities Commission.

5.7.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with

recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance.

Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change (CEQA Guidelines Section 15064.7(c).) CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects. However, the Town of Mammoth Lakes has not yet established specific quantitative significance thresholds for GHG emissions for development projects.

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) released a white paper, entitled *CEQA and Climate Change*, which examines various threshold approaches available to air districts and lead agencies for determining whether GHG emissions are significant, including a number of “non-zero” thresholds for land use development projects. Based on guidance from the GBUAPCD, project-related emissions were quantified and compared to the CAPCOA numerical thresholds.¹³ Projects in the Basin have recently used the numerical thresholds of the CAPCOA in prior CEQA reviews (e.g., the *Inn at the Village Subsequent Environmental Impact Report*, July 2014). Therefore, in the absence of promulgated numeric thresholds, the most conservative (lowest) numerical threshold suggested by CAPCOA, 900 metric tons (MT) CO₂eq/yr, have been utilized as the threshold of significance for the proposed project.

CEQA SIGNIFICANCE CRITERIA

The issues presented in the Initial Study Environmental Checklist (*CEQA Guidelines* Appendix G) have been utilized as thresholds of significance in this Section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact Statement GHG-1); and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement GHG-2).

Based on these significance thresholds and criteria, the project’s effects have been categorized as either “no impact,” a “less than significant impact,” or a “potentially significant impact.” Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

¹³ Telephone conversation with Jan Sodomier from the GBUAPCD, September 20, 2016. As the GBUAPCD has not adopted air quality criteria pollutant or GHG significance thresholds, the Mojave Desert Air Quality Management District thresholds are appropriate for criteria pollutants and the CAPCOA 900 MTCO₂eq/yr threshold is appropriate for GHG emissions.



5.7.4 IMPACTS AND MITIGATION MEASURES

GREENHOUSE GAS EMISSIONS

GHG-1 GREENHOUSE GAS EMISSIONS GENERATED BY THE PROJECT COULD HAVE A SIGNIFICANT IMPACT ON GLOBAL CLIMATE CHANGE.

Impact Analysis:

Direct Project Related Sources of Greenhouse Gases

Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources. *Table 5.7-1, Project Related Greenhouse Gas Emissions*, presents the estimated CO₂, N₂O, and CH₄ emissions.

**Table 5.7-1
Project Related Greenhouse Gas Emissions**

Source	CO ₂	CH ₄		N ₂ O		Total Metric Tons of CO ₂ eq
	Metric Tons/yr ¹	Metric Tons/yr ¹	Metric Tons of CO ₂ eq ²	Metric Tons/yr ¹	Metric Tons of CO ₂ eq ²	
Direct Emissions						
• Construction (amortized over 30 years)	19.69	0.01	0.00	0.00	0.00	19.70
• Mobile	136.94	0.01	0.25	0.00	0.00	137.20
Total Direct Emissions³	156.63	0.02	0.25	0.00	0.00	156.90
Indirect Emissions						
• Energy	127.71	0.00	0.00	0.00	0.15	127.86
• Solid Waste	49.75	2.94	73.50	0.00	0.00	126.19
• Water Demand	11.87	0.14	3.50	0.00	0.00	15.51
Total Indirect Emissions³	186.24	3.08	77.00	0.00	0.00	269.56
Total Project-Related Emissions³	426.46					
Notes:						
1. Emissions calculated using CalEEMod computer model.						
2. CO ₂ Equivalent values calculated using the EPA Website, <i>Greenhouse Gas Equivalencies Calculator</i> , http://www.epa.gov/cleanenergy/energy-resources/calculator.html , accessed August 2016.						
3. Totals may be slightly off due to rounding.						
Refer to <u>Appendix 11.5, Air Quality/Greenhouse Gas Emissions Data</u> , for detailed model input/output data.						

