D.17 Climate Change

This section evaluates the potential for the South Bay Substation Relocation Project (Proposed Project) to impact climate in the project area. Sections D.17.1 and D.17.2 describe the environmental and regulatory climate change setting for the Proposed Project, respectively. Section D.17.3 includes analysis and discussion of climate change impacts resulting from the Proposed Project, while Section D.17.4 presents impact analysis for the alternatives. Section D.17.5 provides information about mitigation monitoring and reporting.

The analysis of greenhouse gases (GHGs) is a much different analysis than the analysis of criteria pollutants (Section D.4) for several reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is based on daily exceedances of applicable ambient air quality standards (AAQS). Furthermore, several AAQS are based on relatively short-term exposure effects on human health (e.g., 1-hour and 8-hour averages). Because the half-life of carbon dioxide (CO_2) is approximately 100 years, for example, the effects of GHGs are longer-term, affecting global climate over a relatively long time frame. As a result, the contribution of a project's GHG emissions is evaluated over a longer time frame than a single day.

D.17.1 Environmental Setting for the Proposed Project

This section provides a description of existing conditions, including a description of the greenhouse effect, effects of climate change globally and in California, and a summary of GHG emissions in California. Baseline information reviewed for this section includes San Diego Gas and Electric's (SDG&E's) Proponent's Environmental Assessment (PEA) for the South Bay Substation Relocation Project (SDG&E 2010).

D.17.1.1 General Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer).

The Greenhouse Effect and GHGs

Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a three-fold process: 1) short-wave radiation emitted by the sun is absorbed by the Earth; 2) the Earth emits a portion of this energy in the form of long-wave radiation; and 3) GHGs in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and back toward the Earth. This "trapping" of the long-wave (thermal) radiation emitted back toward Earth is the underlying process of the greenhouse effect.

Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, and water vapor (H_2O). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results mostly from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3), which are associated with certain industrial products and processes (CAT 2006).

The greenhouse effect is a natural process that contributes to regulating the earth's temperature. Without it, the temperature of the Earth would be about 0°Fahrenheit (F) (-18°Celcius (C)) instead of its present 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (National Climatic Data Center 2009).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere. This is known as its global warming potential (GWP). The GWP varies between GHGs; for example, the GWP of CH_4 is 21, and the GWP of N_2O is 310. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG gas emissions are typically measured in terms of pounds or metric tons of "CO_2 equivalent" (CO_2E).[1]

According to the (California Air Resources Board (CARB), some of the potential impacts in California of global warming may include loss in snowpack, sea level rise, more extreme heat days per year, more high O_3 days, more large forest fires, and more drought years (CARB 2006). Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts.

1 The CO2 equivalent emissions are commonly expressed as "metric tons of carbon dioxide equivalent" (MTCO2E). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MTCO2E = (metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH4 is 21. This means that emissions of 1 metric ton of CH4 are equivalent to emissions of 21 metric tons of CO2.

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C (0.36°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming would occur, which would induce further changes in the global climate system during this century. Changes to the global climate system and ecosystems and to California could include, but would not be limited to, the following:

- The loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (IPCC 2007)
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps, the Greenland and Antarctic ice sheets (IPCC 2007)
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones (IPCC 2007)
- Decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70% to as much as 90% over the next 100 years (CAT 2006)
- Increase in the number of days conducive to O_3 formation by 25% to 85% (depending on the future temperature scenario) in high O_3 areas of Los Angeles and the San Joaquin Valley by the end of the 21st century (CAT 2006)
- High potential for erosion of California's coastlines and seawater intrusion into the delta and levee systems due to the rise in sea level (CAT 2006).

Sea-level rise is of particular concern with regard to populations, infrastructure, and development along the California coastline. Approximately 85% of California residents live and work in coastal areas. These population areas are the most vulnerable to coastal climate change impacts such as extreme weather events and climactic conditions in addition to elevations in sea level. California's coastal population increased by 9.9 million people between 1980 and 2003, and it is projected that this coastal population will exceed 32 million by 2025 (CNRA 2009a). The California Natural Resources Agency and Climate Action Team developed the 2009 California Climate Adaptation Strategy (CAS) in response to Executive Order S-13-2008 that requires state agencies to develop strategies in preparation for impacts of climate change, including adverse effects of sea level rise to coastal communities. The CAS provides recommendations and initial solutions that state agencies can adopt and implement during the planning and policy development processes. Because the CAS summarizes a variety of data and studies conducted on climate change, the document initially presents a range of sea level rise projections based on different methodologies employed by these various studies. For purposes of the CAS impact analysis and recommendations, a 20- to 55-inch

projection (0.5 to 1.4 meters) by 2011 was selected because this range was the best available data at the time of the 2009 impact assessment (CNRA 2009a).

Six adaptation strategies and associated actions were identified in the CAS to address sea level rise along the California coast. These strategies include hazard avoidance policies, guidance for coastal protection of habitat and development, sea level rise and local climate adaptation plans, regional and local planning processes specific to sea level rise impacts, a statewide vulnerability assessment to be updated every 5 years, as well as continual and comprehensive data collection and information sharing. Adaptation design guidelines and recommendations for local development discussed in these strategies include designated buffer areas, setbacks, "clustered" coastal development patterns, rebuilding restrictions, relocation incentives, rolling easements, and new engineering solutions to ensure proper protection and avoidance of adverse impacts to coastal populations and infrastructure (CNRA 2009a).

Contributions to Greenhouse Gas Emissions

Global

Anthropogenic GHG emissions worldwide in 2005 totaled approximately 42,680 million metric tons CO_2E ($MMTCO_2E$) (CAIT 2009). Six countries (China, United States, Russian Federation, India, Japan, and Brazil) and the European Community accounted for approximately 67% of the total global emissions, approximately 25,360 $MMTCO_2E$ (CAIT 2009).

United States

The United States was the second highest producer of GHG emissions in 2008, emitting 6,957 $MMTCO_2E$ (EPA 2010a). The primary GHG emitted by human activities in the United States was CO_2, representing approximately 85% of total GHG emissions. The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 94% of the CO_2 emissions (EPA 2010a).

