4.7 GREENHOUSE GAS EMISSIONS

This section describes impacts related to global climate change and greenhouse gases (GHG) that would be caused by implementation of the proposed project. The following discussion addresses the existing condition, regulatory settings, thresholds of significance, and assesses the impacts of GHG emissions during construction and operational activities as a result of the proposed project.

This PEIR is an informational document to inform decision-makers and the public of the potential environmental consequences of approving the proposed REGPA. This PEIR contains mitigation measures designed to help avoid or minimize significant environmental impacts from future development under the REGPA. A detailed description of the proposed project and project alternatives are contained in Section 3.0 and Section 6.0, respectively.

4.7.1 Existing Conditions

4.7.1.1 Greenhouse Effect and Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, similar to a greenhouse. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, it is believed that emissions from human activities, such as electricity production and motor vehicles, have elevated the concentration of GHGs in the atmosphere and contributed to global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFC), hydrofluorocarbons (HFC), and water vapor (H_2O). Carbon dioxide is the reference gas for climate change. To account for the warming potential of GHGs, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). The effects of GHG emission sources (i.e., individual projects) are reported in metric tons (MT) of CO_2e per year.

4.7.1.2 Effects of Global Climate Change

- Climate change temperature projections identified in the 2009 California Climate Adaptation Strategy suggest the following (California Natural Resources Agency 2009):
- Average temperature increase is expected to be more pronounced in the summer than in the winter season.
- Inland areas are likely to experience more pronounced warming than coastal regions.
- Heat waves are expected to increase in frequency, with individual heat waves also showing a tendency toward becoming longer, and extending over a larger area, thus more likely to encompass multiple population centers in California at the same time.
- As GHGs remain in the atmosphere for decades, temperature changes over the next 30 to 40 years are already largely determined by past emissions. By 2050, temperatures are

projected to increase by an additional 1.8 to 5.4 degrees Fahrenheit (°F) (an increase one to three times as large as that which occurred over the entire 20th century).

- By 2100, the models project temperature increases between 3.6 and 9°F.

Changes to the global climate system would potentially affect California in the following ways:

- The loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (Intergovernmental Panel on Climate Change [IPCC] 2007).
- A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years (Climate Action Team [CAT] 2006).
- A rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland 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).
- An increase in the number of days conducive to ozone formation by 25 percent to 85 percent (depending on future temperature scenario) in high ozone 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 sea water intrusion into delta and levee systems due to the rise in sea level (CAT 2006).

4.7.1.3 Greenhouse Gas Pollutants of Concern

Following are descriptions of the primary GHGs that are emitted from anthropogenic sources. Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Gases with high global warming potential, such as HFCs, PFCs, and SF_6, are the most heat-absorbent. Methane traps over 21 times more heat per molecule than CO_2, and N_2O absorbs 310 times more heat per molecule than CO_2. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 4.7-1 shows the global warming potential for different GHGs for a 100-year time horizon.

Table 4.7-1
GLOBAL WARMING POTENTIAL FOR GREENHOUSE GASES

Greenhouse Gas	Global Warming Potential
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	213
Hydrofluorocarbons (HFC), Perfluorocarbons (PFC)	6,500
Sulfur Hexafluoride (SF_6)	23,900

Source: California Climate Action Registry 2009

Carbon Dioxide

Carbon dioxide (CO_2) is a colorless, odorless gas that is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (USEPA 2011a).

Methane

Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of methane lifetime is about 12 years (USEPA 2011b).

Nitrous Oxide

Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor that is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years (USEPA 2010a).

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

Hydrofluorocarbons (HFC) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products.

The atmospheric lifetime for HFC varies from just over a year for HFC-152a to 260 years for HFC-23. Most of the commercially used HFC have atmospheric lifetimes less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (USEPA 2010b).

Perfluorocarbons (PFC) are colorless, highly dense, chemically inert, and nontoxic. Natural geological emissions have been responsible for the PFC that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production. The estimated atmospheric lifetimes for CF_4 and C_2F_6 are 50,000 and 10,000 years, respectively (European Fluorocarbons Technical Committee 2003; USEPA 2010b).

Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used as an electrical insulator in high voltage equipment and the electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks can occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (USEPA 2010b).

