Air Quality Technical Study for the Wister Solar Facility Project Imperial County, California

Wister Solar Project

Report Date:

June 24, 2020

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Abbreviations

AB	Assembly Bill
AC	Alternating current
ARB	Air Resources Board, California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CAA	Clean Air Act
CEQA	California Environmental Quality Act
CalEEMod	California Emissions Estimator Model
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utility Commission
DC	Direct current
EO	Executive order
EPA	United States Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District
kV	Kilovolt
LCFS	Low carbon fuel standard
NAAQS	National Ambient Air Quality Standards
NO_2, NOx	Nitrogen dioxide, oxides of nitrogen
O_3	Ozone
Pb	Lead
PM_{10}, and $PM_{2.5}$	Respirable particulate matter, and fine particulate matter
ppb, ppm	parts per billion, parts per million
PV	Photovoltaic
RPS	Renewable Portfolio Standard
ROG	Reactive organic gases
SB	Senate bill
SIP	State Implementation Plan
SO_2, and Sox	Sulfur dioxide and sulfur oxides
SSAB	Salton Sea Air Basin
TAC	Toxic air contaminants
VOC	Volatile organic compounds

1.0 INTRODUCTION AND PROJECT DESCRIPTION

This Air Quality Technical Study provides assessment of potential air quality and climate change impacts associated with construction and operation of the Wister Solar Power Project in Imperial County, California. The purpose of the Project is to utilize the abundance local solar energy to create a renewable energy and transmission system to support and encourage the development of renewable energy resources, consistent with the County's General Plan objectives. The Project applicant and the County have identified several purposes and objectives for the Project as follows:

- Construct, operate and maintain a reliable, safe, environmentally sound and economically efficient solar-powered electricity generating facility at a location with abundance of solar resource and potential.
- Help California meet its Renewable Portfolio Standard (RPS) requirements, which require that by 2030, California's electric utilities obtain 50 percent of the electricity they supply from renewable sources. This will also help achieve the greenhouse gas reduction goals of Assembly Bill 32 (AB 32-California Global Warming Solutions Act of 2006).
- Interconnect with electrical transmission infrastructure either planned or being constructed by other nearby projects, thus increase the opportunities for the sharing or using the existing utility transmission corridor(s).
- Operate a renewable energy facility that does not produce noise, minimizes greenhouse gas emissions and water use.
- Utilize a location that is in close proximity to an existing switching station and power lines. Thus, can supply additional on-peak power to the electrical grid in California.

1.1 SUMMARY PROJECT DESCRIPTION

ORNI 33, LLC (ORNI) is proposing to build, operate and maintain a solar power plant on private lands owned by ORNI in unincorporated Imperial County (refer to Figure 1). The Wister Solar Energy Facility (the Project) will use photovoltaic (PV) technology and would include the construction and operation of a 20 Megawatt (MW) solar farm on approximately 100 acres within the 640-acre Section (T10S, R14E, Section 27) owned by ORNI 33, LLC. The Project is located within Assessor's Parcel No. 003-240-001 and is currently zoned Open Space/Preservation (S-2). The proposed Project site is located about three miles north of the unincorporated town of Niland.

ORNI is developing the Wister Solar Energy Facility in order to reasonably maximize the Project's generating capacity, taking into account land and environmental constraints. ORNI intends to begin construction on the Project upon acquisition of all County entitlements and environmental clearance. Assuming one year to complete all permits, construction would begin the first quarter of 2020.