State of California

According to the 2008 GHG inventory data compiled by CARB for the California 2000–2008 GHG emissions inventory, California emitted emissions of 478 $MMTCO_2E$, including emissions resulting from out-of-state electrical generation (CARB 2010a). The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2008 are presented in Table D.17-1.

Table D.17-1
GHG Sources in California

Source Category	Annual GHG Emissions ($MMTCO_2E$)	Percentage of Total
Agriculture	28.06	5.9%
Commercial uses	14.68	3.1%
Electricity generation	116.35[a]	24.4%
Forestry (excluding sinks)	0.19	0.0%
Industrial uses	92.66	19.4%
Recycling and waste	6.71	1.4%
Residential uses	28.45	6.0%
Transportation	174.99	36.6%
High-GWP substances	15.65	3.3%
Totals	477.74	100.0%

[a] Includes emissions associated with imported electricity, which account for 61.24 $MMTCO_2E$ annually
Source: CARB 2010a

D.17.2 Applicable Regulations, Plans, and Standards

International

Kyoto Protocol. The United States is and has been a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was signed on March 21, 1994. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. The original Kyoto Protocol was negotiated in December 1997 and came into effect on February 16, 2005. As of October 2010, 192 countries and the European Economic Community have ratified the agreement (UNFCCC 2010). The goal of the protocol is to achieve overall emissions reduction targets for six GHGs during the period 2008 to 2012.

Federal

Massachusetts vs. Environmental Protection Agency (EPA). On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act (CAA). The court held that the EPA Administrator must determine whether 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 administrator is required to follow the language of Section 202(a) of the CAA. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The administrator found that elevated concentrations of GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The administrator further found that combined emissions of GHGs (CO_2, CH_4, N_2O, and HFCs) from new motor vehicles and new motor vehicle engines contribute to GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute" finding.

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act. On December 19, 2007, President Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022
2. Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020, direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks, and create a separate fuel economy standard for work trucks
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

EPA and NHTSA Joint Final Rule for Vehicle Standards. On April 1, 2010, the EPA and the NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. EPA finalized the first-ever national GHG emissions standards under the CAA, and NHTSA finalized Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (EPA 2010b). This final rule follows the EPA and Department of Transportation's joint proposal on September 15, 2009, and is the result of the President Obama's May 2009 announcement of a national program to reduce GHGs and improve fuel economy (75 FR 25324–25728). This final rule became effective on July 6, 2010 (EPA and NHTSA 2010).

The EPA's GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of

CO_2 per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO_2 level all through fuel economy improvements. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA 2010b).

State

Assembly Bill (AB) 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 (Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Before these regulations could go into effect, the EPA must grant California a waiver under the federal CAA, which ordinarily preempts state regulation of motor vehicle emission standards. The waiver was granted by Lisa Jackson, the EPA administrator, on June 30, 2009. On March 29, 2010, the CARB executive officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012 to 2016 model years (see EPA and NHTSA Joint Rule for Vehicle Standards). The revised regulations became effective on April 1, 2010.

State Bill (SB) 1078. Approved by former Governor Davis in September 2002, SB 1078 (Sher) established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107 and Executive Orders S-14-08 and S-21-09.)

Executive Order S-3-05. In June 2005, former Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010;

GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The secretary of California EPA (CalEPA) is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. Representatives from several state agencies constitute the Climate Action Team. The Climate Action Team is responsible for implementing global warming emissions reduction programs. The Climate Action Team fulfilled its report requirements through the March 2006 Climate Action Team report to the governor and the legislature (CAT 2006). A second biennial report, released in May 2010 (CAT 2010), expands on the policy oriented in the 2006 assessment. The 2010 report provides new information and scientific findings regarding the development of new climate and sea level projections using new information and tools that have recently become available, and it evaluates climate change within the context of broader soil changes, such as land-use changes and demographics.

SB 107. Approved by former Governor Schwarzenegger on September 26, 2006, SB 107 (Simitian) requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison, and SDG&E to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

AB 32. On September 27, 2006, former Governor Schwarzenegger signed into law the California Global Warming Solutions Act of 2006 (AB 32). The AB 32 GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020. The 1990 levels are approximately 30% below "business-as-usual" emissions levels in 2020. Business-as-usual conditions represent what would occur in the absence of any GHG reduction actions. CARB estimates the statewide 2020 business-as-usual GHG emissions will be 596 $MMTCO_2E$.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 $MMTCO_2E$.

On December 11, 2008, CARB approved the required Climate Change Scoping Plan (Scoping Plan) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations will occur over 2 years, becoming effective by January 1, 2012. Emission reductions from the recommended measures in the Scoping Plan total 169 $MMTCO_2E$, which will allow California to attain the 2020 emissions limit of 427 $MMTCO_2E$, a 30% reduction from CARB's 2020 estimated statewide business-as-usual GHG emissions of 596 $MMTCO_2E$. The key elements of the Scoping Plan include the following (CARB 2008):

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards
- Achieving a statewide renewable energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

SB 1368. In September 2006, former Governor Schwarzenegger signed SB 1368, which requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). On January 25, 2007, the CPUC adopted an Emissions Performance Standard for any long-term power commitments made by the state's electrical utilities. Utilities are not allowed to enter into a long-term commitment to buy baseload power from power plants that have CO_2 emissions greater than 1,100 pounds (0.5 metric ton) per

megawatt-hour. On May 23, 2007, the CEC also adopted a performance standard consistent with that adopted by the CPUC.

Executive Order S-1-07. Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO_2-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel cell–powered motor vehicles. The LCFS is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

SB 97. In August 2007, the legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. OPR was to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency was directed to adopt guidelines by January 1, 2010.

The Natural Resources Agency adopted CEQA Guidelines amendments on December 30, 2009 (CNRA 2009).

The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA (14 CCR 15000 et seq.) requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project" (14 CCR 15064.4(a))
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a))
- Requiring a lead agency to consider the following factors when assessing the significant 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
- 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 (14 CCR 15064.4(b))
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (14 CCR 15126.4(c)).

