C.8 Greenhouse Gas Emissions

Introduction

This section describes effects associated with greenhouse gas (GHG) emissions that would be caused by implementation of the VSSP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the proposed Project, and recommends measures to reduce or avoid significant impacts anticipated from Project construction, operation, and maintenance. In addition, existing laws and regulations relevant to GHG emissions are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the proposed Project.

Scoping Issues Addressed

During the scoping period for the EIR (May 5 through June 8, 2015), written comments were received from agencies, organizations, and the public. These comments identified various substantive issues and concerns relevant to the EIR analysis, but did not identify any substantive issues related to GHG emissions.

C.8.1 Environmental Setting

C.8.1.1 Global Climate Change

While climate change has been a concern since at least 1998, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), efforts devoted to GHG emissions reduction and climate change research and policy have increased dramatically in recent years. Global climate change refers to the impacts that occur from the accumulation of GHGs in the atmosphere combined with other sources of atmospheric warming. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these natural GHGs, the Earth's surface would be approximately 61°F cooler (CalEPA, 2006); however, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. Scientific evidence indicates a trend of increasing global temperatures near the Earth's surface over the past century due to increased human-induced levels of GHGs. Worldwide over the past 132-year record, the 10 warmest years have all occurred since 1998, with the two hottest years on record being 2010 and 2005 (NASA, 2013). According to "The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California," a California Energy Commission document, the American West is heating up faster than other regions of the United States (CEC, 2009). The California Climate Change Center (CCCC) reports that, by the end of this century, average global surface temperatures could rise by 4.7°F to 10.5°F due to increased GHG emissions (CCCC, 2006a).

According to the National Oceanic and Atmospheric Administration (NOAA), the atmospheric concentration of Carbon Dioxide (CO2) measured at Mauna Loa, Hawaii in January 2015 was 399.96 parts per million (ppm) (NOAA, 2015) compared to the pre-industrial levels of 280 ppm +/- 20 ppm (IPCC, 2007a). NOAA's Mauna Loa data also show that the mean annual CO2 concentration growth rate is accelerating, where in the 1960s it was about 0.9 ppm per year and in the first decade of the 2000s it was almost 2 ppm per year. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that stabilization of GHGs below approximately 400 ppm carbon dioxide equivalent (CO2e) concentration is required to keep long-term

global mean warming below 3.6°F from pre-industrial levels, which is assumed to be necessary to avoid a large contribution to sea level rise from the West Antarctic Ice Sheet (IPCC, 2007a).

The impact to climate change due to the increase in ambient concentrations of GHGs differ from criteria pollutants in that GHG emissions from a specific project do not cause direct adverse localized human health effects. Rather, the direct environmental effect of GHG emissions is the cumulative effect of an overall increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. The impacts of climate change include potential physical, economic and social effects. These effects could include: inundation of settled areas near the coast from rises in sea level associated with melting of land-based glacial ice sheets, exposure to more frequent and powerful climate events, changes in suitability of certain areas for agriculture, reduction in Artic sea ice, thawing permafrost, later freezing and earlier breakup of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, earlier spring events such as the flowering of trees, and a substantial reduction in winter snowpack (IPCC, 2007b).

Specifically, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, it is predicted that California could witness the following events by the end of the century:

- Temperature rises between 3 and 10.5°F,
- 6 to 30 inches or greater rise in sea level,
- 2 to 4 times as many heat-wave days in major urban centers,
- 2 to 6 times as many heat-related deaths in major urban centers,
- 1.5 to 2.5 times more critically dry years,
- 30 to 90 percent loss in Sierra snowpack,
- 25 to 85 percent increase in days conducive to ozone formation,
- 3 to 20 percent increase in electricity demand,
- 7 to 30 percent decrease in forest yields (pine), and
- 10 to 55 percent increase in the risk of wildfires (CCCC, 2006a).

