

5.8. Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS				
Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

5.8.1. Setting

The global climate depends on the presence of naturally occurring greenhouse gases (GHG) to provide what is commonly known as the “greenhouse effect” that allows heat radiated from the Earth’s surface to warm the atmosphere. The greenhouse effect is driven mainly by water vapor, aerosols, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and other constituents. Globally, the presence of GHG affects temperatures, precipitation, sea levels, ocean currents, wind patterns, and storm activity.

Human activity directly contributes to emissions of six primary anthropogenic GHGs: CO₂, CH₄, N₂O, hydro-fluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The standard definition of anthropogenic GHG includes these six substances under the 1997 Kyoto Protocol (UNFCCC 1998). The most important and widely occurring anthropogenic GHG is CO₂, primarily from the use of fossil fuels as a source of energy.

Changing temperatures, precipitation, sea levels, ocean currents, wind patterns and storm activity provide indicators and evidence of the effects of climate change. For the period 1950 onward, relatively comprehensive data sets of observations are available. Research by California’s Office of Environmental Health Hazard Assessment (OEHHA) reports certain climate change indicators by categorizing the effects as: changes in California’s climate; impacts to physical systems including oceans, lakes, rivers, and snowpack; and impacts to biological systems including humans, vegetation, and wildlife. The primary observed changes in California’s climate include increased annual average air temperatures, more-frequent extremely hot days and nights, and increased severity of drought. Impacts to physical systems affected by warming temperatures and changing precipitation patterns show decreasing snowmelt runoff, shrinking glaciers, and rising sea levels. Impacts to terrestrial, marine, and freshwater biological systems, with resulting changes in habitat, agriculture, and food supply are occurring in conjunction with the potential to impact human well-being (OEHHA, 2018).

GHG-Emissions Trends. California first formalized a strategy to achieve GHG reductions in 2008, when California produced approximately 484 million metric tons of CO₂ equivalent (MMTCO_{2e}) according to the official Air Resources Board (ARB) inventory (ARB, 2021). In 2022, the annual California statewide GHG emissions were 371.1 million metric tons of CO₂ equivalent (MMTCO_{2e}) (ARB, 2024). Globally, an estimated 33,423 MMTCO_{2e} were added to the atmosphere through the combustion of fossil fuels in 2022, of which the United States accounted for approximately 14.1 percent. From approximately 1750 to 2022, concentrations of CO₂ have increased globally by 49.5 percent (EPA, 2024). In this global context, California emits less than one percent of the global anthropogenic GHG.

5.8.2. Regulatory Background

State

California Global Warming Solutions Act of 2006. The California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) required that California’s greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. The reduction is being accomplished through an enforceable statewide cap on global warming emissions beginning in 2012. AB 32 directs the ARB to develop regulations and a mandatory reporting system to track and monitor global warming emissions levels (AB 32, Chapter 488, Statutes of 2006). AB 32 requires ARB to update the Scoping Plan at least every five years. Accordingly, the ARB released a 2022 Scoping Plan Update in November 2022 (ARB, 2022).

In passing AB 32, the California Legislature found that:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

Other major Executive Orders, legislation, and regulations adopted for the purpose of reducing GHG emissions support the implementation of AB 32 and California’s climate goals, and update the target, as described below.

California Governor’s Executive Order B-30- 15 and Senate Bill 32. Executive Order B-30- 15 (April 2015) establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030. One purpose of this interim target of this executive order is to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. This executive order also specifically addresses the need for climate adaptation and directs state agencies to update the California Climate Adaptation Strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change. Senate Bill (SB) 32 of 2016 codifies this GHG emissions target to 40 percent below the 1990 level by 2030.

Clean Energy and Pollution Reduction Act of 2015. California’s state policy objectives on long-term energy planning were updated with SB 350 legislation that was signed into law on October 7, 2015. The requirements include demonstrating through integrated resource planning how each energy service provider will continue to expand the use of renewable energy supplies in the mix of electricity delivered to end-use customers. With SB 350 California expanded the specific set of objectives to be achieved by 2030, with the following:

- To increase the Renewable Portfolio Standard (RPS) from 33 percent to 50 percent for the procurement of California’s electricity from renewable sources; and
- To double the energy efficiency savings in electricity and natural gas end uses by retail customers.