South Coast Air Quality Management District GHG Significance Thresholds. In December 2008, the South Coast Air Quality Management District (SCAQMD) adopted an interim threshold of 10,000 $MTCO_2E$/year (operational emissions plus construction emissions amortized over 30 years) for which the SCAQMD is the lead agency, such as permits for stationary source industrial projects, and it is in the process of developing guidelines for projects for which other agencies are the lead agency (SCAQMD 2008).

SB 375. In August 2008, the legislature passed and on September 30, 2008, former Governor Schwarzenegger signed SB 375 (Steinberg), which addresses GHG emissions associated with the transportation section through regional transportation and sustainability plans. By September 30, 2010, CARB will assign regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy within the Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a development plan for the region, which after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy. On September 23, 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the San Diego Association of Governments (SANDAG) are a 7% reduction in emissions per capita by 2020 and a

13% reduction by 2035. Achieving these goals through adoption of a Sustainable Communities Strategy will be the responsibility of the metropolitan planning organizations.

Executive Order S-14-08. On November 17, 2008, former Governor Schwarzenegger issued Executive Order S-14-08. This Executive Order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the order directs state agencies to take appropriate actions to facilitate reaching this target. The Resources Agency, through collaboration with the CEC and California Department of Fish and Game (CDFG), is directed to lead this effort. Pursuant to a Memorandum of Understanding (MOU) between the CEC and CDFG creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Executive Order S-21-09. On September 15, 2009, former Governor Schwarzenegger issued Executive Order S-21-09. This Executive Order directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the Renewable Portfolio Standard program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and that can be developed most quickly in support of reliable, efficient, cost-effective electricity system operations.

SB X1 2. On April 12, 2011, Governor Jerry Brown signed SB X1 2 in the First Extraordinary Session, which would expand the Renewable Portfolio Standard (RPS) by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC

will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

Local

San Diego County GHG Inventory

A regional GHG inventory was prepared by the University of San Diego School of Law's Energy Policy Initiatives Center (USD 2008). This San Diego County GHG Inventory consists of a detailed inventory that takes into account the unique characteristics of the region in calculating emissions. The study finds that emissions of GHGs must be reduced by 33% below business as usual for the County to achieve 1990 emission levels by 2020.

City of Chula Vista

The City of Chula Vista (City) has developed a number of strategies and plans aimed at improving air quality. The City is a part of the Cities for Climate Protection Program, which is headed by the International Council of Local Environmental Initiatives. In November 2002, Chula Vista adopted the CO_2 Reduction Plan to lower the community's major GHG emissions, strengthen the local economy, and improve the global environment. The CO_2 Reduction Plan focuses on reducing fossil fuel consumption and decreasing reliance on power generated by fossil fuels, which would have a corollary effect in the reduction of air pollutant emissions into the atmosphere. The following 20 action measures have been proposed within the plan to achieve this goal:

1. Municipal clean fuel vehicle purchases
2. Green power
3. Municipal clean fuel demonstration project
4. Telecommuting and telecenters
5. Municipal building upgrades and trip reduction
6. Enhanced pedestrian connections to transit
7. Increased housing density near transit
8. Site design with transit orientation
9. Increased land-use mix
10. Green power public education program
11. Site design with pedestrian/bicycle orientation
12. Bicycle integration with transit and employment
13. Bicycle lanes, paths, and routes
14. Energy-efficient landscaping
15. Solar pool heating
16. Traffic signal and system upgrades
17. Student transit subsidy
18. Energy-efficient building program
19. Municipal Life-Cycle purchasing standards
20. Increased employment density near transit.

More recently, the Chula Vista City Council adopted the new 2008 state Energy Code (Title 24) with an amendment requiring an increased energy efficiency standard. This amendment went into effect on February 26, 2010, as Section 15.26.030 of the Municipal Code. As required by this amendment, all building permits applied for and submitted on or after this date are subject to these increased energy efficiency standards. The increase in energy efficiency is a percentage above the new 2008 Energy Code and is dependent on climate zone and type of development proposed. The designation is as follows:

- New residential and nonresidential projects that fall within climate zone 7 must be at least 15% more energy efficient than the 2008 Energy Code. Climate zone 7 encompasses the western portion of the City (City of Chula Vista 2010).
- New low-rise residential projects (three stories or less) that fall within climate zone 10 must be at least 20% more energy efficient than the 2008 Energy Code. New non-residential, high-rise residential, or hotel/motel projects that fall within climate zone 10 must be at least 15% more energy efficient than the 2008 Energy Code. Climate zone 10 encompasses the easternmost portion of the City (City of Chula Vista 2010).

Additionally, per Section 15.12 of the City's Municipal Code, all new residential construction, remodels, additions, and alterations must provide a schedule of plumbing fixture fittings that will reduce the overall use of potable water by 20% (City of Chula Vista 2010).

D.17.3 Environmental Impacts and Mitigation Measures

D.17.3.1 Definition and Use of Significance Criteria

GHG emissions contributing to global climate change have only recently been addressed in CEQA documents, such that CEQA and case law do not provide much guidance relative to their assessment. CEQA does, however, provide guidance regarding topics such as climate change (Section 15144; 14 CCR 15000 et seq.). Section 15144 notes that preparation of an environmental impact analysis document necessarily involves some degree of forecasting. While forecasting the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.