Similar major changes to existing weather patterns and associated impacts could occur world-wide, but these climate changes will not always result in less rainfall or warmer temperatures. In some areas, rainfall would increase and average temperatures would drop. However, it is not specifically drought or increased temperatures that create the environmental, social, and economic impacts from climate change; rather, it is the significant change from existing weather patterns and conditions that causes these impacts.

C.8.1.2 Greenhouse Gases

GHGs are gases that trap heat in the atmosphere and are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include CO2, Methane (CH4), and Nitrous Oxide (N2O). The State of California and the US Environmental Protection Agency (USEPA) have identified six GHGs generated by human activity that are believed to be the primary contributors to man-made global warming: (1) CO2, (2) CH4, (3) N2O, (4) hydrofluorocarbons (HFCs), (5) perfluorocarbons (PFCs), and (6) sulfur hexafluoride (SF6).

- Carbon Dioxide: CO2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO2 is also removed from the atmosphere (or “sequestered”) when it is absorbed by plants as part of the biological carbon cycle.

- Methane: CH4 is emitted during the production and transport of coal, natural gas, and oil. CH4 emissions also result from livestock and agricultural practices, and the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide: N2O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases: HFCs, PFCs, and SF6 are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochloro-fluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high "Global Warming Potential" (GWP) gases.

GHGs have varying amounts of GWP, where the GWP is the ability of a gas or aerosol to trap heat in the atmosphere. By convention, CO2 is assigned a GWP of 1. In comparison, SF6 has a GWP of 22,800, which means that it has a global warming effect 22,800 times greater than CO2 on an equal-mass basis (TCR, 2015). To account for their GWP, GHG emissions are often reported as CO2e. The CO2e for a source is calculated by multiplying each GHG emission by its GWP, and then adding the results together to produce a single, combined emission rate representing all GHGs.

GHG emissions in the United States and the State of California come mostly from energy use. Energy-related CO2 emissions, resulting from fossil fuel exploration and use, account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of CO2 emissions from burning fossil fuels. More than half the energy-related emissions within the United States come from large stationary sources, such as power plants; approximately a third comes from transportation; while agriculture and forestry and other land uses (residential and commercial) make up a majority of the remainder of sources (USEPA, 2014). The United States and State of California emissions of GHGs in 1990 and later years are summarized in Table C.8-1.

A critical interpretation of the data provided in Table C.8-1, along with knowledge regarding other current events, regulatory actions, and population levels, provides for several potential conclusions regarding the California and United States GHG emission trends, such as:

- After peaking earlier in the first decade of this millennia, emissions from electricity generation are dropping, which is likely due to both the increased use of natural gas, reduced reliance on coal, and the increase in renewable power (e.g., solar, wind, etc.).
- Transportation emissions are dropping, likely primarily due to the impact of increased vehicle fuel efficiency standards.
- Commercial and agricultural emissions are increasing along with the increase in population.
- GHG emissions can fluctuate from year to year, where such fluctuations may be based on economic conditions, severe weather conditions, or other factors that relate to fuel consumption and consumer habits.
- California has a significantly lower per capita GHG emissions footprint than the United States average (about 45 percent lower based on 2010 emissions and population).

For comparison with the emission data given in Table C.8-1, the estimated global emissions of CO2e in 2010 are 50,911 million metric tons (EDGAR, 2015). This indicates that the United States, which has about 4.4 percent of the global population, emits roughly 13 percent of the total global GHG emissions. The State of California, which has approximately 0.55 percent of the global population, emits less than 0.9 percent of the total global GHG emissions.

