

## 3.7 Greenhouse Gas Emissions

This section includes an overview of existing GHG emissions within the project area and identifies applicable federal, state, and local policies related to global climate change. The impact assessment provides an evaluation of potential adverse effects with regards to GHG emissions based on criteria derived from CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description. Stantec prepared an Air Quality/Greenhouse Gas Technical Study that assesses the climate change impacts of the Wister Solar Energy Facility Project. This report is included in Appendix D of this EIR.

### 3.7.1 Existing Conditions

#### Greenhouse Gases

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the production and use of fossil fuels.

GHGs refer to atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and water vapor, among others. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion. GHGs differ in how much heat each can trap in the atmosphere (global warming potential [GWP]). When accounting for GHGs, all types of GHG emissions are expressed in terms of CO<sub>2</sub>e and are typically quantified in metric tons (MT) or million metric tons. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO<sub>2</sub> over a specified time period. The 2007 IPCC *Fourth Assessment Report* calculates the GWP of CH<sub>4</sub> as 25 and the GWP of N<sub>2</sub>O as 298, over a 100-year time horizon (Appendix D of this EIR).

State law defines GHGs as any of the following compounds CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF<sub>6</sub>) (California HSC Section 38505(g)).

**CO<sub>2</sub>** is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO<sub>2</sub> is produced when an organic carbon compound, such as wood, or fossilized organic matter, such as coal, oil, or natural gas, is burned in the presence of oxygen. CO<sub>2</sub> is removed from the atmosphere by CO<sub>2</sub> "sinks", such as absorption by seawater and photosynthesis by ocean dwelling plankton and land plants, including forests and grasslands; however, seawater is also a source of CO<sub>2</sub> to the atmosphere, along with land plants, animals, and soils, when CO<sub>2</sub> is released during respiration. Whereas the natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood.

**CH<sub>4</sub>** is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH<sub>4</sub> is combustible, and it is the main constituent of natural gas—a fossil fuel. CH<sub>4</sub> is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals, such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities, such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH<sub>4</sub>. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

**N<sub>2</sub>O** is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N<sub>2</sub>O is naturally produced in the oceans and in rainforests. Man-made sources of N<sub>2</sub>O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution.

**Chlorofluorocarbons (CFC)** are gases formed synthetically by replacing all hydrogen atoms in CH<sub>4</sub> or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically un-reactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Because of the discovery that they are able to destroy stratospheric ozone (O<sub>3</sub>), an ongoing global effort to halt their production was undertaken and has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining; however, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

**HFCs** are synthesized chemicals that are used as a substitute for CFCs. Out of all of the GHGs; HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications, such as automobile air conditioners and refrigerants.

**PFCs** have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

**SF<sub>6</sub>** is an extremely potent GHG. SF<sub>6</sub> is very persistent, with an atmospheric lifetime of more than 1,000 years. Thus, a relatively small amount of SF<sub>6</sub> can have a significant long-term impact on global climate change. SF<sub>6</sub> is human-made, and the primary user of SF<sub>6</sub> is the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF<sub>6</sub> is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

## Statewide Greenhouse Gas Emissions Inventory

The State of California GHG Inventory performed by the CARB, compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>, HFCs, and PFCs. The current inventory covers the years 2000 to 2017 and is summarized in Table 3.7-1. Data sources used to calculate this GHG inventory include California and Federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. The 2000 emissions level is the sum total of sources from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include agriculture, commercial and residential, electric power, industrial, transportation, recycling and waste, and high GWP gases.

**Table 3.7-1. California Greenhouse Gas Emissions Inventory 2000 to 2017**

Sector	Total 2000 Emissions (MMTCO <sub>2</sub> e)	Total 2017 Emissions (MMTCO <sub>2</sub> e)
Agriculture	30.97	32.42
Commercial and Residential	43.96	41.14
Electric Power	104.84	62.39
Industrial	97.41	89.40
Transportation	180.33	169.86
Recycling and Waste	7.35	8.89
High GWP Gases	6.28	19.99

Source: CARB 2019

Notes:

GWP=global warming potential; MMTCO<sub>2</sub>e=million metric tons of CO<sub>2</sub> equivalent

## Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California.