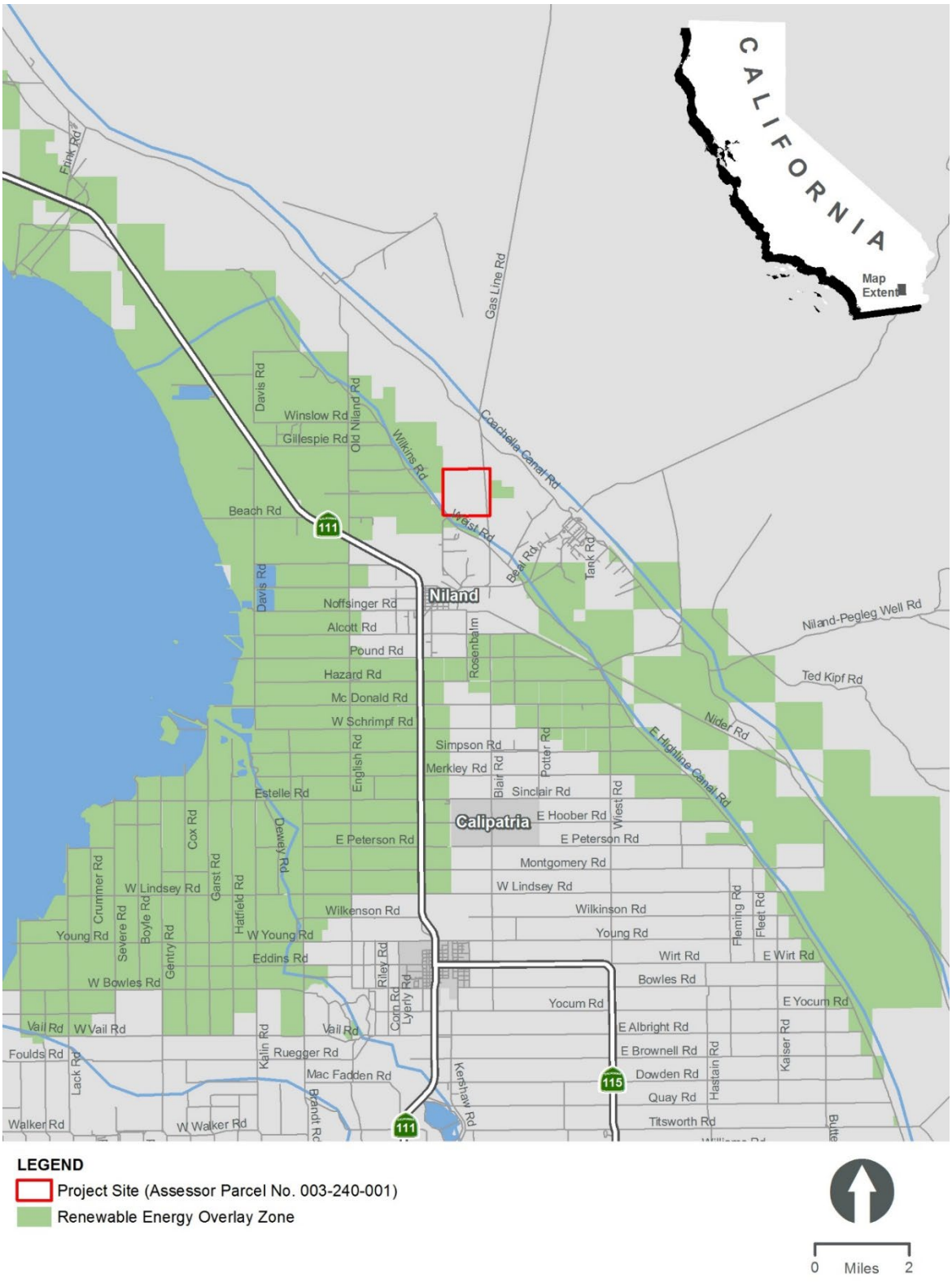
A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) has been secured by ORNI and encompasses the Project. Approximately 100 acres of total ground disturbance is anticipated for the Project including the proposed substation and utility building.