Table C.8-1. United States and California Greenhouse Gas Emissions (million metric tons CO2e)							
Inventory Sector [1]	**1990**	**2005**	**2008**	**2009**	**2010**	**2011**	**2012**
United States Emissions[2]							
Electric Power Industry	1,866.1	2,445.7	2,401.8	2,187.0	2,302.5	2,200.9	2,064.9
Transportation	1,553.2	2,012.3	1,916.5	1,839.1	1,853.5	1,832.2	1,815.5
Industry	1,527.9	1,403.5	1,367.6	1,217.2	1,297.3	1,290.5	1,273.9
Agriculture	518.1	583.6	615.3	605.3	600.9	612.7	614.1
Commercial	385.3	370.4	379.2	381.9	376.6	378.4	353.2
Residential	345.4	371.3	365.4	357.9	359.9	353.9	322.0
U.S. Territories	33.7	58.2	49.8	47.9	58.0	57.9	57.9
United States Total	**6,229.6**	**7,244.9**	**7,095.5**	**6,636.3**	**6,848.6**	**6,726.6**	**6,501.5**
State of California Emissions [3]							
Electricity Generation	110.6	108.2	120.4	101.6	90.5	88.3	95.3
Transportation	150.7	192.0	181.3	174.9	174.0	171.7	171.0
Industry	103.7	101.5	97.5	95.2	99.3	99.7	100.7
Commercial	14.4	16.6	18.5	19.8	21.1	21.8	22.0
Residential	29.7	30.2	31.2	31.0	32.2	33.0	31.6
Agriculture & Forestry	16.9	36.5	38.0	35.8	37.7	36.3	37.8
Not Specified	1.3	0.2	0.2	0.2	0.2	0.2	0.2
California Total	**433.3**	**485.1**	**487.1**	**458.4**	**453.1**	**450.9**	**458.7**

Source: USEPA, 2014; CARB, 2007 (for California 1990); CARB, 2014a.
Notes:
[1] Sectors are as provided in each of the references used, with the in-state and out–of-state electricity generation values totaled.
[2] Does not include the emissions sinks presented in this reference.
[3] Emissions are the non-excluded emissions totals, not including emissions sinks, provided in the first two pages of the respective references rounded to the nearest tenth of a million metric ton.

GHG emissions for the proposed Project would include both direct and indirect emissions that occur as a result of Project actions. Direct emissions from construction activities include GHG emissions generated from construction equipment and vehicles. Direct emissions from operation activities include a small amount of GHG emissions generated from O&M activities and from leaks of SF6 from the new substation electrical equipment.

Indirect GHG emissions sources can take many forms depending on the type of project. Some of these forms include increase or decrease in electricity or water use, loss of natural CO2 uptake from developing formerly vegetated areas, and material recycling. For the proposed Project, the indirect GHG emissions would be minor, as there is no anticipated electricity use for the Project and water use would primarily be in the form of the temporary use of water for fugitive dust control during construction. The purpose of the Project is to improve local grid reliability and efficiency, which should reduce electricity generation needs, and the Project would also reduce GHG emissions through the recycling of excavated asphalt and concrete.

C.8.2 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (federal, State, and regional/local) has specific responsibilities relating to air quality regulation. The regulation of GHGs and climate change is a relatively new component of air quality. Several legislative actions have been adopted to regulate GHGs on a federal, State, and local level, as detailed in this section.

C.8.2.1 Federal

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the federal Clean Air Act (CAA). In reaching its decision, the court also acknowledged that climate change results, in part, from anthropomorphic or human causes. The Supreme Court's ruling paved the way for the regulation of GHG emissions by the USEPA under the CAA. The Court held that the USEPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA is required to follow the language of Section 202(a) of the federal CAA. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the Administrator signed proposed endangerment and cause or contribute findings for GHGs under Section 202(a) of the federal CAA. The USEPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia, and Seattle, Washington. The USEPA carefully reviewed, considered, and incorporated public comments and has issued final Findings.

The USEPA found that the current and projected concentrations of the GHGs in the atmosphere threaten the public health and welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare under CAA Section 202(a). These findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. The findings became effective on January 14, 2010 (USEPA, 2009).