California Governor’s Executive Order B-55-18 and Senate Bill 100. Beyond 2030, Executive Order B-55-18 establishes a statewide goal for California to achieve carbon neutrality by 2045. In September 2018, SB 100—which revised and extended California’s Renewables Portfolio Standard program—was signed into law. SB 100 accelerated the RPS targets and established the goals of 50 percent renewable energy resources by 2026 and 60 percent renewable energy resources by 2030. These RPS targets are codified according to compliance periods in Public Utilities Code Section 399.30, as follows: 33 percent by December 31, 2020; 44 percent by December 31, 2024; 52 percent by December 31, 2027; and 60 percent

by December 31, 2030. SB 100 also sets a target for California to achieve a GHG-free electricity supply for 100 percent of retail sales of electricity to California end-use customers by December 31, 2045. The 2022 Scoping Plan Update assesses progress towards achieving the updated 2030 targets, while laying out a path to achieve the SB 100 target of carbon neutrality no later than 2045 (ARB, 2022).

Local

Santa Barbara County Air Pollution Control District

The SBCAPCD recommends finding that a proposed stationary source project will not have a significant impact on the climate, if the project will:

- Emit less than the screening significance level of 10,000 MTCO₂e per year, or
- Show compliance with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions [sources subject to the AB 32 Cap-and-Trade requirements pursuant to Title 17, Article 5 (California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms) would meet the criteria], or
- Show consistency with the AB 32 Scoping Plan GHG emission reduction goals by reducing project emissions 15.3 percent below business as usual.

If a project's emissions exceed any of the above thresholds, the SBCAPCD recommends applying mitigation measures (SBCAPCD, 2015).

City of Goleta

In July of 2014, the City of Goleta adopted the Climate Action Plan to identify measures to meet GHG reduction targets. In 2019 it adopted the Strategic Energy Plan to meet its 100 percent renewable electricity goals which were unanimously adopted in December 2017 by the City of Goleta City Council. The Strategic Energy Plan is a partnership between the City of Goleta, City of Carpinteria, and County of Santa Barbara to meet the 100 percent renewable electricity goal and improve resiliency of the local electricity system. The Strategic Energy Plan includes recommendations for increased battery storage to achieve electricity bill reductions and provide backup capacity for shorter outages, increasing electricity resiliency.

5.8.3. Environmental Impacts and Mitigation Measures

Thresholds of Significance

The City of Goleta adopted local CEQA guidelines in August 2008. The Environmental Review Guidelines set procedures for complying with CEQA, to protect both local and regional resources while reflecting local values.

The City's Environmental Review Guideline's Air Quality Thresholds adopt the SBCAPCD Environmental Review Guidelines, which are outlined above. The City also adopted Resolution No. 20-44 Adopting Guidelines for the Implementation of Vehicle Miles Traveled which sets thresholds for VMT increases which would be considered potentially significant impacts. While these thresholds were set partially with GHG reduction goals in mind, they are addressed in the transportation section. No additional GHG thresholds are set by the City, and therefore, the CEQA Guidelines Appendix G checklist is used to determine significance.

Impact Analysis

(a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

DURING CONSTRUCTION - LESS THAN SIGNIFICANT. Construction-phase activities include mobilizing vehicles and equipment for construction, crews, and materials. The site work would include site preparation and minor vegetation clearing, rough and fine grading, installing the BESS foundations and BESS enclosures, laying the underground electrical collection and communication lines, assembling accessory electrical components including transformers, and installing high-voltage equipment such as the generation-tie line. These activities during construction would cause GHG emissions due to fuels used by the construction vehicles and equipment. Diesel and gasoline-powered construction equipment would include trucks for materials and crews, and the following types of equipment: cranes, dozers, graders, excavators, loaders, and tractors. Equipment and motor vehicles would directly emit CO₂, CH₄, and N₂O due to fuel use and combustion, and motor vehicle fuel combustion emissions in terms of CO₂e are approximately 95 percent CO₂, and CH₄ and N₂O emissions occur at rates of less than 1 percent of the mass of combustion CO₂ emissions. Emissions associated with commissioning passenger vehicle trips would be much lower than calculated construction emissions.

The resulting one-time aggregate quantity of GHG emitted during the eight-month period of construction would be approximately 119 MTCO₂e (Appendix D, Air Quality and Greenhouse Gas Report), based on use of the California Emissions Estimator Model (CalEEMod; v.2022). These project-level emissions would cease at the conclusion of construction and would be well below the threshold level of 10,000 MTCO₂e per year (SBCAPCD, 2015). Therefore, the impacts would be less than significant.

Decommissioning activities would be similar to construction activities, but would be done in reverse. Additionally, decommissioning is estimated to occur in the year 2050, and it is assumed that vehicles and equipment used in the decommissioning process would be more efficient and would emit less GHGs than present-day vehicles and equipment. Therefore, impacts from decommissioning would be similar, or less than impacts from construction activities, and would be less than significant.

