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4.7 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"/>

4.7.1 Introduction

This section of the PEA describes the existing conditions and potential project-related impacts related to greenhouse gas (GHG) emissions in the vicinity of the Proposed Project. The analysis concludes that less than significant impacts related to GHG emissions will occur. The Proposed Project's potential effects on this resource were evaluated using the significance criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in the checklist above, and discussed in more detail in Section 4.7.6.

4.7.1.1 Description of Greenhouse Gases

GHG are gases that trap heat in the atmosphere by absorbing infrared radiation. These emissions occur from natural processes and human activities. The most significant of the human activities emitting GHGs is the burning of fossil fuels. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Scientific evidence indicates a trend of increasing global temperature over the past century correlating with an increase in GHG emissions from human activities.

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Human-caused sources of CO₂ include combustion of fossil fuels such as coal, oil, natural gas, gasoline and wood. CH₄ is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of nitrous oxide include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid. Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO₂, which has a value of one. For example, CH₄ has a GWP of 21, which means that CH₄ has a global warming effect 21 times greater than CO₂ on an equal-mass basis (Intergovernmental Panel on Climate Change [IPCC] 2007). To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO₂ equivalent (CO₂e). The CO₂e is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH₄ and N₂O have much higher GWPs than CO₂, because CO₂ is emitted in such higher quantities, CO₂ represents the overwhelming contributor to CO₂e from both natural processes and human activities.

4.7.2 Regulatory Setting

4.7.2.1 Federal

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), that the U.S. Environmental Protection Agency (USEPA) has the ability to regulate GHG emissions. The USEPA affirms that while the contribution is uncertain, human activities are substantially increasing GHG emissions, which, in turn, are contributing to a global warming trend (USEPA 2015). The U.S. Global Change Research Program (USGCRP) is a working group coordinating the efforts of 13 different federal agencies, including the U.S. Department of Agriculture, the Department of the Interior, the Department of Defense, and the Department of Energy. The USGCRP releases regular reports presenting the most current scientific consensus of predicted changes associated with global climate change. The 2014 National Climate Assessment report is the most recent complete report, which summarizes the science of climate change and the impacts of climate change on the U.S. (U.S. Global Change Research Program 2014).

In 2009, the USEPA signed GHG Endangerment Findings under Section 202(a) of the Clean Air Act (CAA), stating that six “key” GHGs are a threat to public health and welfare (CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride). Since then, the USEPA has been creating standards and regulations for controlling GHG emissions from passenger vehicles. Additionally, since 2012 the USEPA has issued proposals and updated regulations to reduce carbon emissions from new and existing power plants, landfills, and oil and natural gas facilities. Despite these efforts, there are no promulgated federal regulations to date limiting GHG emissions. As a comparison point, the Council on Environmental Quality recommends that 25,000 metric tons of CO₂e or more be considered the threshold warranting a more substantial evaluation of—but not necessarily a determination of—significance of climate change impact when a federal agency is the project proponent (Council on Environmental Quality 2014).

4.7.2.2 State

California Health and Safety Code Section 38505(g) defines GHGs as any of the following compounds: CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Several state laws and Executive Orders (EOs) have passed GHG related laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020. Senate Bill (SB) 97, enacted in 2007, amends CEQA to state that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. SB 375, Sustainable Communities and Climate Protection Act, enacted in 2008, required the California Air Resources Board (CARB) to develop regional GHG emission reduction targets for passenger vehicles.

EO S-3-05, signed in 2005, established state-wide GHG reduction targets, ultimately reducing GHG emissions to 80 percent below 1990 levels by the year 2050. EO S-13-08 directed state agencies to develop a state Climate Adaptation Strategy, and directed individual agencies to plan for a changing climate. EO S-20-06 directed state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team. Activities taken thus far to implement AB 32 include mandatory GHG reporting and a cap-and-trade system for major GHG-emitting sources (CARB 2015c).

Section 15064.4 of the *CEQA Guidelines* specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a “good-faith effort” to “describe, calculate or estimate” GHG emissions. Section 15064.4 states that the analysis of GHG impacts should consider the extent that the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with “regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.” Section 15064(h)(3) of the *CEQA Guidelines* states that a project may be found to have a less than significant impact on GHG emissions if it complies with an adopted plan that includes measures to reduce GHG emissions. The *CEQA Guidelines* do not require or recommend a specific analytical methodology or set a quantitative threshold for determining the significance of GHG emissions.