4.7.1.4 Global and Statewide Greenhouse Gas Inventories

In the year 2011, total GHG emissions worldwide were estimated at 43,646 million metric tons (MMT) CO_2e (World Resources Institute 2014). The US contributed the second largest portion of GHG emissions (behind China) at 15 percent of global emissions. The total US GHGs were 6,526 MMT CO_2e in 2012 (USEPA 2014). On a national level, approximately 28 percent of GHG emissions were associated with transportation and about 32 percent were associated with electricity generation. In 2012, California produced a total of 459 MMT CO_2e (CARB 2014a). The transportation sector is the single largest category of California's GHG emissions, accounting for 37 percent of emissions statewide in 2012 (CARB 2014a).

4.7.1.5 Regulatory Framework

Federal Regulations

Federal Clean Air Act

The US Supreme Court ruled on April 2, 2007, in Massachusetts v. US Environmental Protection Agency that CO_2 is an air pollutant, as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, HFC, PFC and SF_6) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's proposed GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) on September 15, 2009.

State Regulations

California Code of Regulations, Title 24, Part 6

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest Title 24 standards are anticipated to increase energy efficiency by approximately 40 percent compared to the 2005 Title 24 standards, thereby reducing GHG emissions from energy use by approximately 40 percent.

Executive Order S-3-05

Executive Order S-3-05, signed by Governor Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to year 1990 levels by the year 2020, and for an 80-percent reduction in GHG emissions by the year 2050. Executive Order S-3-05 also calls for the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. The first of these reports, "Scenarios of Climate Change in California: An Overview" (February 2006), concluded that, under the report's emissions scenarios, the impacts of global warming in California are anticipated to include, but are not limited to: public health, biology, rising sea levels, hydrology and water quality, and water supply.

Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, requires CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. California needs to reduce GHG emissions by approximately 15.3 percent below CARB's latest business-as-usual (BAU) predictions to achieve this goal (CARB 2014b).

Assembly Bill 32 requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. On January 1, 2011, specific GHG emission limits and reduction measures in line with Assembly Bill 32 were adopted. As of October 31, 2011, 18 of 30 CARB regulations had been approved, including nine discrete early actions.

Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

In response to the transportation sector accounting for a substantial portion of California's CO_2 emissions, Assembly Bill 1493 (Pavley) was enacted on July 22, 2002. Assembly Bill 1493 requires CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined to be vehicles whose primary use is noncommercial personal transportation in the state manufactured in year 2009 or later. In setting these standards, CARB

considered cost effectiveness, technological feasibility, and economic impacts. CARB adopted the standards in September 2004. When fully phased in, the near-term (years 2009 to 2012) standards would result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the year 2002 fleet, while the midterm (years 2013 to 2016) standards would result in a reduction of approximately 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions and hybrid electric drives. To set its own GHG emissions limits on motor vehicles, California had to receive a waiver from the USEPA. The USEPA approved the waiver in June 2009. With this action, it was expected in 2008 that the new regulations (Pavley I and II) would reduce GHG emissions from California passenger vehicles by about 18 percent statewide.

Executive Order S-01-07

This Executive Order, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to Assembly Bill 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. On December 29, 2011, District Judge Lawrence O'Neill in the Eastern District of California issued a preliminary injunction blocking CARB from implementing LCFS for the remainder of the Rocky Mountain Farmers Union litigation. The Ninth Circuit Court of Appeals (Ninth Circuit) lifted the injunction in April 2012, pending CARB's appeal of the federal district court ruling, and in September 2013, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause. Therefore, the LCFS enforcement injunction has been removed, and CARB is continuing to implement the LCFS statewide.

California Air Resources Board: Scoping Plan

On December 11, 2008, CARB adopted the Scoping Plan (CARB 2008) as directed by Assembly Bill 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by Assembly Bill 32. Measures applicable to development projects include those related to: energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions. One of these is measure T-3, Regional Transportation-related Greenhouse Gas Targets, which relies on Senate Bill 375 implementation to reduce GHG emissions from passenger vehicles through reducing vehicle miles traveled. The other measures are related to vehicle GHGs, fuel and efficiency measures, and would be implemented statewide rather than on a project-by-project basis.

CARB recently released the First Update to the Climate Change Scoping Plan in May 2014 to provide updated information on the development of measure-specific regulations and to adjust projections in consideration of the economic recession. The Scoping Plan's current estimate to attain the GHG emissions reduction goal of Assembly Bill 32 (i.e., 1990 levels by 2020) is 78 million metric tons of CO_2 equivalent (MMT CO_2e) (CARB 2014b). CARB is forecasting

that this would be achieved through the following reductions by sector: 25 MMT CO_2e for energy, 23 MMT CO_2e for transportation, 5 MMT CO_2e for high-GWP, and 2 MMT CO_2e for waste. The remaining 23 MMT CO_2e would be achieved through Cap-and-Trade Program reductions. This reduction is flexible—if CARB receives new information and changes the other sectors' reductions to be less than expected, the agency can increase the Cap-and-Trade reduction (and vice versa).