The California Natural Resources Agency's Fourth Climate Change Assessment (Fourth Assessment) produced updated climate projections that provide state-of-the-art understanding of different possible climate futures for California. The science is highly certain that California (and the world) will continue to warm and experience greater impacts from climate change in the future. While the IPCC and the National Climate Assessment have released descriptions of scientific consensus on climate change for the world and the United States, respectively, the Fourth Assessment summarizes the current understanding of climate impacts and adaptation options in California (California Natural Resources Agency 2018). Projected changes in California include:

- **Temperatures:** If GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historical average by:
  - 2.7 Fahrenheit (°F) from 2006 to 2039
  - 5.8°F from 2040 to 2069
  - 8.8°F from 2070 to 2100
- **Wildfire:** One Fourth Assessment model suggests large wildfires (greater than 25,000 acres) could become 50 percent more frequent by the end of century if emissions are not reduced. The model produces more years with extremely high areas burned, even compared to the historically destructive wildfires of 2017 and 2018. By the end of the century, California could experience wildfires that burn up to a maximum of 178 percent more acres per year than current averages.
- **Sea-Level Rise:** If emissions continue at current rates, the Fourth Assessment model results indicate that total sea-level rise by 2100 is expected to be 54 inches, almost twice the rise that would occur if GHG emissions are lowered to reduce risk.
- **Snowpack:** By 2050, the average water supply from snowpack is projected to decline to 2/3 from historical levels. If emissions reductions do not occur, water from snowpack could fall to less than 1/3 of historical levels by 2100.
- **Agriculture:** Agricultural production could face climate-related water shortages of up to 16 percent in certain regions. Regardless of whether California receives more or less annual precipitation in the future, the state will be dryer because hotter conditions will increase the loss of soil moisture (California Natural Resources Agency 2018).

### 3.7.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

#### Federal

At the federal level, there is currently no overarching law related to climate change or the reduction of GHGs. The EPA is developing regulations under the CAA to be adopted in the near future, pursuant to the EPA's authority under the CAA. Foremost amongst recent developments have been the settlement agreements between the EPA, several states, and nongovernmental organizations (NGO) to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in *Massachusetts v. EPA*; and EPA's "Endangerment Finding," "Cause or Contribute Finding," and "Mandatory Reporting Rule." On September 20, 2013, the EPA issued a proposal to limit carbon

pollution from new power plants. The EPA is proposing to set separate standards for natural gas-fired turbines and coal-fired units.

Although periodically debated in Congress, no federal legislation concerning GHG limitations has yet been adopted. In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under CAA. Furthermore, under the authority of the CAA, the EPA is beginning to regulate GHG emissions starting with large stationary sources. In 2010, the EPA set GHG thresholds to define when permits under the New Source Review Prevention of Significant Deterioration (PSD) standard and Title V Operating Permit programs are required for new and existing industrial facilities. In 2012, EPA proposed a carbon pollution standard for new power plants.

### *Corporate Average Fuel Standards*

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. EPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by U.S. EPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type (U.S. EPA 2011). U.S. EPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (U.S. EPA 2016).

## State

### *Executive Order S-3-05 – Statewide Greenhouse Gas Emissions Targets*

On June 1, 2005, the Governor issued EO S-3-05 which set the following GHG mission reduction targets:

- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

This EO directed the secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual biennial reports on the progress made toward meeting the targets and on the impacts on California related to global warming. The first such Climate Action Team Assessment Report was produced in March 2006 and has been updated every two years thereafter. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

### *Executive Order S-01-07*

This order, signed by Governor Schwarzenegger, sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. CARB re-adopted the LCFS regulation in September 2015, and

the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

#### *Senate Bill 32*

Chapter 249 of the bill (September 2016) codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030. SB 32 provides another intermediate target between the 2020 and 2050 targets set in EO S-3-05.

#### *Assembly Bill 32 – California Global Warming Solutions Act*

In 2006, California passed the California Global Warming Solutions Act of 2006, also known as AB 32, which codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that CARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (HSC Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. The Scoping Plan was prepared and approved on December 11, 2008 and was later updated in May 2014. The update highlights California’s progress toward meeting the “near-term” 2020 GHG emission reduction goals (to the level of 427 million MT of CO<sub>2</sub>e) defined in the original Scoping Plan. It also evaluates how to align the State’s longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction.

Under the “business as usual” (BAU) scenario established in 2008, statewide emissions were increasing at a rate of approximately 1 percent per year as noted below. It was estimated that the 2020 estimated BAU of 596 million MTCO<sub>2</sub>e would have required a 28 percent reduction to reach the 1990 level of 427 million MTCO<sub>2</sub>e.

#### *Executive Order S-01-7*

This EO, signed by former 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 LCFS for transportation fuels be established for California and directs the CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

#### *Executive Order B-30-15*

On April 20, 2015, former Governor Edmund G. Brown Jr. signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor’s EO aligns California’s GHG reduction targets with those of leading international governments, such as the 28-nation European Union which adopted the same target in October 2014.

