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4.7 GREENHOUSE GAS EMISSIONS

Would the Proposed Project:	Potentially Significant Impact	Less-than-Significant Impact 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?			✓	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				✓

4.7.0 Introduction

This section describes the existing conditions in the area of the proposed San Diego Gas & Electric Company (SDG&E) Tie Line (TL) 649 Wood-to-Steel Replacement Project (Proposed Project) and evaluates the potential for greenhouse gas (GHG) impacts associated with the Proposed Project. The operation of construction equipment and vehicles may result in GHG emissions from the combustion of fossil fuels. However, the Proposed Project is not anticipated to generate GHG emissions, either directly or indirectly, that will have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

4.7.1 Methodology

Federal, state, and regional/local regulations and policies were reviewed to determine the Proposed Project's consistency with applicable climate action plans and/or compliance with GHG standards. Information for this section was obtained from searches of federal, state, and regional/local agency websites. The simulated GHG emissions presented in this section were developed using the latest version of California Emissions Estimator Model (CalEEMod) (version 2013.2.2). The analysis of GHG emissions evaluates the Proposed Project's potential to generate GHG emissions for the construction and operational phases of the Proposed Project. GHG emissions were calculated with the intent of identifying the primary GHGs that will result from the Proposed Project.

4.7.2 Existing Conditions

Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), which are known as GHGs. These gases allow solar radiation (i.e., sunlight) into Earth's atmosphere, but prevent radiative heat from escaping, thus warming the atmosphere. GHGs are emitted by both natural processes and human activities.

Emissions from human activities, such as burning of fossil fuels for electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere.

Different GHGs have varying global warming potentials. Global warming potential is the effectiveness of a gas or aerosol to trap heat in the atmosphere. According to the United States (U.S.) Environmental Protection Agency (EPA), global warming potential is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for global warming potential is CO_2; therefore, CO_2 has a global warming potential of 1. The other main GHGs that have been attributed to human activity are CH_4, which has a global warming potential of 21; and N_2O, which has a global warming potential of 310. Table 4.7-1: Global Warming Potentials and Atmospheric Lifetimes of Greenhouse Gases presents the global warming potential and atmospheric lifetimes of common GHGs.

Table 4.7-1: Global Warming Potentials and Atmospheric Lifetimes of Greenhouse Gases

Greenhouse Gas	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12 ± 3
Nitrous Oxide	N_2O	310	120
Sulfur Hexafluoride	SF_6	23,900	3,200

Source: Intergovernmental Panel on Climate Change (IPCC), 1996

In the California Greenhouse Gas Emission Inventory, the California Air Resources Board (CARB) compiled statewide anthropogenic GHG emissions and sinks, which include processes that uptake GHG emissions. The inventory includes estimates for CO_2, CH_4, N_2O, sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The current inventory covers 1990 through 2012, and is summarized in Table 4.7-2: State of California Greenhouse Gas Emissions by Sector. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies applied are consistent with Intergovernmental Panel on Climate Change guidance. The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. CARB's original inventory was divided into seven broad sectors and categories: agriculture, commercial, electricity generation, forestry, industrial, residential, and transportation. The latest inventory includes GHG emissions from recycling and waste management, high global warming potential gas emissions, and reductions in GHG emissions related to forestry (i.e., forestry sinks).

Regulatory Background

The following subsections describe federal, state, and local regulations regarding GHG emissions that are relevant to the Proposed Project.

Table 4.7-2: State of California Greenhouse Gas Emissions by Sector

Sector	Total 2008 Emissions ($MMTCO_2e$)	Percent of Total 2008 Emissions	Total 2012 Emissions ($MMTCO_2e$)	Percent of Total 2012 Emissions
Agriculture	38.0	7.8	37.9	8.3
Commercial	18.5	3.8	22.0	4.8
Electricity Generation (In-State)	54.5	11.2	51.2	11.2
Electricity Generation (Imports)	65.9	13.5	44.1	9.6
Industrial	97.5	20.0	100.7	22.0
Residential	31.2	6.4	31.6	6.9
Transportation	181.3	37.2	171.0	37.3
Unspecified	0.2	< 0.1	0.2	< 0.1
Total	**487.1**	**100**	**458.7**	**100**

Sources: CARB, 2014b
Note: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent

Federal

Endangerment Finding

On April 17, 2009, the EPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the EPA Administrator signed the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The EPA found that the current and projected concentrations of the six key well-mixed GHGs—CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The EPA found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution, which threatens public health and welfare.