Senate Bill 1078, Governor's Order S-14-08, and Senate Bill 2X (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewable Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target.

Prior to the Executive Order, the PUC and CEC were responsible for implementing and overseeing the Renewables Portfolio Standards. The Executive Order shifted that responsibility to the CARB requiring them to adopt regulations by July 31, 2010. CARB is required by current law, Assembly Bill 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050.

In March 2011, Senate Bill 2X established S-14-08 as law passed the state's legislature. While Senate Bill 2X contains the same targets as Governor's Order S-14-08 (33 percent of their supply from renewable sources by 2020), as an executive order it did not have the force of law (Governor's Order can be reversed by future governors).

Local Regulations

Desert Renewable Energy Conservation Plan

The DRECP is a major component of California's renewable energy planning efforts. The plan strives to provide effective protection and conservation of desert ecosystems, while allowing for the appropriate development of renewable energy projects (DRECP 2014). The DRECP is a collaborative effort developed under the California Natural Community Conservation Planning Act (NCCPA), CESA, FESA, and FLPMA. Key goals include the identification and incorporation of climate change adaptation research, management objectives, and/or policies.

Great Basin Unified Air Pollution Control District

The GBUAPCD regulates air quality in the County according to the standards established in the CAA and amendments to those acts. The GBUAPCD regulates air quality through its permitting authority and through air quality-related planning and review activities over most types of stationary emission sources.

Inyo County General Plan

Although the General Plan (2001, as amended) does not currently include any goals, policies, or implementation measures specifically related to GHG emissions, the Conservation and Open Space Element was updated in 2014 with an Energy Efficiency chapter that contains several policies which indirectly address global climate change.

- Policy EE-1.2. The County will continue to evaluate energy use and reduction targets as a way to promote energy efficiency throughout the County and as a means to reduce operating costs.

- Policy EE-1.3. The County will continue to implement the action items identified in the 2012 Energy Action Plan to meet its overall energy reduction goals as long as those actions will result in savings to the County from reduced energy usage.

Energy Action Plan

An Energy Action Plan was prepared for the County in October 2012 with the purpose of outlining a strategy to reduce energy use and costs throughout the County. The plan establishes a long term vision for energy efficiency, identifies reduction goals and milestones, provides potential energy reduction policies and procedures, identifies County buildings that are highly energy efficient and County buildings that require improvements, and presents potential funding mechanisms for energy efficiency projects.

Inyo County Code Title 21: Renewable Energy Ordinance

The County adopted ICC Title 21, the Renewable Energy Ordinance, in 2010. The ordinance supports and encourages the responsible utilization of the County's natural resources, and encourages the use of clean, renewable energy sources. This ordinance focuses mainly on the use of wind and solar resources for alternative energy purposes.

4.7.2 Significance Thresholds

The thresholds for determining significance under CEQA are based on Appendix G of the State CEQA Guidelines. In this analysis, the proposed project would have significant impacts on climate change if it would result in any of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As discussed in Section 15064.4 of the State CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good faith effort, based on the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Neither the

GBUAPCD nor the County has yet established specific quantitative significance thresholds for GHG emissions evaluated under CEQA.

In the absence of adopted local or statewide thresholds, the general methodology in this PEIR follows the interim guidance provided by the South Coast Air Quality Management District (SCAQMD). On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is the lead agency. The interim threshold consists of five tiers of standards that could result in a finding of less than significant impact. The tiers include CEQA exemptions, consistency with regional GHG budgets, less than significant screening levels for industrial projects (10,000 MT/year CO_2e) and commercial/residential projects (3,000 metric tons/year CO_2e), performance standards (i.e., 30 percent less than BAU), and carbon offsets (SCAQMD 2008). Although SCAQMD is not the lead agency for the proposed project, this analysis includes the use of the "Tier 3" quantitative thresholds for residential and commercial projects. The SCAQMD proposes that if a project generates GHG emissions below 3,000 metric tons/year of CO_2e, it could be concluded that the project's GHG contribution is not "cumulatively considerable" and is therefore less than significant under CEQA. If the project generates GHG emissions above the threshold, the analysis must identify mitigation measures to reduce GHG emissions.