DURING OPERATION - LESS THAN SIGNIFICANT. The proposed operation of the BESS would not directly cause or create GHG emissions while charging and discharging. Discharging stored energy enables displacement of dispatchable power plants that are needed during peak demand periods. The energy that the battery system would be storing is drawn from the electricity supply during times of surplus generation. It is likely that the batteries would be charged during excess solar and other renewable energy generation, when energy is the cheapest, and would be discharged during periods when energy is scarcer, more expensive, and when there would be little to no renewable energy generation. By storing energy at times of excess renewable generation and discharging when peaking resources, like the Ellwood Generating Station (EGS) natural gas-fired power plant would otherwise be dispatched, the battery system would provide a combustion-free source of stored energy during times when natural gas-fired power plants would cause higher GHG emissions. The release of stored energy by the BESS would have the indirect effect of avoiding GHG emissions that would otherwise be caused by natural gas fired peaking power plants.

Upon completion of construction, operation of the Project would cause indirect GHG emissions from vehicles driving to and from the site for maintenance and from other minor maintenance and operation activities such as from the electricity needed to power the lighting on site. To conservatively estimate these emissions, default electricity use values for general heavy industry were used, as well as vehicle trips for site inspection and maintenance. Operation phase GHG emissions thus are overestimated, as lighting for the site would use far less electricity than typical general heavy industry sites. During operation, the conservative estimated quantity of GHG emitted is approximately 182 MTCO₂e per year (Appendix D). These operational emissions would not exceed the SBCAPCD's 10,000 MTCO₂e per year

threshold. Because the Project would cause direct emissions at levels less than the applicable threshold and provide overall beneficial effects of displacing GHG from natural gas-fired power plants used for energy generation, this impact would be less than significant.

(b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

LESS THAN SIGNIFICANT. California’s regulatory setting for GHG emissions ensures that most of the existing and foreseeable GHG sources in the electric power sector are subject to one or more programs aimed at reducing GHG. The 2022 Scoping Plan Update (ARB, 2022) provides an outline of actions to reduce California’s GHG emissions. The scoping plan requires ARB and other state agencies to adopt regulations and other initiatives to reduce GHG emissions.

The proposed Project would generate limited quantities of direct GHG emissions from construction, decommissioning, and operation and maintenance activities. By storing non-dispatchable renewable energy, the overall mix of generating resources available to serve end-use customers would not change as a result of the proposed Project. The proposed Project would improve the infrastructure used in delivery of renewable energy. The ability to discharge stored energy would support reliability and flexibility in delivery of electricity in compliance with California’s RPS requirements. As described above, the battery system would likely be charged when there would be excess renewable energy generation and would be discharged to the grid when the energy supply is reliant on fossil fuel generation, thereby displacing the need to dispatch natural gas resources, such as the EGS natural gas peaker plant. Increasing the use of renewable generation in conjunction with energy storage is important to the overall objective of decarbonizing the electricity sector (ARB, 2022b). Moreover, the proposed project would not conflict with local, SBCAPCD, State, or federal regulations pertaining to GHG emissions.

The proposed Project would generate limited quantities of direct GHG emissions from the construction, decommissioning, and O&M activities. The mix of power serving the end-use customers would not change as a result of the proposed Project. The proposed Project would improve the infrastructure used in delivery of SCE’s energy supply and would not affect SCE’s ability to supply renewable energy. By installing battery energy storage, the Project would be likely to improve SCE’s reliability and flexibility in delivery of electricity in compliance with California’s RPS requirements. Increasing the use of renewable generation in conjunction with energy storage is important to the overall objective of decarbonizing the electricity sector (ARB, 2022).

California’s Cap-and-Trade regulation is the major climate program covering proposed Project-related GHG emissions. Construction, decommissioning, and O&M activities would cause GHG emissions due to fuels used by the vehicles and equipment. The end-users of motor vehicle fuels like gasoline and diesel may include construction contractors that are not otherwise designated as covered entities in the Cap-and-Trade program, and these do not directly bear the Cap-and-Trade compliance obligation. However, all fuel suppliers, including refiners and pipeline companies, must cover the end-user’s GHG emissions. Because the Project-related GHG emissions, including construction and decommissioning-phase emissions and the operational-phase mobile source emissions, would be “covered” by the fuel suppliers subject to Cap-and-Trade requirements, these emissions would not conflict California’s progress towards achieving GHG reductions. Impacts would be less than significant.

5.8.3.1. Impact Conclusions and Mitigation Measures

The proposed Project would not result in significant greenhouse gas impacts, and thus, no mitigation measures are recommended.