California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the AB 32. California’s new emission reduction target of 40 percent below

1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which there will likely be major climate disruptions, such as super droughts and rising sea levels. The targets stated in EO B-30-15 have not been adopted by the state legislature.

#### *Renewable Portfolio Standard*

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "initial RPS"), the goals have been accelerated and increased by EOs S-14-08, S-21-09, SB 350, and SB 100.

The purpose of the RPS upon full implementation is to provide 33 percent of the state's electricity needs through renewable energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

The RPS is included in CARB's Scoping Plan list of GHG reduction measures to reduce energy sector emissions. It is designed to accelerate the transformation of the electricity sector through such means as investment in the energy transmission infrastructure and systems to allow integration of large quantities of intermittent wind and solar generation. Increased use of renewables would decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector.

#### *Executive Order S-14-08*

EO S-14-08 was established by California Governor Schwarzenegger in November 2008. The order establishes a RPS for all retail sellers of electricity. The specifics of this EO include the following:

- Requires retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020;
- Requires various state agencies to streamline processes for the approval of new renewable energy facilities and determine priority renewable energy zones; and
- Establishes the requirement for the creation/adoption of the Desert Renewable Energy Conservation Plan (DRECP) process for the Mojave and Colorado Desert regions.

#### *Senate Bill X1-2*

On April 12, 2011, California Governor Jerry Brown signed SB X1-2. This bill supersedes the 33 percent by the 2020 RPS, created by EO S-14-08 that Governor Schwarzenegger previously signed. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. The SB X1-2 extends the application of the RPS to all electric retailers in the State.

#### *Senate Bill 350*

The RPS program was further accelerated in 2015 with SB 350 which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of 10 or more years.

### *Senate Bill 100*

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. California must procure 100 percent of its energy from carbon free energy sources by the end of 2045.

### *Climate Change Scoping Plan*

The Scoping Plan released by CARB in 2008 outlined the state's strategy to achieve the AB 32 goals. This Scoping Plan, developed by CARB in coordination with the Climate Action Team, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008. According to the Scoping Plan, the 2020 target of 427 million MTCO<sub>2e</sub> requires the reduction of 169 million MTCO<sub>2e</sub>, or approximately 28.3 percent, from the state's projected 2020 BAU emissions level of 596 million MTCO<sub>2e</sub>.

However, in August 2011, the Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 million MTCO<sub>2e</sub>, only a 16 percent reduction below the estimated new BAU levels would be necessary to return to 1990 levels by 2020. The 2011 Scoping Plan expands the list of nine Early Action Measures into a list of 39 Recommended Actions.

In May 2014, CARB developed; in collaboration with the Climate Action Team, the *First Update to California's Climate Change Scoping Plan (Update)*, which shows that California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32. In accordance with the United Nations Framework Convention on Climate Change (UNFCCC), CARB is beginning to transition to the use of the AR4's 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 million MTCO<sub>2e</sub>; therefore, the 2020 GHG emissions limit established in response to AB 32 is now slightly higher than the 427 million MTCO<sub>2e</sub> in the initial Scoping Plan.

CARB adopted the latest update to the Climate Change Scoping Plan in December 2017. The 2017 Scoping Plan is guided by the EO B-30-15 GHG reduction target of 40 percent below 1990 levels by 2030. The 2017 Scoping Plan builds upon the framework established by the initial Scoping Plan and the First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program, which constrains and reduces emissions at covered sources (CARB 2017).



The majority of the Scoping Plan's GHG reduction strategies are directed at the two sectors with the largest GHG emissions contributions: transportation and electricity generation. The GHG reduction strategies for these sectors involve statutory mandates affecting vehicle or fuel manufacture, public transit, and public utilities. The reduction strategies employed by CARB are designed to reduce emissions from existing sources as well as future sources.

### *Senate Bill 97*

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs Office of Planning and Research (OPR) to develop draft CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010.

On December 30, 2009, the Natural Resources Agency adopted amendments to the CEQA Guidelines in the CCR. The amendments went into effect on March 18, 2010, and are summarized below:

- Climate action plans and other GHG reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. In addition, consideration of several qualitative factors may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. The Guidelines do not set or dictate specific thresholds of significance.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix G of the CEQA Guidelines.
- The Guidelines are clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- The Guidelines promote the advantages of analyzing GHG impacts on an institutional, programmatic level, and, therefore, approve tiering of environmental analyses and highlights some benefits of such an approach.
- EIRs must specifically consider a project's energy use and energy efficiency potential, pursuant to Appendix F of the CEQA Guidelines.