The San Diego Air Pollution Control District (SDAPCD) has not established CEQA significance thresholds for GHG emissions. However, the Natural Resources Agency adopted CEQA Guidelines Amendments on December 30, 2009, which are now effective (California Natural Resources Agency 2009). The following significance criteria are based on the CEQA checklist identified in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.).). Under CEQA, GHG impacts would be considered significant if the project would:

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

Neither the State of California nor the SDAPCD has adopted emission-based thresholds for GHG emissions under CEQA. OPR's Technical Advisory, titled CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008, p. 4). Furthermore, the advisory document indicates in the third bullet item on page 6 that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

To assess the impacts of the significance of the Proposed Project's (Proposed Project's) GHG emissions with respect to CEQA, the CPUC will apply the SCAQMD significance threshold of 10,000 $MTCO_2E$/year, including all operational emissions and construction emissions amortized over 30 years for this project. In the absence of a rule to establish a GHG emission threshold of significance to be applied uniformly throughout the state, the CPUC is assessing the impacts of GHG emissions on a case-by-case basis. In areas of the state in which the local Air Pollution Control District (APCD) or the Air Quality Management District (AQMD) has not adopted a threshold of significance, the CPUC will apply a threshold that has been adopted by CARB or another APCD or AQMD. In this instance, the CPUC is using the SCAQMD threshold because CARB has yet to adopt a threshold; the SCAQMD threshold was adopted after rigorous public vetting, and at the time of this writing, it is the only air district to adopt an emissions-based threshold that accounts for construction emissions.

D.17.3.2 Applicant Proposed Measures

Table D.17-2 shows the applicant proposed measure (APM) proposed by SDG&E to reduce climate change impacts associated with construction and operation.

Table D.17-2
APMS for Climate Change

APM No.	Description
APM-AIR-04	SDG&E would implement its existing SF_6 mitigation strategies during operation and maintenance of SF_6-containing equipment installed as part of the Proposed Project. These strategies include: • Recording company-wide SF_6 purchases for use in reporting annual GHG emissions under the California Climate Action Registry (CCAR) Power Utilities Protocol and as a member of the Environmental Protection Agency's (EPA) SF_6 Partnership • Implementing SDG&E's SF_6 leak detection and repair program. This program includes monthly visual inspections of each gas circuit breaker (GCB), which includes checking pressure levels within the breaker and recording these readings in SDG&E's Substation Management System. During the installation or major overhaul of any GCB, the unit is tested over a 24-hour period to ensure no leaks are present. Minor overhauls of each GCB are conducted every 36 to 40 months to check overall equipment health. This process includes checking gas pressure, moisture ingress, and SF_6 decomposition. If the GCB fails any of these checks, the unit is checked for leaks and repaired. In addition, all GCBs are equipped with a gas-monitoring device and alarm that automatically alerts SDG&E's Grid Operations Center. If gas pressure approaches minimum operating levels, an alarm is immediately reported to SDG&E's Substation Construction and Maintenance Department. The GCB is usually inspected for leaks within 24 hours of such an alarm. SDG&E's leak detection practice includes the following three methodologies: o Spraying a leak-detection agent onto common leak points—including O-rings, gaskets, and fittings o Using a field-monitoring device (sniffer) to detect the presence of SF_6 gas o Using a laser-detection camera to detect the presence of SF_6 gas when the above two methods are unsuccessful in finding a leak • Implementing a SF_6 recycling program • Training employees on the safety and proper handling of SF_6 • Continuing voluntary reporting of GHG emissions with the CCAR or The Climate Registry.

D.17.3.3 Bay Boulevard Substation

Impact GHG-1: Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG emissions associated with construction of all phases of the Proposed Project (including the Bay Boulevard Substation, dismantling of South Bay Substation, and transmission interconnections) would occur as a result of burning the fuel required to operate the on-site construction equipment and mobilize work crews to and from the Proposed Project site. Emissions of CO_2 were estimated using the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). The model results were adjusted to estimate CH_4 and N_2O emissions in addition to CO_2 using the California Climate Action Registry's *General Reporting Protocol*, version 3.1, data and data from the California statewide GHG Inventory. CO_2E estimates were derived by multiplying the chemical's GWP by its emission rate. Table

D.17-3 shows the estimated annual GHG construction emissions associated with the Proposed Project by year.[2]

Table D.17-3
Estimated Carbon Dioxide Equivalent Construction GHG Emissions

Project Year	CO_2 Emissions	N_2O Emissions ($MTCO_2E$)	CH_4 Emissions ($MTCO_2E$)	Total Emissions ($MTCO_2E$)
2011	2,634.99	2.94	21.62	2,659.54
2012	2,605.60	2.87	21.45	2,629.92
2013	2,196.14	2.43	18.04	2,216.62
Total	7,436.73	8.24	61.11	7,506.08

Source: SDG&E 2010a

Operation of all phases of the Proposed Project would result in GHG emissions from vehicular traffic generated by worker vehicle trips for regular maintenance and inspections, area sources including electrical generation and fugitive SF_6 emissions, and water use.

Table D.17-4 shows the estimated annual operational GHG emissions associated with the Proposed Project and changes in emissions with construction of the proposed substation regarding electrical consumption and fugitive SF_6 emissions.

Table D.17-4
Operation and Maintenance – Estimated Change in GHG Emissions (metric tons/year)

Project Component	CO_2 Emissions	N_20 Emissions ($MTCO_2E$)	CH_4 Emissions ($MTCO_2E$)	SF_6 Emissions ($MTCO_2E$)	Total Emissions ($MTCO_2E$)
Electrical Emissions					
Bay Boulevard Substation	164.23	0.14	0.57	—	164.94
South Bay Substation	82.11	0.07	0.28	—	82.47
Change in Emissions	82.11	0.07	0.28	—	82.47

[2] The values shown in Tables D.17-4 and D.17-5 are based on the PEA (SDG&E 2010a). SDG&E submitted a revised schedule (SDG&E 2010c) that extends the schedule by approximately 1 year to June 2015. The revised schedule would entail less overlap of intermediate components (mostly transmission line relocation and installation) than the original schedule, primarily in 2012 and 2013. Thus, some of the annual GHG emissions would shift from 2012 to 2013 and some from 2013 to 2015. While the annual emissions may be different from those shown in the tables, the overall amount of construction activity and the resultant total GHG emissions over the full construction period would be comparable and not substantially different from those shown in Tables D.17-4 and D.17-5.

