

3.7 GREENHOUSE GAS EMISSIONS

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3.7.1 Environmental Setting

Greenhouse Gases and Climate Change

Gases that trap heat in the atmosphere (i.e., greenhouse gases [GHGs]) regulate the earth's temperature. The greenhouse gas effect is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor. Other important GHGs include methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). GHGs are released into the earth's atmosphere through a variety of natural processes and human activities. Primary GHG emission sources are listed in Table 3.7-1.

Table 3.7-1 Greenhouse Gas Emission Sources

Source Category	Example Source	GHG
Energy	Electricity generation	CO ₂
	Transportation	N ₂ O
Industry	Refrigeration and cooling	HFCs
	Semi-conductor manufacturing	PFCs
	Substations	SF ₆
Agriculture	Crop fertilization	N ₂ O
	Livestock	CH ₄
Waste	Landfill operation	CH ₄

Each GHG has its own potency and effect upon the Earth's energy balance, expressed in terms of a global warming potential (GWP); CO₂ is assigned a GWP value of 1 and SF₆ is several orders of magnitude stronger, with a GWP of 23,500 (IPCC 2013). In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of equivalent CO₂ (CO₂e).

An expanding body of scientific research supports the theory that global climate change is currently affecting weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global climate change trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include: more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes, and drought; and increased levels of air pollution.

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Existing Greenhouse Gas Emissions Statewide

Total gross estimated California GHG emissions in 2014¹ were 441.5 million metric tons (MT) of CO_{2e}, a decrease of 2.8 million MT CO_{2e} from 2013. Table 3.7-2 shows the Statewide GHG emissions for the years 1990 and 2014 (CARB 2016b). During the 2000 to 2014 period, per capita GHG emissions in California declined from a peak in 2001 of 13.9 metric tons per person to 11.4 metric tons per person in 2014, an 18 percent decrease. The reductions in California GHG emissions during this time period are attributed to energy efficiency and conservation efforts (CARB 2016a).

Table 3.7-2 California Greenhouse Gas Inventory

Source Category	1990 (million MT CO _{2e})	2014 (million MT CO _{2e})
<i>Total Energy</i>	386.41	367.7
Energy Industries	157.33	139.95
Manufacturing Industries and Construction	24.24	20.28
Transport	150.02	158.62
Other Sectors	48.19	41.02
Non-Specified	1.38	–
Fugitive Emissions from Fuels	5.25	7.84
<i>Industrial Processes and Product Use</i>	18.34	30.24
<i>Agriculture, Forestry and Other Land Use</i>	19.11	32.85
<i>Waste</i>	9.42	10.73
Gross California GHG Emissions	433.29	441.5

Sources: (CARB 2007, CARB 2016b)

Air Basins

The proposed project area is located in two air basins: the SDAB and SCAB. The proposed project would be located primarily (i.e., 95 percent) within the SDAB with a small portion (i.e., 5 percent) within the SCAB. SDAPCD is the regional agency tasked with managing air quality and GHG emission reductions in the SDAB. SCAQMD is the regional agency tasked with managing air quality and GHG emission reductions in the SCAB.

¹ The most recent year for which estimated GHG emissions are available.

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3.7.2 Impact Analysis

Summary of Impacts

Table 3.7-3 presents a summary of the CEQA significance criteria and impacts from GHG emissions that would occur during construction, operation, and maintenance of the proposed project.

Table 3.7-3 Summary of Proposed Project Impacts from Greenhouse Gas Emissions

Would the Proposed Project:	Potentially Significant Impact	Less than Significant Impact with Mitigated 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 type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Discussion

a) Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Significance Determination
	Less than significant

SDAPCD has not prepared GHG thresholds; therefore, the SCAQMD thresholds are used in this analysis. SCAQMD prepared the “Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans,” which sets the GHG threshold for industrial uses at 10,000 MT CO_{2e} per year. SCAQMD has not set specific thresholds for construction; rather SCAQMD recommends amortization of construction emissions over the life of the project, “defined as 30 years,” and adding the amortized construction emissions to operational emissions to estimate yearly emissions from the project (SCAQMD 2008).

Construction

Greenhouse gas emissions would be generated from early to late 2018 from the use of equipment to conduct the following construction activities:

- Vegetation clearing
- Grading and excavation
- Pole Installation
- Removal of existing power lines
- Conductor stringing
- Transport of materials and waste

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The proposed project’s total estimated GHG emissions associated with construction activities were estimated using the California Emission Estimator Model (CalEEMod). The results are shown in Table 3.7-4. The construction GHG emissions would not exceed significance thresholds. The impact from construction-related GHG emissions would be less than significant.