The Project site consists of one parcel located within unincorporated Imperial County that is currently vacant. Power generated at the Project would be low voltage direct current (DC) power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each 2.1 MW array would have (1) one 2.1 MW inverter and (1) one 2.1 MW transformer, which are collectively known as a Power Conversion Station (PCS). The inverters would convert the DC power generated by the panels to alternating current (AC) power and the pad mounted transformers would step up the voltage to a nominal 12.47 kV voltage level. The proposed substation would connect to an existing Imperial Irrigation District 92 kV “K” Line. The power would then be sold to the wholesale market or retail electric providers in furtherance of the goals of the California Renewable Energy Portfolio Standards and other similar renewable programs in the Pacific Southwest power market. The proposed Project is intended to operate year-round. Using an array of thin film photo-voltaic (PV) modules to convert solar energy directly to electrical power for export to the electrical grid, the proposed Project would generate electricity during daylight hours when electricity demand is at its peak.

1.2 PROJECT LOCATION

The undeveloped Project site is in Imperial County, located west of Gas Line Road, approximately three miles north of unincorporated town of Niland. The geographic center of the proposed Project site roughly corresponds with 33.28° latitude, -115.50° longitude. Figure 1 illustrates the area of the Project solar farm. The Project would employ the use of PV power systems to convert solar energy into electricity. The solar generating facility would consist of 3.2-foot by 6.5-foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels, with 90 modules in each of the 28 rows. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on existing soil conditions. The PV modules are made of a polycrystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters (direct current, DC to alternate current, AC), transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes, and/or concrete in some places. The Project site’s proposed main access would be located near the intersection of Wilkins road and an unnamed private road, just north of the East Highline Canal. This main access road would be located on the west side of the Gen-Tie Line, trending north to the substation from Wilkins Road. Primary emergency access would be located east of the Project site, accessible via Gas Line Road just north of the access road to the Niland Solid Waste Site. Secondary emergency access would be from the west, just south of an existing agricultural orchard, and would enter the Project site at the same location as the main access road. All access roads leading to the Project would be all-weather and composed of gravel.

Figure 1 Project Regional Location



The proposed Project would be required to conform to all California Public Utilities Commission (CPUC) safety standards. The Project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and two gates would be located in each fenced area. The proposed Project would be operated on an “unstaffed” basis and, therefore, would not include construction of a permanent office.

1.3 PROJECT CONSTRUCTION SCHEDULE AND PHASING

Based on the Project’s CUP, it is anticipated that construction activities start in the first quarter of 2020 and would last approximately 6 to 9 months with the Project operation starting in 2021. Further details about the construction phasing are provided in the Methodology section of this report.

1.4 PROJECT OPERATION

Upon completion of the construction phase, the proposed Project would be operated on an unstaffed basis and would be monitored remotely, with periodic on-site personnel visitations for security, maintenance, and system monitoring. Therefore, full-time site personnel would not be required for regular Project operations, and employees would be on-site four times per year to wash the panels. As the Project’s PV arrays would produce electricity passively, maintenance requirements would be minimal. Any required planned service activities would generally consist of equipment inspection and maintenance and would be scheduled to avoid peak load periods. The unplanned maintenance would be typically responded to as needed, depending on the event.

Estimated annual water consumption for operation and maintenance of the proposed Project, including periodic PV module washing, would be approximately 0.81-acre feet annually (af/y), which would be trucked to the Project site as needed.

1.5 DECOMMISSIONING

Solar equipment has a lifespan of 20 to 25 years. At the end of the Project operation term, the applicant may determine that the Project should be decommissioned and deconstructed. Because the PV arrays supporting equipment sits on the surface of the land, when they are removed after the Project’s lifetime, the land will be largely unaltered from its natural state and available for agricultural use. Orni has prepared a Decommissioning Plan to ensure the decommissioning of the Project after its productive lifetime is conducted in accordance with County requirements. A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) has been secured by ORNI and encompasses the Project. Upon completion of the PPA term, the applicant (or assignee) would either have the option to enter into a subsequent PPA with another entity or decommission and remove the proposed Project and its components from the Project site. The Project site could then be converted to original land uses, in accordance with all applicable land use regulations and zoning conditions imposed on the Project site at that time.