The USEPA has enacted a number of GHG regulations, and other environmental regulations that impact GHG emissions, including:

- Mandatory GHG Reporting,
- GHG Tailoring Rule for Prevention of Serious Deterioration Permits,
- Carbon Pollution Standards for Power Plants,
- Oil and Natural Gas Air Pollution Standards,
- GHG Vehicle Emissions Standards,
- Corporate Average Fuel Economy Standards,
- Renewables Fuel Standard, and
- Geologic Sequestration of Carbon Dioxide, under the Safe Drinking Water Act. (USEPA, 2015a; USEPA, 2015b)

None of these federal regulations are specifically relevant to the construction or operation of the proposed Project; however, the vehicle and fuel-related standards would indirectly cause GHG emission reductions from the regulated vehicles used during construction and operation of the proposed Project.

C.8.2.2 State

Climate change is a global phenomenon, and the regulatory background and scientific data are changing rapidly. In addition to the federal regulations and policies on climate change, several states, including California, are formally addressing climate change. As of 2013, California is one of 20 states that have set GHG emission targets (C2ES, 2013). Executive Order S-3-05 and Assembly Bill (AB) 32, the California Global Warming Solutions

Act of 2006, promulgated targets to achieve reductions in GHG to 1990 GHG levels by the year 2020. This target-setting approach allows progress to be made in addressing climate change, and is a forerunner to setting emission limits. The California Air Resources Board (CARB) is designated as the responsible State agency for traditional air quality regulations. In addition, AB 32 vested CARB with regulatory authority for GHGs.

There are a variety of statewide rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs, or plan for adaptation for expected climate change scenarios. The relevant State actions are discussed below.

Executive Order S-3-05

Executive Order S-3-05 was signed by Governor Arnold Schwarzenegger in June 2005. Executive Order S-3-05 establishes the following statewide emission reduction targets through the year 2050:

- 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.

Executive Order S-3-05 also calls for the California Environmental Protection Agency (Cal-EPA) to coordinate oversight in the efforts to meet these targets and to prepare biennial science reports on the potential impact of continued global climate change on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006 (CCCC, 2006a, CCCC, 2006b). The Climate Action Team has prepared subsequent Executive Order S-3-05 mandated reports in 2007/2008, 2009, and 2010.

This Executive Order does not include any specific requirements that directly pertain to the proposed Project.

Assembly Bill 32

In response to Executive Order S-3-05 (June 2005), which declared California's particular vulnerability to climate change, the California Global Warming Solutions Act of 2006, AB 32, was signed into effect on September 27, 2006. In passing the bill, 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." (California Health and Safety Code, Sec. 38500, Division 25.5, Part 1).

AB 32 was established to mandate the quantification and reduction of GHGs to 1990 levels by 2020, and is the first law to comprehensively limit GHG emissions at the State level. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors that contribute the most to emissions of GHGs, including transportation.

Additionally, the bill requires:

- GHG emission standards to be implemented by 2012; and

- CARB to develop an implementation program and adopt GHG control measures "to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources." CARB issued a draft Climate Change Scoping Plan (Scoping Plan) in December 2008.

The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that cause climate change. The Scoping Plan includes recommendations for reducing GHG emissions from most sectors of the California economy. The Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures were introduced through four workshops between November 30, 2007 and April 17, 2008. A draft Scoping Plan was released for public review and comment on June 26, 2008, followed by more workshops in July and August 2008. The proposed Scoping Plan was released on October 15, 2008, and approved at the Board hearing on December 12, 2008.

The draft of the First Update to the Scoping Plan was published in February 2014, followed by its accompanying Environmental Analysis [California Environmental Quality Act (CEQA) Equivalent Document] published in March 2014 and approved in June 2014 (CARB, 2014b).

California Renewable Portfolio Standard Program

Senate Bill (SB) 1078 established California's Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources. The bill requires the California Energy Commission to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least one percent per year so that 20 percent of its retail sales were procured from eligible renewable energy resources.

In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20 percent of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33 percent when Governor Schwarzenegger signed Executive Order S-14-08 in November 2008. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. On September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

The 33 percent RPS goal became law when SB X1-2 was signed into law by Governor Brown in April 2011. SB X1-2, which was codified into the California Public Resources Code (25740 through 25751) and Public Utilities Code (PUC 399.11 through 399.31), requires that all electricity retailers in the State meet a 33 percent RPS by the end of 2020, and also requires that they have met a 20 percent RPS by 2013, and will meet a 25 percent RPS by 2016.