The endangerment findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed GHG emissions standards for light-duty vehicles, which were jointly proposed by the EPA and the U.S. Department of Transportation's National Highway Safety Administration on September 15, 2009.

Mandatory Reporting of Greenhouse Gases, Title 40, Part 98 of the Code of Federal Regulations

The EPA's rule titled Mandatory Reporting of Greenhouse Gases (Title 40, Part 98 of the Code of Federal Regulations) requires mandatory reporting of GHGs for certain facilities. Subpart DD

of the rule, titled Electrical Transmission and Distribution Equipment Use, applies to SF_6 reporting from gas-insulated substations.

Under the final Mandatory Reporting Rule for Additional Sources of Fluorinated GHGs, owners and operators of electric power system facilities with a total nameplate capacity that exceeds 17,820 pounds (7,838 kilograms) of SF_6 and/or PFCs must report emissions of SF_6 and/or PFCs from the use of electrical transmission and distribution equipment. Owners or operators must collect emissions data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.

The rule requires each electric power system facility operator to report total SF_6 and PFC emissions (including emissions from equipment leaks, installation, servicing, decommissioning, and disposal, and from storage cylinders) from the following types of equipment:

- gas-insulated substations;
- circuit breakers;
- switchgears, including closed-pressure and hermetically sealed pressure switchgears;
- gas-insulated lines containing SF_6 or PFCs;
- gas containers, such as pressurized cylinders;
- gas carts;
- electric power transformers; and
- other containers of SF_6 or PFCs.

Facilities subject to Subpart DD began monitoring GHG emissions on January 1, 2011, in accordance with the methods specified in Subpart DD. The deadline for reporting is March 31 of each year, unless that date falls on a weekend, in which case the report is due the next business day.

State

The most common GHGs that result from human activity, as defined by California Health and Safety Code Section 38505(g), are any of the following compounds: CO_2, CH_4, N_2O, SF_6, HFCs, or PFCs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, then-Governor Arnold Schwarzenegger signed California Assembly Bill (AB) 32, the Global Warming Solutions Act, into law. Pursuant to AB 32, CARB adopted a comprehensive AB 32 Scoping Plan in December 2008, which outlined programs designed to achieve the 2020 GHG reduction goal of 174 $MMTCO_2e$ through regulations, market mechanisms, and other actions.

For the electricity sector, the scoping plan adopted the California Public Utilities Commission's (CPUC's) recommendations for investor-owned and publicly owned utilities to intensify their emissions reduction efforts. The recommendations include energy efficiency programs, increased use of electricity supplies from renewable generation sources (to 33 percent by 2020), and adoption of a cap-and-trade system to ensure an overall reduction of emissions from electric generation.

The AB 32 Scoping Plan Measure H-6 led to CARB's Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (Title 17, Sections 95350 to 95359 of the California Code of Regulations). CARB's SF_6 regulation set the maximum emissions rate for SF_6-containing equipment at 10 percent in 2011, with a decrease of one percent each subsequent year. Starting in 2020, the maximum emissions rate will remain at one percent.

State Standards Addressing Vehicular Emissions

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. In September 2009, CARB adopted the regulations to reduce GHG emissions in new passenger vehicles through 2016. CARB has estimated that the regulations will reduce emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

Senate Bills 1078 and 107 and Executive Order S-14-08

Senate Bill (SB) 1078 requires retail sellers of electricity to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 then changed the target date to 2010. In November 2008, then-Governor Arnold Schwarzenegger signed Executive Order S-14-08, which expands the Renewables Energy Standard to 33 percent by 2020. In April 2011, the California Legislature enacted SB 2, which mandates the Renewables Portfolio Standard of 33 percent by 2020 for investor-owned and publicly owned utilities.

Executive Order B-30-15

On April 29, 2015, Governor Jerry Brown issued Executive Order B-30-15 into law. This executive order sets a new interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure that California meets its target of 80 percent below 1990 levels by 2050.

Executive Order S-21-09

Executive Order S-21-09 directs CARB to work with the CPUC and the California Energy Commission (CEC) to implement the Renewables Portfolio Standard of 33 percent by 2020. On May 5, 2011, the CPUC adopted Order Instituting Rulemaking 11-05-005 to open a new proceeding for the Renewables Portfolio Standard.