### *Senate Bill 375 – Regional Emissions Targets*

SB 375 requires that regions within the state which have a metropolitan planning organization (MPO) must adopt a sustainable communities' strategy as part of their RTPs. The strategy must be designed to achieve certain goals for the reduction of GHG emissions. The bill finds that "it will be necessary to achieve significant additional GHG reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 provides that new CEQA provisions be enacted to encourage

developers to submit applications and local governments to make land use decisions that will help the state achieve its goals under AB 32," and that "current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives."

#### *California Code of Regulations Title 24, Part 6*

Although not originally intended to reduce GHG emissions, 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. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. 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. Therefore, increased energy efficiency results in decreased GHG emissions.

#### *California Green Building Code*

The California Green Building Standards Code is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen 2019 standards became effective on January 1, 2020. The 2019 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

### Regional

#### *Southern California Association of Governments - 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*

The Southern California Association of Governments (SCAG) is the designated MPO for Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse," collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects, plans, and programs every month. Projects and plans that are regionally significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies.

On April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). The RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the National Ambient Air Quality Standards (NAAQS) as set forth by the federal CAA. The following SCAG goal is applicable to the project:

- Protect the environment and health of our residents by improving air quality and encouraging active transportation.

As a solar generation facility, the proposed project would improve air quality by reducing the use of fossil fuels in energy production. The proposed project's renewable electricity generation would create an indirect emissions reduction of GHGs. Operation of the proposed project would likely reduce or "offset" electricity-related emissions on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. Therefore, the proposed project would be consistent with this SCAG goal.

## Local

### *County of Imperial*

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the CEQA Guidelines to provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts. Formal CEQA thresholds for lead agencies must always be established through a public hearing process. Imperial County has not established formal quantitative or qualitative thresholds through a public rulemaking process, but CEQA permits the lead agency to establish a project-specific threshold of significance if backed by substantial evidence, until such time as a formal threshold is approved.

### 3.7.3 Impacts and Mitigation Measures

#### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to GHG emissions are considered significant if any of the following occur:

- 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

As discussed in Section 15064.4 of the 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. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Quantify greenhouse gas emissions resulting from a project; and/or
2. Rely on a qualitative analysis or performance based standards.

A lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

3. 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. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

### South Coast Air Quality Management District's Interim Thresholds

The ICAPCD has not adopted thresholds of significance for project's GHG emissions. However, the Air Quality/Greenhouse Gas Technical Study (Appendix D of this EIR) proposes to use the South Coast Air Quality Management District's (SCAQMD) "Tier 3" quantitative thresholds for residential and commercial projects. The SCAQMD proposes that if a project generates GHG emissions below 3,000 MTs of MTCO<sub>2e</sub>, it could be concluded that the project's GHG contribution is not cumulatively considerable and is, therefore, considered less than significant under CEQA. If the project generates GHG emissions above the threshold, the analysis must identify mitigation measures to reduce GHG emissions.

### Methodology

The project-related direct and indirect emissions of GHGs were estimated using the similar methods for quantification of criteria air pollutants, as described in Section 3.3 Air Quality. Emissions were estimated using existing conditions, project construction and operations information, as well as a combination of emission factors from various sources.

In addition to the direct and indirect emissions created from project construction and operation, the project's renewable electricity generation would create an indirect emissions reduction of GHGs. Operation of the proposed project would likely reduce or "offset" electricity-related emissions on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. These emissions are often referred to as "displaced" or "avoided" emissions.

Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 112,910 megawatt hours (MWh)/year (for 25 megawatt facility), provided by the project proponent. Emission factors were derived from the U.S. EPA's *Emissions Generation Resource Integration Database* (2016) as well as CalEEMod for Imperial County. The lower estimated displaced emissions were used in this analysis. Emissions calculations and assumptions are included in Appendix D of this EIR.

## Impact Analysis – Solar Energy Facility and Gen-Tie Line

### ***Impact 3.7-1 Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?***

Construction and operation of the project would result in a relatively small amount of GHG emissions. The project would generate GHG emissions during construction and routine operational activities at the project site. During construction, GHG emissions would be generated from the operation of off-road equipment, haul-truck trips, and on-road worker vehicle trips. Once operational, GHG emissions would be limited to vehicle trips associated with periodic routine maintenance and monitoring activities at the project site.

Total GHG emissions from all phases of construction activities were amortized over the estimated 20-year life of the project. As shown in Table 3.7-2, the yearly contribution to GHG from the construction of the project would be 18.8 MTCO<sub>2e</sub> per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 3,000 MTCO<sub>2e</sub> per year.