Early in 2015, the Governor and Legislature started work to increase the RPS standard to 50 percent by the year 2030, but currently there is no official Executive Order or approved bill to enact this increase in the RPS into state law.

This law does not specifically apply to the proposed Project, but the proposed Project would increase grid reliability and efficiency that helps the integration of intermittent renewable energy resources that will enable electricity retailers to meet their RPS obligations required under this law.

Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear

This CARB regulation [17 California Code of Regulations (CCR) 95350] became effective on June 17, 2011. This regulation requires that owners of SF6 containing gas insulating gear meet annual leakage rate limits, and requires that they measure, record, and report annual SF6 emissions.

California Senate Bill 97

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Office of Planning and Research (OPR) to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

The OPR published a technical advisory on CEQA and Climate Change on June 19, 2008 (OPR, 2008). The guidance did not include a suggested threshold, but stated that the OPR has asked the CARB to, "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state." The OPR does recommend that CEQA analyses include the following components: identify GHG emissions, determine significance, and mitigate impacts.

On December 30, 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines including GHG/Climate Change analysis guidelines. According to the California Natural Resources Agency, "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis" (CNRA, 2009). Two GHG CEQA checklist items were included as part of the Guideline amendment; they are used to create the criteria for determining significance provided in Section C.8.4.1, below.

As discussed in State CEQA Guidelines Section 15064.4, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, to the extent possible, on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

A lead agency shall have discretion to determine, in the context of a particular project, whether to:

- Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
- Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

- 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 GHG emissions.

Office of the California Attorney General

The Office of the California Attorney General maintains a website with a list of resources that set forth potential CEQA mitigations for global climate change impacts (OAG, 2015). The Attorney General has listed reference documents that local agencies may consider to offset or reduce global climate change impacts from a project. These references are examples that are not intended to be exhaustive and provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General recommends that the lead agency use its own informed judgment in deciding which measures it would analyze, and which measures it would require for a given project.

The references, provided by in the Attorney General's website, list energy efficiency measures that could be undertaken or funded by a diverse range of projects, including: renewable energy, water conservation and efficiency, solid waste measures, land use measures, transportation and motor vehicles, and carbon offsets (OPR, 2008; CAPCOA, 2009). However, most of the listed measures would not be applicable to the proposed Project because they are more appropriate as measures to reduce long-term operational GHG emissions. However, these and other potential GHG emissions reduction measures listed by State agencies were evaluated for applicability.

C.8.2.3 Local

Many local air pollution control agencies in California have proposed numerical or other GHG significance criteria. The South Coast Air Quality Management District (SCAQMD), which has local regulatory authority over the air pollutant emissions, has established a recommended CEQA-significant emissions level of 10,000 metric tons of CO2e per year for industrial projects, including amortizing construction emissions over the Project life (SCAQMD, 2008). SCAQMD also has adopted a few GHG emissions regulations within their *Regulation XXVII. Climate Change*, but those rules are voluntary, are not prescriptive, and do not apply to the Project (SCAQMD, 2015).

The Project route, including alternative routes and staging areas, cross several local jurisdictions. Most of these local jurisdictions have climate action plans or policies related to GHG emissions or climate change in their general plans. However, the CPUC regulates and authorizes the construction of investor-owned public utility facilities, and therefore the CPUC has jurisdiction over the siting and design of the proposed Project. Investor-owned public utilities are exempt from local regulations and permitting. Also, none of the adopted policies for GHG emissions reduction directly relate to aspects of the Project's construction or operation other than encouraging the use of local construction materials and recycling of appropriate construction wastes.