4.7.2.3 Local

As provided in CPUC General Order 131-D, the CPUC preempts local discretionary authority over the location and construction of electrical utility facilities. The following discussion of relevant local land use plans and policies that pertain to GHG emissions is provided below for informational purposes.

San Diego County

In May 2010, the USEPA issued a rule addressing GHG emissions from stationary sources under the CAA. This so-called “Tailoring Rule” set thresholds for GHG emissions that define when permits under the Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for industrial facilities. The rule “tailors” requirements of these CAA permitting programs to focus on those facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources. This includes the nation’s largest GHG emitters, such as power plants and cement production facilities. San Diego County Air Pollution Control District (APCD) administers the rule primarily through the Title V rule (Rule 1401) and PSD rule (Rule 20.3).

The San Diego County APCD also partners with local agencies on regional GHG reduction initiatives. These initiatives include the preparation of local Climate Action Plans by local governments, and the Sustainable Communities Strategy led by the San Diego Association of Governments (SANDAG). The Sustainable Communities Strategy must demonstrate how the SANDAG region will meet SB 375 GHG emission reduction targets through integrated land use, housing, and transportation policies and activities.

The County of San Diego has developed thresholds for determining significance with respect to climate change and GHG emissions (County of San Diego 2013). The County developed screening criteria for a range of project types and sizes to identify smaller projects that would have less-than-cumulatively considerable GHG emissions effects. If a proposed project is the same type and equal to, or smaller than, the project size listed within the criteria, it is presumed that the construction and operational GHG emissions for that project would not exceed 2,500 metric tons of CO₂e per year, and there would be a less-than-cumulatively considerable impact. The County has also developed screening criteria for projects that would only increase GHG emissions during the construction phases.

In addition, the guidance establishes an efficiency threshold, which is the rate of emissions needed to achieve a fair share of the state’s emission mandate embodied in AB 32. The threshold is that, “A proposed plan or project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of construction and operational greenhouse gas emissions, either directly or indirectly, at a level exceeding 4.32 metric tons of CO₂e per year, per service population.” The guidance also establishes a bright line threshold, which is that, “A proposed project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of

operational GHG emissions, either directly or indirectly, at a level exceeding 2,500 metric tons of CO₂e per year.”

Orange County

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted an interim GHG significance threshold for stationary and industrial projects where the SCAQMD is lead agency (SCAQMD 2008). The interim threshold is that GHG emissions must be less than 10,000 metric tons of CO₂e per year, including construction emissions amortized over 30 years and added to the operational GHG emissions. As of October 2015, Orange County does not have an approved Climate Action Plan.

4.7.3 Existing Conditions

The most recent California Climate Change Scenarios Assessment predicts that temperatures in California could increase by approximately 2.7 degrees Fahrenheit (°F) by 2050, and up to 8.6°F by 2100 (California Energy Commission 2012). Predictions of long-term negative environmental impacts due to global warming include sea level rise, changing weather patterns with increases in the severity of droughts, changes to local and regional ecosystems including the potential loss of species, and a substantial reduction in winter snow pack. In California, predictions of these effects include exacerbation of air quality problems, a reduction in municipal water supply, increased impacts from coastal flooding, an increase in the number and intensity of wild fires, and damage to marine and terrestrial ecosystems (California Energy Commission 2012). Similar effects would be anticipated within San Diego County (County of San Diego 2012b) and Orange County.

The Cal-Adapt online tool was used to visualize likely changes to the Proposed Project area. Potential effects to the local area from climate change would include an increased risk of flooding within coastal areas and creeks, and an increased risk of wildfire (Cal-Adapt 2015). The potential increase in the local average temperature would range from 3.7°F to 6.2°F (the low GHG scenario and the high GHG scenario, respectively). Relative to 2010 levels, there would be approximately 1.2 percent more area burned by wildfire each year by the year 2020, due to changes in precipitation levels and drier vegetation from higher ambient air temperatures. In addition, the beaches and near coastal waterways would be at greater risk of inundation during a 100-year storm event due to a potential sea level rise of up to 55 inches.

In the State of California GHG Inventory, CARB compiled statewide anthropogenic GHG emissions and sinks. The most recent inventory covers the years 1990 to 2013, and is summarized in Table 4.7-1. Data sources used to calculate the inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. In 2013, the transportation sector produced the most GHG emissions within the state of California, followed by the industrial sector.