Table D.17-4
Operation and Maintenance – Estimated Change in GHG Emissions (metric tons/year)

Project Component	CO_2 Emissions	N_20 Emissions ($MTCO_2E$)	CH_4 Emissions ($MTCO_2E$)	SF_6 Emissions ($MTCO_2E$)	Total Emissions ($MTCO_2E$)
Fugitive SF_6 Emissions					
Bay Boulevard Substation	—	—	—	104.06	104.06
South Bay Substation	—	—	—	5.06	5.06
Change in Emissions	—	—	—	99.00	99.00
Total Change	82.11	0.07	0.28	99.00	181.47

Source: SDG&E 2010a

Fugitive SF_6 emissions would be generated from the operation of transmission line equipment associated with the proposed Bay Boulevard Substation. In order to reduce fugitive SF_6 emissions, APM-AIR-04 will be implemented, which includes development of a SF_6 monitoring plan. It is estimated that APM-AIR-04 will reduce emissions of SF_6 by approximately 5%.

As previously discussed, the SCAQMD's interim threshold of 10,000 $MTCO_2E$/year (operational emissions plus construction emissions amortized over 30 years) for "industrial" projects is being used to assess the impact of the project's GHG emissions. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year,[3] which would be below the SCAQMD interim threshold. Therefore, the impact of the project's GHG emissions would be considered less than significant (Class III).

Impact GHG-2: Sea Level Rise.

Potential adverse impacts of climate change include a rise in sea levels, which could result in the potential displacement of coastal infrastructure and facilities. According to the California Climate Change Center, a historical rate of sea level rise approaching 2 millimeters per year (0.08 inch per year) was recorded for California tide gages, including San Diego, similar to the rate estimated for global mean sea level. Based on research conducted for the CEC's Public Interest Energy Research Program Environmental Impact Report Climate Change Research Program, it is projected that under medium to medium-high GHG emissions scenarios, mean sea level along the California coast will rise from 1.0 to 1.4 meters (3 to 4.6 feet) by the year 2100 (California Climate Change Center 2009). Rising sea levels create additional risk for flooding

[3] As indicated previously, the construction GHG emissions under the revised schedule (SDG&E 2010c) would result in different *annual* GHG emissions due to the shifts in schedule. The total emissions over the life of the project, however, would be comparable to the initial estimate.

and an increase in the intensity of floods in areas that are already at risk, as well as accelerated erosion and shoreline recession.

The National Oceanic and Atmospheric Association also regularly monitors and predicts daily high and low tides for San Diego in addition to various coastal areas throughout California. According to current 2010 data, a maximum high tide of 7.37 feet is predicted for December 5, 2010, which represents the farthest date that can be projected in terms of tidal activity (NOAA 2010). The Proposed Project would include elevated pad construction with a graded elevation of 16 to 21 feet above mean sea level (SDG&E 2010b).

Given the highest sea level rise prediction of 1.4 meters (4.6 feet) and maximum high tide assumptions of 7.37 feet for the San Diego area, as well as the project pad elevations designed for the Proposed Project, it is not anticipated that the Proposed Project would experience an increase in exposure to adverse impacts associated with sea level rise. The Bay Boulevard Substation would be built approximately 4 feet above the projected sea level in 2100 considering the combined sea level rise of 4.6 feet and 7.37 feet of high tide, totaling approximately 12 feet. Accordingly, impacts from this potential adverse effect of climate change, as identified in the 2009 California Climate Adaptation Strategy discussed previously, would be less than significant (Class III).

Impact GHG-3: Project activities would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Construction

The Climate Change Scoping Plan, approved by the CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. Furthermore, the City has not adopted any GHG reduction measures that would apply to the GHG emissions associated with construction activities. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to construction of this project, and no conflict would occur.

Operation and Maintenance

According to CARB, the electric power generation industry is the primary user of SF_6, a synthetic gas used as an insulating medium (CARB 2010b). The use of SF_6, a highly potent GHG with a GWP 23,900 times greater than CO_2, is problematic because fugitive emissions can escape older gas insulated substations and switchgear through insulation leaks. The most promising and cost-effective strategies to reduce SF_6 emissions is through the installation of new equipment, technologies, and practices including leak detection, repair, use of recycling equipment, and employer/employee training (CARB 2010b). On February 25, 2010, CARB adopted a regulation that requires gas insulated substations and switchgear owners to reduce their

SF_6 emission rate by 1% per year over a 10-year period from 2011 to 2020. Beginning January 1, 2020, the maximum annual emission rate would be at 1%. The measure would also require gas insulated substations and switchgear owners to (1) annually report their SF_6 emissions, (2) annually report their emission rate, (3) provide a complete inventory of all gas insulated switchgear and their SF_6 capacities, (4) produce an SF_6 gas container inventory, and (5) keep all information current for CARB enforcement staff inspection and verification.

Implementation of APM-AIR-04 would be consistent with the adopted CARB regulation to reduce emissions related to SF_6 use. As noted previously, the Proposed Project would not increase other operational emissions, such as those associated with vehicle trips for maintenance of the Bay Boulevard Substation. For these reasons, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHGs.

D.17.3.4 South Bay Substation Dismantling

Impact GHG-1: Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

As described in Section D.17.3.3, GHG emissions associated with the construction phase of the Proposed Project, which includes dismantling of the South Bay Substation would occur as a result of burning the fuel required to operate the on-site construction equipment and mobilize work crews to and from the Proposed Project site. Table D.17-3 shows the estimated annual GHG construction emissions associated with the Proposed Project by year. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. Therefore, the impact of the project's GHG emissions would be considered less than significant (Class III).

No operational GHG emissions would result at the South Bay Substation subsequent to dismantling.

Impact GHG-2 Sea Level Rise.

When dismantling of the existing South Bay Substation is complete, no further activities would be required; therefore, no impacts would occur.

Impact GHG-3: Project activities would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Construction

The Climate Change Scoping Plan, approved by the CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and

other state agencies to adopt regulations and other initiatives to reduce GHGs. Furthermore, the City has not adopted any GHG reduction measures that would apply to the GHG emissions associated with construction activities. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to construction of this project, and no conflict would occur.