CARB is also working with the California Independent System Operator and other load balancing authorities to address reliability, renewable integration requirements, and interactions with wholesale power markets. CARB established a "loading order" in its Energy Action Plan for resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the Proposed Project, the Proposed Project is not subject to local discretionary land use regulations. The following discussion of the local regulations relating to GHG emissions is provided for informational purposes. As outlined in the following subsections, the construction and operation

of the Proposed Project will not conflict with any environmental plans, policies, or regulations adopted by agencies with jurisdiction over local regulations related to GHG emissions.

South Coast Air Quality Management District

In October 2008, the South Coast Air Quality Management District (SCAQMD) prepared its Draft Interim CEQA Greenhouse Gas Significance Threshold. To evaluate operational impacts of proposed industrial projects, the SCAQMD recommended an interim threshold of 10,000 $MTCO_2e$ per year. Per SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is proposed at 30 years.

San Diego County

Ozone Air Quality Management Plan

As described in Section 4.3 Air Quality, the San Diego County Air Pollution Control District (SDAPCD) State Implementation Plan (SIP) predicts that state and local programs will allow the County to reach attainment status for the federal eight-hour ozone (O_3) Ambient Air Quality Standards (AAQS) (per the SIP submitted to the EPA in June 2007). It is anticipated that the EPA will designate San Diego County as a nonattainment area for the new 0.075-part-per-million eight-hour O_3 standard, and the SDAPCD will be required to submit an updated SIP to address the new, more stringent standard at that time. The SDAPCD maintains the Regional Air Quality Strategy (RAQS), which demonstrates how the district will eventually meet the state O_3 AAQS and details the measures and regulations that focus on managing and reducing O_3 precursors. The RAQS control measures concentrate on stationary sources that are under the SDAPCD's jurisdiction.

Climate Action Plan

The County of San Diego adopted their Climate Action Plan in June 2012. The Climate Action Plan was developed to address the issues of growth and climate change within the County of San Diego. In November 2013, the County of San Diego released their Guidelines for Determining Significance for Climate Change which includes a framework for determining the significance of GHG emissions from development projects. More specifically, it indicates that a project will have a significant impact if it increases operational greenhouse gas emissions, either directly or indirectly, by 2,500 $MTCO_2e$ per year.[1] This threshold is designed for projects that included residential, commercial, civic, light industrial uses, or a mixture of these uses. In addition, construction-related emissions do not need to be separately analyzed or included as an assessment against this threshold as construction emissions for land use projects in San Diego County were incorporated into the threshold.

City of San Diego

In March 2015, the City of San Diego released its Draft Climate Action Plan, which identifies measures to effectively meet GHG reduction targets for 2020 and 2035. This plan was developed in response to the mitigation required as part of the 2008 General Plan and will also

[1] Though this threshold was invalidated through legal action in 2014, it was used as a reference for the purpose of this analysis.

serve as a Qualified GHG Reduction Plan for the purposes of tiering under CEQA through 2020. The plan includes strategies for reducing GHG emissions through the development of energy- and water-efficient buildings; use of clean and renewable energy sources; replacement of automobile use with bicycles, walking, and public transportation; reduction of waste; and development of flexible policies to adapt to climate change.

City of Chula Vista

The City of Chula Vista began implementing a Climate Action Plan in 2000 to address the threat of climate change to the local community. The original plan has been revised to incorporate new climate mitigation and adaptation measures to strengthen the City of Chula Vista's climate action efforts and to facilitate utility savings, improve air quality, reduce traffic congestion, and generate local economic development. The measures include replacing the City of Chula Vista's fleet with clean vehicles, evaluating local businesses for energy efficiency, developing green standards for new construction, and implementing renewable energy retrofit programs. The Climate Change Working Group (CCWG), which is composed of residents, businesses, and community organization representatives, assists the City of Chula Vista in the development of climate-related programs and policies. The CCWG is convening to update the Climate Action Plan. Specifically, the CCWG is developing recommendations for new GHG reduction strategies to help the City of Chula Vista meet its carbon reduction goals.

Environmental Setting

SDG&E Programs

SDG&E has been engaged for many years in activities to reduce GHG emissions. These activities include programs to increase energy efficiency and efforts to meet the Renewables Portfolio Standard of 33 percent of its supply from renewable sources by 2020. In 2013, 23.6 percent of SDG&E's retail sales were from renewable energy sources.