Because GHG emission reduction measures for construction equipment are relatively limited, SCAQMD, in its Draft Guidance Document – Interim CEQA GHG Significance Thresholds (Attachment E of Board Agenda No. 31 on the December 5, 2008 Governing Board), recommends that construction emissions be amortized over a 30-year project lifetime and considered to be an element of operational emissions (SCAQMD 2008).

4.7.3 Impact Analysis

The REGPA is part of the County's efforts to support renewable energy development in the County. The policies contained in the REGPA will allow the development to take place within certain parameters which will provide opportunities for reducing statewide GHG emissions while protecting the County's environment, economy, and culture. Indirectly, implementation of the individual projects would result in GHG emissions from construction and operation.

The following impact analysis primarily focuses on utility scale solar energy facilities because those would result in the greatest change to the ambient environment due the potential expanse of such facilities; however, the analysis also applies to the other proposed categories of solar energy facilities, including distributed generation and community scale facilities.

The proposed REGPA also includes provisions for development of small scale solar energy facilities. However, due to their small size(e.g., small array of ground- or roof-mounted PV panels), and location (on the building or the property it serves), these developments are currently allowed throughout the County within any zoning district under ICC Title 18, and require only electrical and building permits for development. As a result, these developments are not considered to result in impacts under CEQA, and would not typically require the CEQA analysis or associated mitigation measures described in this document.

The County routinely reviews all development proposals for environmental impacts. Therefore, all future solar energy projects would be evaluated on a project-specific basis to assess specific GHG-related impacts against the program-level analysis contained in this PEIR. Applicable mitigation measures identified in this PEIR would be implemented for the individual project, as well as any additional mitigation or design measures identified in the GHG analysis conducted for the project.

All issues related to global climate change and GHG emissions are, by definition, cumulative. As such, it is not necessary to discuss each SEDA and the OVSA individually for every GHG issue area. The following impact analysis has therefore been separated into discussions for each SEDA and the OVSA only when deemed appropriate.

4.7.3.1 Conformance to Greenhouse Gas Emissions Thresholds

Construction Impacts

The proposed project would result in construction-related GHG emissions generated by sources such as heavy-duty off-road equipment, trucks hauling materials, and worker commutes to and from construction sites. Construction emissions are temporary in nature, and are not expected to result in any appreciable long-term increase in ambient GHG levels. Construction GHG emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. Because details regarding individual solar projects are unknown at this time (e.g., site design, equipment fleet, and measures to reduce GHG emissions), project-specific analyses will be necessary to ensure that potential emissions associated with construction comply with the interim SCAQMD GHG thresholds. Therefore, impacts would be considered potentially significant.

Operational Impacts

The proposed project would result in operational GHG emissions generated from direct and indirect emissions sources including mobile sources, electricity and water usage, and emissions generated during the potential treatment of wastewater. Mobile source emissions would be associated with activities such as vehicle travel required for operations and maintenance. Relatively small amounts of grid-provided electricity could be required for power. Water source emissions could be associated with panel washing activity. Consumption of water may result in indirect GHG emissions from electricity used to power any off-site conveyance, distribution, and treatment of water and associated wastewater.

As previously discussed, because details regarding individual solar projects are unknown at this time, project-specific analyses will be necessary to ensure that potential emissions associated with solar project operations comply with the interim SCAQMD GHG thresholds. Therefore, impacts would be considered potentially significant.

Greenhouse Gas Emissions Offset Benefits

The proposed project would encourage solar energy developments with a total allowable capacity of 900 MW of electricity under peak solar conditions (250 MW in the Western Solar Energy Group, 100 MW in the Southern Solar Energy Group, and 550 MW in the Eastern Solar

Energy Group). As shown below, using an average of six hours of sun per day, the maximum energy generated by the proposed project is estimated to be approximately 2,000 Gigawatts (GW) per year.

900 MW x 1 GW/1,000 MW x 6 sun hours/day x 365 days/year = 1,971 GW/year

This energy would replace the energy consumption provided by the burning of fossil fuels and the use of water at central power generation plants, thereby resulting in an indirect reduction of GHG emissions. According to the USEPA, GHG emission reductions would be calculated as follows (USEPA 2014):

GHG Reduction (MT CO_2e) = Average Capacity (MW) x Average Hours of Sun/Year x 1,000 kWh/MWh x Electricity Reductions Emission Factor

Where:

Maximum Capacity = 900 MW
Assumed Average Capacity = 75 percent of Maximum Capacity
Average Hours of Sun/Year = 6 hours/day x 365 days/year = 2,190 hours/year
Electricity Reductions Emissions Factor = 6.9×10^{-4} MT CO_2e/kWh reduced

Therefore:

GHG Reduction (MT CO_2e) = 900 MW x 0.75 x 2,190 hours/year x 1,000 kWh/MWh x 6.9×10^{-4} MT CO_2e/kWh reduced

GHG Reduction = 1,019,992.5 MT CO_2e

Based on the assumption that the project would be fully built out and that average capacity would be 75 percent of the maximum capacity, this calculation shows that the project could result in the offset of up to approximately 1 MMT CO_2e per year. This would result in a beneficial impact.