C.8.3 Applicant-Proposed Measures

In its PEA, SCE has listed a number of Applicant-Proposed Measures (APMs) that are designed to reduce impacts from the proposed Project. None of the APMs are specifically applicable to GHG emissions. However, the impact discussion in Section C.8.4 (below) identifies mitigation measures, where appropriate, to reduce significant adverse impacts that could result from construction and operation of the VSSP.

C.8.4 Environmental Impacts and Mitigation Measures

The impact analysis considers the construction emissions estimate provided by SCE that includes a GHG emissions estimate, which was modified by SCE to address CPUC comments (SCE, 2014). SCE did not perform indirect emissions estimates, such as water use during construction and any effects to needed generation due to the improvement in the electrical distribution system efficiency. However, the indirect emissions for the project would be minor in comparison to the construction emissions, and depending on the improvement in the distribution system could be an overall GHG emissions reduction.

C.8.4.1 Criteria for Determining Significance

The proposed Project would result in significant impacts to Greenhouse Gas Emissions if it would:

- Criterion GHG1: Exceed GHG emissions significance threshold.
- Criterion GHG2: Conflict with GHG emissions reduction plans, policies, or regulations.

C.8.4.2 Impact Analysis – Direct and Indirect Effects

Impact GHG-1 (Criterion GHG1): The Project could create GHG emissions above SCAQMD significance criteria of 10,000 metric tons of CO2e per year. (Class III)

The GHG emissions significance criteria includes both amortized construction emissions and annual operation O&M emissions. The construction emissions estimate includes emissions from off-road equipment and on-road vehicles necessary for the construction of the proposed Project. The operation emissions estimate includes emissions from the minor increase in O&M related to annual inspections of the new distribution lines and SF6 leakage from new electrical equipment that contains SF6. The calculations and assumptions for both the construction and operation GHG emissions estimates are provided in Appendix 2 (Air Quality Emissions Calculations). A summary of the results of the GHG emissions calculations, compared to the SCAQMD GHG emissions significance threshold, are provided below in Table C.8-2. As shown on Table C.8-2, the proposed project's annualized GHG emissions would be well below the SCAQMD annual greenhouse gas emissions significance threshold, and therefore, the Project would have a less-than-significant GHG emissions impact (Class III).

Table C.8-2. Greenhouse Gas Emissions

Emissions Source	GHG Emissions (Metric Tons CO2e)
Annualized Construction Emissions[1]	43.3
Total Annual Operation Emissions[2]	9.5
Total Annualized Emissions	52.8
SCAQMD Significance Threshold	10,000
Exceeds Threshold	NO

Source: SCAQMD, 2008; Appendix 2 of this EIR.

[1] This represents the total construction emissions amortized over the Project life (30 years).

[2] Includes an estimate for the GHG emissions during operation, including increased O&M and SF6 equipment leakage.

Impact GHG-2 (Criterion GHG2): The Project's construction or operation could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (Class III)

As noted in Section C.8.2, there are no federal, State, or local climate change or GHG emissions regulations that directly affect the proposed Project's construction. The proposed Project is proposing SF6 containing equipment, which would be subject to the CARB Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear (17 CCR 95350). SCE has been maintaining compliance with this regulation at its

other facilities with SF6 containing equipment since this regulation became effective, and would be required to do so for this Project.

Additionally, there are a number of federal, State, and local plans and policies, and GHG emissions reduction strategies that are potentially applicable to the proposed Project, either directly or indirectly. Table C.8-3 provides a summary of the compliance with all potentially applicable GHG plans, policies, and regulations.

Table C.8-3. Applicable Plans, Policies, and Regulations for GHG Emissions

Adopted Plan, Policy, or Regulation	Applicability	Consistency Review
Federal		
40 Code of Federal Regulations (CFR) Part 98. Mandatory Reporting of Greenhouse Gases Rule.	Not Applicable	The proposed Project would not have emissions sources that would be subject to this regulation.
40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.	Not Applicable	The proposed Project would not have emissions sources that would be subject to this regulation.
State		
AB 32. Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear (17 CCR 95350)	Applicable	The proposed Project's new SF6 containing equipment would be subject to this regulation and the Project owner would be required to comply with the requirements of this regulation.
AB 32. Annual GHG Emissions Reporting	Not Applicable	The proposed Project does not include emissions sources that would be subject to this regulation.
AB 32. Cap-and-Trade	Not Applicable	The proposed Project does not include emissions sources that would be subject to this regulation.
California Renewable Portfolio Standard Program	Not Applicable	The proposed Project is not directly related to the RPS program but would increase the efficiency of the local distribution network to aid in the transmission of renewable energy to meet RPS requirements.