2.0 AFFECTED ENVIRONMENT

2.1 EXISTING SETTING

The Project is located in Imperial County within the Salton Sea Air Basin (SSAB). The SSAB consists of all of Imperial County and a portion of Riverside County. Both the Imperial County Air Pollution Control District (ICAPCD) and South Coast Air Quality Management District (SCAQMD) have jurisdiction within the SSAB. The ICAPCD has full jurisdiction within all Imperial County and SCAQMD only has jurisdiction within Riverside County. Ambient air quality is affected by the climate, topography, and the type and amount of pollutants emitted.

2.1.1 Climate and Topography

The SSAB is generally an arid desert region, with a significant portion located below sea level. The climatic condition in the SSAB is strongly influenced by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. When the fringes of mid-latitude storms pass through the Imperial Valley in winter, the coastal mountains create a strong “rain shadow” effect that makes Imperial Valley the second driest location in the U.S. The flat terrain near the Salton Sea, intense heat from the sun during the day, and strong radiational cooling at night create deep convective thermals during the daytime and equally strong surface-based temperature inversions at night. The temperature inversions and light nighttime winds trap any local air pollution emissions near the ground. The area is subject to frequent hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and the temperature rises.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees (°) Fahrenheit down to a winter morning minimum of 38° Fahrenheit. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences significant rainfall an average of only four times per year. The rainy period of the year lasts for 3.4 months, from December 4 to March 16, with a sliding 31-day rainfall of at least 0.5 inches. The rainless period of the year lasts for over 8 months, from March to early December.

Winds in the area are driven by a complex pattern of local, regional, and global forces, but primarily reflect the temperature difference between the cool ocean to the west and the heated interior of the entire desert southwest. For much of the year, winds flow predominantly from the west to the east. In summer, intense solar heating in the Imperial Valley creates a more localized wind pattern, as air comes up from the southeast via the Gulf of California. During periods of strong solar heating and intense convection, turbulent motion creates good mixing and low levels of air pollution. However, even strong turbulent mixing is insufficient to overcome the emissions that emanate from the Mexicali, Mexico area because of the limited air pollution controls on those emission sources. Imperial County is predominately agricultural land. This is a factor in the cumulative air quality of the SSAB. The agricultural production generates dust and small particulate matter through the use of agricultural equipment on unpaved roads, land preparation, and

harvest practices. Imperial County experiences unhealthful air quality from photochemical smog and from dust because of extensive surface disturbance and the very arid climate.

The SSAB also experiences surface inversions almost every day of the year. These inversions are caused by the presence of the region's typical subtropical high-pressure cell, which causes the air mass aloft to sink. Air masses are large bodies of air with similar temperature and moisture content. An air mass aloft refers to the higher-altitude air mass which inductively suggests that there is a separate (and thus different in temperature and moisture content) air mass at ground level. As this air mass sinks, the temperature thereof rises through compressional heating, thus exceeding the temperature of the air below. This stable atmospheric condition, known as a subsidence inversion, becomes a nearly impenetrable barrier to the vertical mixing of pollutants. These inversions often last for long periods of time, which allows for air stagnation and the buildup of pollutants. During the winter, the area experiences radiation inversions in which the air near the ground surface cools by radiation, whereas the air higher in the atmosphere remains warmer. A shallow inversion layer is created between the two layers and precludes the vertical dispersion of air, thus trapping pollutants. The highest ozone levels are often associated with subsidence inversions.

2.1.2 Regulatory Setting

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

2.2 CRITERIA POLLUTANTS

2.2.1 Federal

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the U.S. Environmental Protection Agency (EPA). The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), lead (Pb), and particulate matter (PM10 – respirable particles less than 10 microns in diameter, and PM2.5 – fine particles less than 2.5 microns in diameter) are the six criteria air pollutants. Ozone is a secondary pollutant, Nitrogen oxides (NOX) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 1.