Operation and Maintenance

No operational GHG emissions would result subsequent to dismantling the South Bay Substation. Therefore, due to absence of any operational emissions, the dismantling of the South Bay Substation would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

D.17.3.5 Transmission Interconnections

Impact GHG-1: Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

As described in Section D.17.3.3, GHG emissions associated with the construction phase of the Proposed Project would occur as a result of burning the fuel required to construct the transmission interconnections and mobilize work crews to and from the Proposed Project site. Table D.17-3 show the estimated annual GHG construction emissions associated with the Proposed Project by year. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. Therefore, the impact of the project's GHG emissions would be considered less than significant (Class III).

Impact GHG-2 Sea Level Rise.

As described in Section D.17.3.3, given the highest sea level rise prediction of 1.4 meters (4.6 feet) and maximum high tide assumptions of 7.37 feet for the San Diego area, it is not anticipated that the transmission interconnections would experience an increase in exposure to adverse impacts associated with sea level rise. Accordingly, impacts from this potential adverse effect of climate change, as identified in the 2009 California Climate Adaptation Strategy discussed previously, would be less than significant (Class III).

Impact GHG-3: Project activities would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Construction

The Climate Change Scoping Plan, approved by the CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and

other state agencies to adopt regulations and other initiatives to reduce GHGs. Furthermore, the City has not adopted any GHG reduction measures that would apply to the GHG emissions associated with construction activities. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to construction of this project, and no conflict would occur.

Operation and Maintenance

As described in Section D.17.3.3, implementation of APM-AIR-04 would be consistent with the adopted CARB regulation to reduce emissions related to SF_6 use. The Proposed Project would not increase other operational emissions, such as those associated with vehicle trips for maintenance of the transmission interconnections to the Bay Boulevard Substation. For these reasons, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHGs.

D.17.4 Project Alternatives

D.17.4.1 Gas Insulated Substation Technology Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because SDG&E's Gas Insulated Substation Technology Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as described in Section D.17.1.

Environmental Impacts and Mitigation Measures

The Gas Insulated Substation Technology Alternative would utilize Gas Insulated Substation technology for the 69/230 kV switchyard at the Bay Boulevard Substation site and would reduce the overall footprint of the project by reducing the A-frame structures required for air insulated substations.

There would be substantially less earthwork required for the Gas Insulated Substation alternative in comparison to the Proposed Project, which results in a reduction in construction GHG emissions. The Gas Insulated Substation design would reduce the amount of imported fill by approximately 75,000 CY, which results in a reduction of approximately 4,335 truck trips in comparison to the Proposed Project. Therefore, it is anticipated that a reduction in GHG construction emissions would result under the Gas Insulated Substation alternative.

The operational GHG emissions for this alternative would increase due to the use of SF_6, which is the gas employed for insulation in the Gas Insulated Substation technology. As previously discussed in Section D.17.3, SF_6 is a GHG that exhibits potent global-warming properties when

released to the atmosphere. The Gas Insulated Substation Technology Alternative would require storage of approximately 200,000 pounds of SF_6 (SDG&E 2011).

To reduce fugitive SF_6 emissions, APM-AIR-04 will be implemented, which includes development of an SF_6 monitoring plan. As previously discussed in Section D.17.3, the SCAQMD's interim threshold of 10,000 $MTCO_2E$/year (operational emissions plus construction emissions amortized over 30 years) for "industrial" projects is being used to assess the impact of the project's GHG emissions.

As seen in Section D.17.3.3, the Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. The Gas Insulated Substation alternative would result in the addition of GHG emissions associated with storage of SF_6. Based on SDG&E systemwide leakage rate of 0.29% (SDG&E 2010),[4] annual SF_6 emissions on a CO_2E basis (GWP of SF_6 = 23,900) would be 6,287.7 $MTCO_2E$/year. Subtracting the existing SF_6 emissions from the South Bay Substation and adding the net GHG emissions associated with electrical generation (see Table D.17-4), the net operational GHG emissions would be 6,365.11 MT CO_2E/year. Operational emissions plus construction emissions amortized over 30 years would equal 6,615.31$MTCO_2E$/year, which would be below the SCAQMD interim threshold. Accordingly, the climate change impacts would be less than significant (Class III).

In summary, implementation of APM-AIR-04 would reduce climate change impacts associated with the implementation of the Gas Insulated Substation alternative; however, the operational GHG emissions would be an estimated 6,183.64 $MTCO_2E$/year higher than those associated with the Proposed Project.

The Gas Insulated Substation site would be located on a smaller portion of the site identified for the Proposed Project. The Gas Insulated Substation alternative would be built approximately 4 feet above the projected sea level in 2100 considering the combined sea level rise of 4.6 feet and 7.37 feet of high tide, totaling approximately 12 feet. Accordingly, impacts from this potential adverse effect of climate change, as identified in the 2009 California Climate Adaptation Strategy discussed previously, would be less than significant (Class III).

[4] According to SDG&E, "new Gas Insulated Substation equipment is described as having a low leak rate of approximately 0.1% annually" (SDG&E 2011). As a conservative assumption, the average systemwide SF_6 leakage rate for SDG&E's Gas Insulated Substation equipment has been applied to the amount of SF_6 that would be in use at the Gas Insulated Substation alternative substation.

Comparison to the Proposed Project

Climate change impacts resulting from construction of SDG&E's Gas Insulated Substation Technology Alternative would not be substantially different. Localized short-term construction emissions would overall be reduced due to the reduction in earthwork activities.

Operational GHG emissions under the Gas Insulated Substation alternative would exceed those generated by the Proposed Project by an estimated 6,183.64 $MTCO_2E$/year. The operational emissions for the Gas Insulated Substation alternative would be less than significant (Class III), and implementation of APM-AIR-04 would further reduce the impacts.

The Gas Insulated Substation site would be located on a smaller portion of the site identified for the Proposed Project. Therefore, potential impacts related to sea level rise would be similar to the Proposed Project, which were determined to be less than significant with mitigation (Class III).

D.17.4.2 Tank Farm Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Tank Farm Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.2.1 Tank Farm Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same area as the Proposed Project, similar climate change impacts would occur. Under this alternative, impacts to operational emissions plus construction emissions and sea level rise would remain unchanged from impacts described in Section D.17.3 for the Proposed Project, which were determined to be less than significant (Class III). In addition, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Climate change impacts resulting from construction of the Tank Farm Site – Air Insulated Substation Alternative would not be significantly different from the Proposed Project for Impacts GHG-1 through GHG-3.