Table 4.7-1. State of California GHG Emissions by Sector

Sector	Total 2013 Emissions (million metric tons CO ₂ e)	Percent of Total 2013 Emissions
Agriculture and Forestry	36.21	8%
Commercial	22.63	5%
Electricity Generation (imports)	40.05	9%
Electricity Generation (in state)	50.58	11%
Industrial	104.16	23%
Not Specified	0.79	<1%

Table 4.7-1. State of California GHG Emissions by Sector

Sector	Total 2013 Emissions (million metric tons CO ₂ e)	Percent of Total 2013 Emissions
Residential	32.32	7%
Transportation	172.53	37%
TOTAL	459.27	100%

Source: CARB 2015.

4.7.4 Applicant Proposed Measures

The Proposed Project will have a less than significant impact to GHGs; therefore, no APMs are proposed.

4.7.5 Potential Impacts

The Proposed Project includes reconductoring, removal of existing wood pole structures, and installation of new steel pole structures for the existing TL 695 and TL 6971 power lines. The operation and maintenance activities required for the power lines will not change from those currently required for the existing system; thus, no operation-related impacts related to GHG emissions will occur. Furthermore, maintenance will decrease slightly due to the removal of wood pole structures and the installation of steel pole structures. Therefore, the impact analysis is focused on construction activities that are required to install the new conductor, remove the existing wood pole structures, install the new steel pole structures, and establish required access and temporary work areas, as described in Chapter 3.0, Proposed Project Description.

4.7.5.1 Methodology

Federal, state, and regional/local regulations and policies were consulted to determine the Proposed Project's compliance with applicable GHG plans and/or standards. Potential GHG emissions were estimated using the California Emissions Estimator Model, which is the current air quality model for land use projects in California. The model was developed in collaboration with the air districts of California and includes default data (e.g., emission factors, trip lengths, meteorology, source inventory) that have been provided by the various California air districts to account for local requirements and conditions. The emissions calculations and assumptions used in this analysis are included in Appendix 4.3-A, Emission Spreadsheets.

4.7.5.2 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. The potential significance of project-related impacts related to GHG emissions were evaluated for each of the criteria listed in the checklist above, as discussed below.

a) Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? Less than Significant

Impacts from GHG emissions from the Proposed Project are not direct impacts; however, they would have the potential for cumulative impacts on the environment, most prominently catalyzing global climate change. Potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and decreased air quality and water availability. As discussed in Section 4.7.3 above, climate change could affect the Proposed Project area because warmer

climates may experience more of the problems identified above related to heat and water loss, should average temperature in the Proposed Project area increase.

Table 4.7-2 shows the estimated GHG emissions (CO₂e) within the San Diego County APCD and the SCAQMD areas, from construction of the Proposed Project.

Table 4.7-2. GHG Construction Emissions within the San Diego County APCD and SCAQMD

Construction Emission Source	CO ₂ e Emissions (metric tons)
<i>San Diego County APCD</i>	
Construction Equipment and Activities	1,033.244
Helicopters	575.700
TOTAL	1,608.944
Amortized Construction Emissions (amortized over 30 years)	53.631
<i>SCAQMD</i>	
Construction Equipment and Activities	54.381
Helicopters	30.3000
TOTAL	84.6813
Amortized Construction Emissions (amortized over 30 years)	2.823

The total annualized construction CO₂e emissions of 53.6 metric tons within San Diego County and 2.8 metric tons within Orange County for the Proposed Project are below the GHG thresholds of significance for those areas. Construction activities will comply with San Diego County APCD Rules 50, 51, and 55 governing visible emissions, nuisance effects, and emissions of fugitive dust. Equipment will comply with existing CARB requirements. The Proposed Project would therefore not generate GHGs that would have a significant impact on the environment. Therefore, the impact from potential GHG emissions 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 GHGs? *Less than Significant*

Construction activities under the Proposed Project would be short-term and localized. As shown in Table 4.7-1, potential GHG emissions from construction activities are significantly below the San Diego County's and the SCAQMD's significance thresholds when amortized over a 30-year period. The Proposed Project does not conflict with regional GHG reduction initiatives, or adopted plans or policies intended to reduce GHG emissions. Construction equipment and vehicles supporting the construction of the Proposed Project would comply with the requirements implemented by CARB to reduce GHG emissions. Therefore, impacts from GHG emissions during construction of the Proposed Project are less than significant.

4.7.6 References

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