Table 3.7-4 Construction GHG Emissions

Emission Source	CO ₂ Equivalent Emissions Per Year (MT CO ₂ e)
Construction Equipment and Vehicles	1,239
Helicopter Activities	626
Maximum Year Emissions	1,865
Amortized over the Life of the Project (30 years) ^a	62
Operation and Maintenance	0
SCAQMD Significance Threshold	10,000
SCAQMD Significance Threshold Exceeded?	No
Note:	
^a Construction emissions are amortized over 30 years and added to operational GHG emissions consistent with SCAQMD's "Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans."	

Operation and Maintenance

Greenhouse gas emissions from operation and maintenance of the proposed project would primarily result from vehicle and aerial travel to and from the proposed project alignment to conduct routine inspections and maintenance. Vehicle emissions associated with power line operation and maintenance would be similar to existing maintenance and inspection activities because SDG&E currently conducts maintenance on the existing TL 695 and TL 6971 power lines in the same corridors, and the proposed project would not increase the intensity, frequency, or duration of inspections or maintenance activities. Vehicle traffic from operation and maintenance activities would not increase. No additional GHG would be produced during operation and maintenance. No impact would occur.

Mitigation Measures: None required.

b) Would the proposed project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Significance Determination
	No impact

California Air Resources Board Climate Change Scoping Plan

The Global Warming Solutions Act of 2006 directed CARB to begin developing discrete early actions to reduce GHG emissions while also preparing the Climate Change Scoping Plan (Scoping Plan), which outlines a framework of measures that would eventually be adopted and implemented to reach AB 32 goals (CARB 2016a). CARB approved the Scoping Plan in 2008 and

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updated it in May 2014. In September of 2016, AB 32 was extended to achieve reductions in GHG of 40 percent below 1990 levels by 2030. The new plan, outlined in Senate Bill 32, involves increasing renewable energy use, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries. Regulations are being phased in over time. Adopted regulations that correspond to elements of the Scoping Plan include the 33 percent Renewable Portfolio Standard by 2020 (Senate Bill X1-2), the Cap-and-Trade Program, and the Low Carbon Fuel Standard. Since the Scoping Plan, additional regulations have been adopted to increase GHG reductions, including the 50 percent Renewable Portfolio Standard by 2030 (Senate Bill 350). The updated Scoping Plan identifies actions for each sector (i.e., energy, transportation, agriculture, water, waste management) that the state of California should take to meet its climate change goals. Relevant recommended actions of the updated Scoping Plan, within CARB's purview, are generally related to transportation or movement of goods and production or use of gases with a high GWP (CARB 2014).

Since the updated Scoping Plan, CARB has prepared the Mobile Source Strategy, which addresses the current and proposed programs for reducing all mobile source emissions, including GHG emissions. The Mobile Source Strategy identifies programs that the state and federal government have or will adopt, which further the goals of the Scoping Plan. Some programs provide incentives to facilitate increased purchase of new, lower emission light-, medium-, and heavy-duty vehicles to aid the state in achieving emission reduction goals. Other programs require certain engine years to upgrade the engine to newer, cleaner engines by specific dates or strict performance standards for specific model years. These programs for more stringent emission are required by state and federal law and are monitored by CARB or USEPA (CARB 2016c). As such, the vehicles used during construction of the proposed project are required to comply with the applicable GHG reduction programs. SDG&E or the construction contractor are required to provide verification of compliance to CARB or USEPA under state and federal law. The proposed project would conform with relevant actions and programs detailed in the Scoping Plan and Mobile Source Strategy. The proposed project would not conflict with regulations adopted to achieve the goals of the Scoping Plan. No impact would occur.

City of San Clemente Climate Action Plan

The City of San Clemente adopted the Climate Action Plan (CAP) in 2012. The City of San Clemente CAP includes strategies for the City of San Clemente to reduce GHG emissions and achieve GHG goals for 2020 and 2030. Most GHG emissions generated in the City of San Clemente come from mobile sources. The strategies in the CAP are primarily focused on transportation. Strategies are designed to encourage walking and use of bicycles by expanding pedestrian access, requiring bicycle parking, and increasing bicycle lanes (City of San Clemente 2012). The strategies identified in the CAP are outside the purview of the proposed project, and the proposed project would not conflict with any proposed pedestrian access facilities or bicycle lanes within the City of San Clemente. No impact would occur.

Mitigation Measures: None required.

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3.7.3 References

- CARB. 2007. *California Greenhouse Gas Inventory for 1990-2004 – by IPCC Category*. November 29. Accessed May 10, 2016.
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