D.17.4.2.2 Tank Farm Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the Tank Farm Site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project; however, the operational plus construction emissions would be below the SCAQMD interim threshold. Accordingly, the climate change impacts would be less than significant (Class III) and implementation of APM-AIR-04 would further reduce impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Operational GHG emissions (Impact GHG-1) under the Tank Farm Site – Gas Insulated Substation Alternative would exceed those generated by the Proposed Project. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.3 Existing South Bay Substation Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Existing South Bay Substation Site Alternative would occur in the same air basin as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.3.1 Existing South Bay Substation Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

The existing substation site and adjacent 3-acre area is located in the same general location as the Proposed Project, and therefore, similar climate change impacts would occur under this alternative. Similarly, impacts associated with sea level rise as well as operational plus construction GHG emission impacts resulting from this alternative would essentially be the same as those identified for the Proposed Project (less than significant/Class III). Lastly (as with the

Proposed Project), no conflicts with an applicable plan, policy, or regulation adopted to reduce GHG emissions would occur with implementation of this alternative

Comparison to the Proposed Project

Construction of the Air Insulated Substation Alternative at the existing South Bay Substation site would generate similar climate change impacts as the Proposed Project. Therefore, Impacts GHG-1 through GHG-3 under this alternative would not be significantly different from those identified in Section D.17.3 for the Proposed Project.

D.17.4.3.2 Existing South Bay Substation Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the existing South Bay Substation site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project; however, the operational plus construction emissions would be below the SCAQMD interim threshold. Accordingly, the climate change impacts would be less than significant (Class III), and implementation of APM-AIR-04 would further reduce the impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Operational GHG emissions (Impact GHG-1) under the Existing South Bay Substation Site – Gas Insulated Substation Alternative would exceed those generated by the Proposed Project. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.4 Power Plant Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Power Plant Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.4.1 Power Plant Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same area as the Proposed Project, similar climate change impacts would occur. Under this alternative, impacts to operational emissions plus construction emissions and sea level rise would remain unchanged from impacts described in Section D.17.3 for the Proposed Project, which were determined to be less than significant (Class III). In addition, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Climate change impacts resulting from construction of the Power Plant Site – Air Insulated Substation Alternative would not be significantly different from the Proposed Project for Impacts GHG-1 through GHG-3.

D.17.4.4.2 Power Plant Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the Power Plant site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project; however, the operational plus construction emissions would be below the SCAQMD interim threshold. Accordingly, the climate change impacts would be less than significant (Class III), and implementation of APM-AIR-04 would further reduce the impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Operational GHG emissions (Impact GHG-1) under the Power Plant Site – Gas Insulated Substation Alternative would exceed those generated by the Proposed Project. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.5 Broadway and Palomar Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Broadway and Palomar Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.5.1 Broadway and Palomar Site – Air Insulated Substation Alternative

21. The 9-acre Broadway and Palomar site is not physically large enough to accommodate the 10-acre Air Insulated Substation Alternative. As such, the Air Insulated Substation Alternative is not technically feasible at this site.

D.17.4.5.2 Broadway and Palomar Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the Broadway and Palomar site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project. The Gas Insulated Substation alternative operational emissions plus construction emissions amortized over 30 years would equal 6,615.31 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. As described in Section D.17.4.5.1, this alternative would require construction of new transmission corridors to interconnect with the new substation at this site, which will increase construction emissions. Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

Under this alternative, sea level rise impacts (Class III) and conflicts with applicable plans, policies, or regulations adopted to reduce GHG emissions (no impact) would be the same of those described under the Air Insulated Substation alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the Broadway and Palomar Site – Gas Insulated Substation Alternative would be greater than the Proposed Project due to an increase associated with storage of SF_6 and

construction required for the new transmission lines to interconnect with the substation at this alternative site. Impacts to sea level rise (Impact GHG-2) at the Broadway and Palomar site would be reduced when compared to the Proposed Project due to the site being located farther inland. Conflicts with applicable plans, policies, or regulations adopted to reduce GHGs emissions (Impact GHG-3) would remain unchanged from the Proposed Project.

D.17.4.6 Goodrich South Campus Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Goodrich South Campus Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.6.1 Goodrich South Campus Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, impacts to operational emissions plus construction emissions would be slightly greater than the Proposed Project because the Goodrich South Campus site would require construction of new transmission alignments to interconnect with the new substation at this site. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold (10,000 $MTCO_2E$/year). Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the Goodrich South Campus Site – Air Insulated Substation Alternative would be slightly greater than the Proposed Project due to increased construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change

impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.6.2 Goodrich South Campus Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the Goodrich South Campus site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project. The Gas Insulated Substation alternative operational emissions plus construction emissions amortized over 30 years would equal 6,615.31 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. As described in Section D.17.4.6.1, this alternative would require construction of new transmission alignments to interconnect with the new substation at this site, which will increase construction emissions. Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

Under this alternative, sea level rise impacts (Class III) and conflicts with applicable plans, policies, or regulations adopted to reduce GHG emissions (no impact) would be similar to those described under the Air Insulated Substation Alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of Goodrich South Campus Site – Gas Insulated Substation Alternative would be greater than the Proposed Project due to an increase associated with storage of SF_6 and construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.7 H Street Yard Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the H Street Yard Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as those described in Section D.17.1.

D.17.4.7.1 H Street Yard Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, impacts to operational emissions plus construction emissions would be slightly greater than the Proposed Project because the H Street Yard site would require construction of new transmission alignments to interconnect with the new substation at this site. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold (10,000 $MTCO_2E$/year). Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the H Street Yard Site – Air Insulated Substation Alternative would be slightly greater than the Proposed Project due to increased construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.7.2 H Street Yard Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the H Street Yard. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project. The Gas Insulated Substation Alternative operational emissions plus construction emissions amortized over 30 years would equal 6,615.31$MTCO_2E$/year, which would be below the SCAQMD interim threshold. As described in Section D.17.4.7.1, this alternative would require construction of new transmission alignments to interconnect with the

new substation at this site, which will increase construction emissions. Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

Under this alternative, sea level rise impacts (Class III) and conflicts with applicable plans, policies, or regulations adopted to reduce GHG emissions (no impact) would be similar to those described under the Air Insulated Substation alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the H Street Yard Site – Gas Insulated Substation Alternative would be greater than the Proposed Project due to an increase associated with storage of SF_6 and construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.8 Bayside Site Alternative

Environmental Setting

Section D.17.1 describes the climate change characteristics of the region. Because the Bayside Site Alternative would occur in the same area as the Proposed Project, the existing climate change conditions would be the same as described in Section D.17.1.