Once the project is constructed and operational, the proposed project would have no major stationary emission sources and would require minimal vehicular trips. Therefore, operation of the proposed solar facility would result in substantially lower emissions than project construction.

As shown in Table 3.7-2, the yearly contribution to GHG from operation of the project would be 9.0 MTCO<sub>2e</sub> per year. Therefore, the proposed project's operational emissions are less than the SCAQMD's screening threshold of 3,000 MTCO<sub>2e</sub> per year.

In addition, the proposed project would offset GHG emissions through renewable energy generation. As shown in Table 3.7-2, once operational, the proposed project would displace approximately 65,165 MTCO<sub>2e</sub> per year. The proposed project's annual indirect GHG emissions from the displacement of fossil fuel fired electricity generation is significantly higher than the project's annualized direct and indirect emissions sources. Implementation of the proposed project would result in a less than significant impact associated with the generation of GHG emissions.

**Table 3.7-2. Greenhouse Gas Emissions Summary**

Emissions Source	GHG Emissions (MTCO <sub>2</sub> e/year)
Construction Emissions – Amortized (20 years)*	18.8
Operational Emissions – Facility site	9.0
Displaced Emissions (from Project Operation)	-65,165
Total Annual Emissions	-65,136
Significance Threshold**	3,000
Exceed Threshold?	No

Source: Appendix D of this EIR

Notes:

Includes direct and indirect emissions of project site operation and maintenance, not including the indirect displaced GHG emissions.

Estimation of emissions avoided due to displacement of fossil fuel powered electricity generation.

The CalEEMod carbon intensity factor for Imperial Irrigation District is used to estimate displaced GHG emissions.

\* Total construction emissions amortized over project life of 20 years.

\*\* In the absence of ICAPCD-adopted threshold for GHG emissions, the SCAQMD threshold of 3,000 MT/year for commercial projects is used.

Mitigation Measure(s)

No mitigation measures are required.

**Impact 3.7-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?**

As discussed in Impact 3.7-1, the proposed project would generate a relatively small amount of GHG emissions. The proposed project is consistent with the AB 32 Scoping Plan strategies to increase the total amount of renewable energy sources consistent with the State’s RPS requirements. The project would help the state meet this goal by generating up to 20 MW of power to California’s current renewable portfolio. In addition, the project would not conflict with CARB’s emission reduction strategies in the Scoping Plan. As the project would not exceed applicable GHG screening thresholds and would provide a GHG emissions benefit, the project would be consistent with the Scoping Plan’s goal of achieving cost-effective emissions reductions while accelerating the transition to a low-carbon economy.

Neither the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs; however, since the long-term operational GHG emissions are minimal and the construction emissions are short-term, the project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. Implementation of the proposed project would result in a less than significant impact associated with the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHG.

Mitigation Measure(s)

No mitigation measures are required.

## Impact Analysis – Fiberoptic Cable

The proposed project includes the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable.

The installation of the fiberoptic cable would result in GHG emissions from the operation of construction equipment and vehicle travel on paved and unpaved surfaces. Once operational, GHG emissions would be limited to vehicle trips associated with routine maintenance and monitoring activities at the project site. As shown in Table 3.7-2, the yearly contribution to GHG from the construction of the solar energy facility and gen-tie line would be 18.8 MTCO<sub>2e</sub> per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 3,000 MTCO<sub>2e</sub> per year. The installation of the fiberoptic cable would require substantially less construction equipment and shorter duration compared to the construction of the solar energy facility and gen-tie line. Based on this consideration, the installation of the fiberoptic cable would result in GHG emissions below allowable thresholds. This is considered a less than significant impact.

### 3.7.4 Decommissioning/Restoration and Residual Impacts

#### Decommissioning/Restoration

Similar to construction activities, decommissioning and restoration would result in CO<sub>2e</sub> emissions below allowable thresholds. Construction activities during decommissioning and restoration would adhere to Mitigation Measures AQ-1 and AQ-2 outlined in Section 3.3, Air Quality of this EIR, further reducing GHG emissions. Therefore, the impact is considered less than significant.

#### Residual

The proposed project's GHG emissions would result in a less than significant impact. Project operation, subject to the provision of a CUP, would generally be consistent with statewide GHG emission goals and policies including AB 32. Project consistency with applicable plans, policies, and regulations adopted to reduce GHG emissions would ensure that the project would not result in any residual significant and unavoidable impacts with regards to global climate change.

*This page is intentionally blank.*