Table C.8-4 identifies current California emission reduction strategies to reduce GHGs, identifies the applicability of each strategy, and the proposed Project design feature or mitigation measure that is proposed to comply with the applicable strategies.

Table C.8-4. California GHG Reduction Strategies

Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB enforced standards; vehicles that access the project site during construction and operation are required to comply with the standards addressed under these strategies.
Other Light Duty Vehicle Technology: New standards would be adopted to phase in beginning in the 2017 model.	
Heavy-Duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	
Achieve 50% Statewide Recycling Goal: Achieving the State's 50% waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	The proposed Project would comply with these strategies by composting or recycling of vegetative and other wastes during construction and operation, as feasible.
Zero Waste - High Recycling: Additional recycling beyond the State's 50% recycling goal.	

Table C.8-4. California GHG Reduction Strategies	
Strategy	**Project Design/Mitigation to Comply with Strategy**
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the California Energy Commission to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	Not applicable as no new buildings are proposed.
Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2005), sets a goal of reducing energy use in public and private buildings by 20% by the year 2015, as compared with 2003 levels.	Not Applicable

Source: OPR, 2008; CAPCOA, 2009

As noted in Section C.8.2.3 the local jurisdictions affected by the Project do not have jurisdiction over this CPUC project, and only have a few policies in their General Plans and/or Climate Action Plans that could be directly relevant to Project construction or operation activities. These policies relate to the use of local construction materials and recycling of construction waste. The proposed Project, which includes improving the local electrical distribution system, would also help to improve the capacity, reliability, and efficiency of the overall system, which would reduce electricity sector GHG emissions. In summary, the proposed Project would conform to applicable State and local GHG emissions/climate change regulations and policies/strategies and would have a less-than-significant impact (Class III).

C.8.4.3 Cumulative Impacts

GHG emissions impacts are analyzed as a global cumulative impact, so additional separate cumulative impact analysis was not performed.

C.8.4.4 Impact and Mitigation Summary

This section summarizes the conclusions of the impact analysis and associated mitigation measures presented in Section C.8.4.2 for the proposed Project. Table C.8-5 lists each impact identified for the proposed Project, along with the significance of each impact.

Table C.8-5. Impact and Mitigation Summary – Greenhouse Gas Emissions		
Impact	**Significance Conclusion**	**Reason for Conclusion**
GHG-1: The Project could create GHG emissions above SCAQMD significance criteria of 10,000 metric tons of CO2e per year.	Class III	The Project's GHG emissions estimate is well below the SCAQMD GHG emissions significance threshold.
GHG-2: The Project's construction or operation could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Class III	The Project's construction and operation does not have many applicable regulations, nor would local climate action plans and policies apply to this kind of project. It would comply with the State policy to improve electric distribution efficiency.

Class I: **Significant impact; cannot be mitigated to a level that is not significant.** A Class I impact is a significant adverse effect that cannot be mitigated below a level of significance through the application of feasible mitigation measures. Class I impacts are significant and unavoidable.

Class II: **Significant impact; can be mitigated to a level that is not significant.** A Class II impact is a significant adverse effect that can be reduced to a less than significant level through the application of feasible mitigation measures presented in this EIR.

Class III: **Adverse; less than significant.** A Class III impact is a minor change or effect on the environment that does not meet or exceed the criteria established to gauge significance.

Class IV: **Beneficial impact.** A Class IV impact represents a beneficial effect that would result from project implementation.