D.17.4.8.1 Bayside Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, impacts to operational emissions plus construction emissions would be slightly greater than the Proposed Project because the Bayside site would require construction of new transmission alignments to interconnect with the new substation at this site. The Proposed Project's increase in operational emissions plus construction emissions amortized over 30 years would equal 431.67 $MTCO_2E$/year, which would be below the SCAQMD interim threshold (10,000 $MTCO_2E$/year). Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

This alternative is located in the same coastal vicinity as the proposed substation site; therefore, impacts to sea level rise would be similar to the Proposed Project and would be less than significant (Class III). In addition, as with the Proposed Project, there would be no conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions with implementation of this alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the Bayside Site – Air Insulated Substation Alternative would be slightly greater than the Proposed Project due to increased construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.8.2 Bayside Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.17.4.1 would be required for the new substation and would be constructed at the Bayside site. As described in Section D.17.4.1, under this alternative, GHG emissions associated with storage of SF_6 would be greater than the Proposed Project. The Gas Insulated Substation alternative operational emissions plus construction emissions amortized over 30 years would equal 6,615.31 $MTCO_2E$/year, which would be below the SCAQMD interim threshold. As described in Section D.17.4.8.1, this alternative would require construction of new transmission alignments to interconnect with the new substation at this site, which will increase construction emissions. Under this alternative, construction emissions associated with the additional transmission lines amortized over 30 years plus operational emissions are not expected to exceed the SCAQMD interim threshold. Therefore, impacts to GHG emissions (Impact GHG-1) would remain less than significant (Class III) with implementation of this alternative. Moreover, implementation of APM-AIR-04 would further reduce the GHG emission impacts.

Under this alternative, sea level rise impacts (Class III) and conflicts with applicable plans, policies, or regulations adopted to reduce GHG emissions (no impact) would be similar to those described under the Air Insulated Substation Alternative.

Comparison to the Proposed Project

Climate change emissions resulting from GHG emissions (Impact GHG-1) associated with construction of the Bayside Site – Gas Insulated Substation Alternative would be greater than the

Proposed Project due to an increase associated with storage of SF_6 and construction required for the new transmission lines to interconnect with the substation at this alternative site. Climate change impacts to sea level rise and conflicts with applicable plans (Impacts GHG-2 and GHG-3) would be similar to the Proposed Project.

D.17.4.9 Environmental Impacts of the No Project Alternative

Under the No Project Alternative, none of the facilities associated with the project would be constructed, and therefore, none of the impacts in this section would occur. The Bay Boulevard Substation would not be built, thereby requiring the existing South Bay Substation to remain in operation with the currently installed equipment. However, under the No Project Alternative, SDG&E may be required to develop additional transmission upgrades as described in Section C.7 of this EIR. Anticipated upgrades would primarily occur within developed areas (including SDG&E easements and franchise positions) and would generate short-term construction-related GHG emissions. However, overall GHG emissions would be reduced due to the elimination of demolition activities associated with the South Bay Substation, and construction activities associated with the Bay Boulevard Substation and associated transmission interconnections.

D.17.5 Mitigation Monitoring, Compliance, and Reporting

Table D.17-5 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for climate change. The APM that SDG&E has made part of the Proposed Project is listed in the table. Neither the Proposed Project nor any alternatives would result in climate change impacts requiring mitigation measures beyond the APM incorporated into the project.

Table D.17-5
MMCRP for Climate Change

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact GHG-1: Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impact GHG-3: Project activities would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	—	APM-AIR-04	SDG&E would implement its existing SF_6 mitigation strategies during operation and maintenance of SF_6-containing equipment installed as part of the Proposed Project. These strategies include: • Recording company-wide SF_6 purchases for use in reporting annual GHG emissions under the California Climate Action Registry (CCAR) Power Utilities Protocol and as a member of the Environmental Protection Agency's (EPA) SF_6 Partnership • Implementing SDG&E's SF_6 leak detection and repair program. This program includes monthly visual inspections of each gas circuit breaker (GCB), which includes checking pressure levels within the breaker and recording these readings in SDG&E's Substation Management System. During the installation or major overhaul of any GCB, the unit is tested over a 24-hour period to ensure no leaks are present. Minor overhauls of each GCB are conducted every 36 to 40 months to check overall equipment health. This process includes checking gas pressure, moisture ingress, and SF_6 decomposition. If the GCB fails any of these checks, the unit is checked for leaks and repaired. In addition, all GCBs are equipped with a gas-monitoring device and alarm that automatically alerts SDG&E's Grid Operations Center. If gas pressure approaches minimum operating levels, an alarm is immediately reported to SDG&E's Substation Construction and Maintenance Department. The GCB is usually inspected for leaks within 24 hours of such an alarm. SDG&E's leak detection practice includes the following three methodologies:	SDG&E to implement measure as defined.	Documentation of mitigation strategies actively utilized shall be submitted by SDG&E to CPUC for review annually.	During operations and maintenance.

Table D.17-5
MMCRP for Climate Change

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			o Spraying a leak-detection agent onto common leak points—including O-rings, gaskets, and fittings o Using a field-monitoring device (sniffer) to detect the presence of SF_6 gas o Using a laser-detection camera to detect the presence of SF_6 gas when the above two methods are unsuccessful in finding a leak • Implementing a SF_6 recycling program • Training employees on the safety and proper handling of SF_6 • Continuing voluntary reporting of GHG emissions with the CCAR or The Climate Registry.			

D.17.6 References

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