4.7.3.2 Consistency with Plans Adopted for the Purpose of Reducing Greenhouse Gas Emissions

The General Plan (2001, as amended) includes policies that indirectly address global climate change through the reduction of energy use. The proposed project would support the development of solar energy projects, which would provide renewable energy and could offset up to 1 MMT CO_2e per year. This reduction in GHG emissions would support the goals of the General Plan, as well as the goals of Assembly Bill 32 and the RPS. Additionally, as shown below, the proposed project includes a new General Plan policy to further address the reduction of GHG emissions through lowered water consumption.

Conservation and Open Space Element

New Water Resources Policy

- Policy WR-3.5: Sustainable Renewable Energy Solar Development. The County shall require Renewable Energy Solar Facility development to incorporate measures to minimize water consumption and use of potable water and encourage the use of reclaimed water and/or practices that do not require water during construction, the life of the facility, and during reclamation.

Therefore, the project would not conflict with plans adopted for the purpose of reducing GHG emissions and impacts would be less than significant.

4.7.4 Level of Significance before Mitigation

Based on the analyses in Section 4.7.3, future utility scale, distributed generation, and community scale solar energy facility projects under the REGPA could result in potentially significant impacts related to daily threshold exceedances during construction and operation activities. These impacts require mitigation to reduce them to the maximum extent feasible. With regard to the project's consistency with plans adopted for the purpose of reducing GHG emissions, based on the analyses in Section 4.7.3.2, the project would be consistent and impacts would be less than significant. Small scale projects are typically considered to result in no impacts under CEQA.

4.7.5 Mitigation Measures

A GHG mitigation measure has been developed for solar energy development projects producing more than 20 MW of electricity for off-site use (utility scale) and would be implemented to mitigate adverse impacts to air quality. As previously mentioned, small scale solar energy projects are considered to result in no impacts under CEQA; however, all individual solar energy facility project applications (including small scale, community scale, and distributed generation) shall be reviewed by the County, and the need for implementation of the following mitigation measure shall be determined based on the professional judgment of a qualified county planner, pursuant to ICC Title 21 and State CEQA Guidelines. For example, community scale solar developments (i.e., roof-top or ground mounted PV panels for a specific community's use) may be determined by a qualified county planner to have no potential impact related to GHG emissions and would not require a project-specific GHG evaluation or implementation of the mitigation measure listed in this section. In such cases, the County shall document that no impacts related to GHG emissions will occur and no mitigation measures are necessary in lieu of the GHG evaluation required in Mitigation Measure GHG-1.

If a proposed distributed generation or community scale solar development project is determined by the County to have the potential to result in impacts related to GHG emissions, then the following mitigation measures shall be implemented as determined necessary by the qualified county planner. The County will review future solar energy development proposals to determine if they meet the requirements of Section 15162 of the State CEQA Guidelines; projects that do not meet the requirements may require additional CEQA analysis prior to approval. Similar to

proposed distributed generation and community scale solar energy projects, small scale solar project applications undergo County review, and implementation of additional CEQA review and/or mitigation measures shall be at the discretion of a qualified county planner.

The following mitigation measures are provided to address potentially significant GHG impacts.

MM GHG-1: Prepare site-specific technical greenhouse gas report.

Prior to approval of a Renewable Energy Permit, Renewable Energy Development Agreement, or Renewable Energy Impact Determination for a solar energy project, a site-specific technical GHG report will be prepared and approved by the County. The site-specific technical report will identify project-specific emissions to ensure compliance with the interim SCAQMD GHG thresholds, as well as measures to reduce operational greenhouse gas emissions. The technical report will be completed and approved by the County prior to the County's action.

4.7.6 Significant Unavoidable Adverse Impacts

Based on the implementation of the mitigation described in Section 4.7.5, all identified project-related impacts associated with global climate change and GHG emissions would be avoided or reduced below a level of significance, with no significant unavoidable adverse impacts.

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