The California Emissions Estimator Model (CalEEMod, version 2016.3.1) was used to calculate mobile source, area source, and construction GHG emissions. Operational GHG estimations are based on energy emissions from natural gas usage, electricity consumption, water demand, wastewater generation, solid waste generation, and automobile emissions. CalEEMod relies upon construction phasing and project specific land use data to calculate emissions; refer to Appendix 11.5.



GHGs associated with mobile sources would be 137.20 MTCO₂eq/yr. GHG emissions from construction would result in 19.70 MTCO₂eq for the development of the community multi-use facilities. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.¹⁴

Indirect Project Related Sources of Greenhouse Gases

Energy Consumption. Energy Consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site via Southern California Edison. The project would indirectly result in 127.86 MTCO₂eq/year due to energy consumption.

Solid Waste. Solid waste associated with operations of the proposed project would result in 126.19 MTCO₂eq/year.

Water Demand. The Mammoth Community Water District (MCWD) would be the main water supply provider to the proposed project. The project's water supply would be provided by local surface water, groundwater, and recycled water sources. Emissions from indirect energy impacts due to water supply would result in 15.51 MTCO₂eq/year.

Project Design Features

The project may include solar panels on-site. Photovoltaic/solar panels may be positioned on the roof of the ice rink/RecZone, or other locations on the project site. The use of photovoltaic/solar panels would provide the project a renewable source of energy, and reduce electricity consumption from the local grid. GHG emissions from energy consumption would also be reduced as a result of solar installation. As such, the energy consumption GHG emissions shown in Table 5.7-1 would be further reduced if the project includes the installation of photovoltaic/solar panels.

Conclusion

As shown in Table 5.7-1, project-related emissions would be 426.46 MTCO₂eq/yr, which is below the 900 MTCO₂eq/yr threshold. Therefore, the proposed project would result in a less than significant impact with regards to GHG emissions.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

CONSISTENCY WITH APPLICABLE GHG PLANS, POLICIES, OR REGULATIONS

GHG-2 IMPLEMENTATION OF THE PROPOSED PROJECT COULD CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.

¹⁴ The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13*, August 26, 2009).

Impact Analysis: The Town does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. However, the Mobility Element of the General Plan establishes goals, policies, actions, and infrastructure to achieve a progressive and comprehensive multimodal transportation system through implementation of “feet-first” sustainability, and smart-growth oriented principles. In addition, the Town is involved in the Eastern Sierra Energy Initiative (ESEI), created in partnership with SCE and the Eastern Sierra Council, represented by additional jurisdictions including Bishop, Inyo County, and Mono County. ESEI’s scope and objective is to reduce energy use and demand by focusing on establishing a “culture” of energy efficiency, working closely with SCE to more effectively implement existing programs, and seeking innovative approaches to energy efficiency in our alpine environment. The Town implemented the High Sierra Energy Initiative (HSEI), in partnership with SCE to support a commitment to sustainable practices through energy efficiency, and will provide leadership and guidance in promoting, facilitating, and instituting such practices in the community.

As concluded in Impact Statement GHG-1, the proposed project would not generate a significant amount of GHGs in an unmitigated condition. GHG emissions would be further reduced with implementation of solar panels (if included in final project design plans). The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts are less than significant in this regard.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

5.7.5 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

GREENHOUSE GAS EMISSIONS

- GREENHOUSE GAS EMISSIONS GENERATED BY THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD HAVE A SIGNIFICANT IMPACT ON GLOBAL CLIMATE CHANGE.

Impact Analysis: It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.¹⁵ GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.¹⁶ The additive effect of project-related GHGs would not result in a reasonably foreseeable cumulatively

¹⁵ California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.

¹⁶ Ibid.



considerable contribution to global climate change. In addition, the proposed project as well as other cumulative related projects would also be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As shown in [Table 5.7-1](#), the project would not exceed applicable GHG emissions thresholds. As such, the project would not impede progress toward the reduction targets of AB 32 in 2020 and the project's cumulative contribution of GHG emissions in 2020 and post-2020 would be less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

5.7.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No unavoidable significant impacts related to GHG emissions have been identified in this section.