SDG&E submits a mandatory Long-Term Procurement Plan (LTPP) to the CPUC that describes its strategy for meeting the forecasted load during the next 10 years. The LTPP must be consistent with the "loading order" prescribed in the Energy Action Plan to meet growth first with conservation, then with renewable sources of electricity, and finally with new fossil fuel sources to the extent necessary. New generation sources must be consistent with the LTPP. The CPUC approved SDG&E's most recent LTPP in September 2008.

The LTPP includes the following programs to reduce GHG emissions:

- Energy efficiency, which will reduce needed capacity by 487 megawatts (MW) by 2016
- Demand response, which will reduce needed capacity by 249 MW by 2016
- Renewables, which will provide 318 MW in 2010 and 727 MW in 2016
- New peaker plants to back up intermittent renewables and support retirement of older plants

Forecasted reductions from these programs are greater than 1.5 $MMTCO_2e$ per year. These efforts will reduce carbon intensity by one-third while accommodating continued population

growth, and will ensure consistency with the applicable plans, policies, and regulations adopted by California to reduce GHG emissions.

4.7.3 Impacts

The following subsections describe the criteria of significance used to assess potential impacts from GHG emissions that may result from implementation of the Proposed Project, and examine those potential impacts.

Significance Criteria

Standards for determining impact significance were derived from Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Under these guidelines, impacts to GHGs would be considered significant if the Proposed Project:

- Generates GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG

The SDAPCD has not established GHG thresholds under CEQA. The County of San Diego and City of San Diego have drafted or adopted a significance threshold of 2,500 $MTCO_2e$ emissions annually for industrial sources; therefore, an industrial project that generates GHG emissions below this level would not have a significant impact on the environment.

Question 4.7a – Greenhouse Gas Emissions

Construction – Less-than-Significant Impact

The main source of GHG emissions associated with the Proposed Project will be the fossil fuel combustion in vehicles and equipment used during construction. GHG emissions for construction were calculated using the same approach as criteria pollutant emissions for overall construction emissions, as described in Section 4.3 Air Quality. Estimated GHG emissions are summarized in Table 4.7-3: Proposed Project Greenhouse Gas Construction Emissions.

Table 4.7-3: Proposed Project Greenhouse Gas Construction Emissions

Category	Greenhouse Gas Emissions (metric tons)		
	CO_2	CH_4	N_2O
Total Construction Emissions	550.12	0.16	0.00
Global Warming Potential	1	21	310
CO_2e	550.12	3.31	0.00
Total CO_2e	553.43		
Applicable Threshold	2,500		
Threshold Exceeded?	No		

The County of San Diego and City of San Diego have drafted or adopted a significance threshold of 2,500 $MTCO_2e$ emissions annually for each industrial project. The Proposed Project's total construction CO_2e emissions of 553.43 metric tons will be well below the significance threshold of 2,500 $MTCO_2e$. Therefore, the GHG emissions resulting from the Proposed Project will be less than significant.

Operation and Maintenance – No Impact

Operation and maintenance activities for the Proposed Project will be conducted in the same manner as the existing facilities. Operation and maintenance activities are expected to decrease slightly as a result of the Proposed Project due to the lower maintenance requirements of the replacement steel poles relative to the existing wood poles. As a result, there will be no increase in GHG emissions, and no impact will occur.

Question 4.7b – Applicable Greenhouse Gas Plan Conflicts

Construction – No Impact

The Proposed Project will comply with applicable plans. GHG emissions from construction will be below the significance threshold when amortized over a 30-year period, as recommended by the SDAPCD and the County of San Diego. Equipment and vehicles supporting construction of the Proposed Project will comply with the requirements implemented by CARB and will be consistent with the goals of AB 32. Accordingly, there will be no impact associated with construction.

Operation and Maintenance – No Impact

As described previously, operation and maintenance activities for the Proposed Project will be conducted in the same manner as the existing facilities. Operation and maintenance activities are expected to decrease slightly as a result of the Proposed Project due to the lower maintenance requirements of the replacement steel poles relative to the existing wood poles. As a result, the GHG emissions associated with operation and maintenance will not increase; therefore, there will be no impact.

4.7.4 Applicant-Proposed Measures

Because the Proposed Project will not result in any significant impacts from GHG emissions, no applicant-proposed measures have been proposed.

4.7.5 References

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