The CAA requires EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the state submit and implement a State Implementation Plan (SIP)

for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

2.2.2 State

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was adopted by the California Air Resources Board (ARB) in 1988. The CCAA requires all air district of the state to achieve and maintain the CAAQS by the earliest practical date. Table 1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 1, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 1: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	--	Same as Primary
	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual Mean	20 µg/m³	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	--	35 µg/m³	Same as Primary
	Annual Mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon Monoxide (CO)	1 Hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	--
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	--
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	--
	Annual Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	--
	3 Hour	--	--	0.5 ppm (1300 µg/m³)
	24 Hour	0.04 ppm (105 µg/m³)	0.14 ppm	--
	Annual Mean	--	0.030 ppm	--
Lead (Pb)	30 Day Average	1.5 µg/m³	--	--
	Calendar Quarter	--	1.5 µg/m³	Same as Primary
	Rolling 3-Month Average	--	0.15 µg/m³	Same as Primary
Visibility reducing particles	8 Hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl chloride	24 Hour	0.01 ppm (265 µg/m³)		

Notes:
ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; "--" = no standard.
Source: CARB 2016.

The ARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level air quality management plans (AQMPs) that would be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to ARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air districts) and setting emissions standards for new motor vehicles and for other emission sources, such as consumer products and certain off-road equipment.

The CCAA substantially adds to the authority and responsibilities of air districts. CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures (TCMs). The CCAA also emphasizes the control of indirect and area-wide sources of air pollutant emissions and gives local air pollution control districts explicit authority to regulate indirect sources of air pollution.

2.2.3 Attainment Status

Depending on whether or not the applicable ambient air quality standards (AAQS) are met or exceeded, the air basin is classified as being in "attainment" or "nonattainment." The USEPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state or local ambient air monitoring stations with the NAAQS and CAAQS. These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/ unclassified designation is treated as an attainment designation. Table 2 presents the federal and state attainment status for the project area. As shown in the Table 2, the Imperial County is currently designated as nonattainment for O3 and PM10 under state standards. Under federal standards, the County is in marginal nonattainment for O3, serious nonattainment for PM10, and moderate nonattainment for PM2.5. The area is currently in attainment or unclassified status for all other ambient air quality standards.

Table 2: Federal and State Attainment Status

Pollutant	Federal Designation	State Designation
Ozone (O_3)[1]	Marginal Nonattainment	Nonattainment
Particulate Matter (PM_{10})	Serious Nonattainment	Nonattainment
Particulate Matter ($PM_{2.5}$)	Moderate Nonattainment – partial[2]	Attainment
Carbon Monoxide (CO)	Unclassified/ Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Unclassified/ Attainment	Attainment
Hydrogen Sulfide (H_2S)	-	Unclassified
Sulfates	-	Attainment
Visibility Reducing Particles	-	Unclassified

Notes:
(-) = Not Identified/ No Status.
[1] The SSAB is marginal nonattainment for the 2015 ozone standard and moderate attainment for the 2008 standard.
[2] Only the Imperial Valley portion of the County is nonattainment for PM2.5 NAAQS. USEPA Greenbook 2018, and Source: CARB 2017

***Toxic Air Contaminants Regulation*.** California regulates toxic air containments (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, ARB identified diesel particulate matter (DPM) emissions from diesel-fueled engines as a TAC. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles (ARB 2000). The goal of the plan is to reduce diesel PM10 (inhalable particulate matter) emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles will be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. The proposed Project would be required to comply with applicable diesel control measures.

2.2.4 Local

The ICAPCD is the agency responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. The air district was formed by the Air Pollution Control Act of 1947.

The ICAPCD adopted its CEQA Air Quality Handbook: Guidelines for the Implementation of the California Environmental Quality Act of 1970 in 2007 and amended the handbook in December 2017 (ICAPCD 2017). The ICAPCD CEQA Air Quality Handbook provides guidance on how to determine the significance of impacts, including air pollutant emissions, related to the development of residential, commercial, and industrial projects. Where impacts are determined to be significant, the ICAPCD CEQA Air Quality Handbook provides guidance to mitigate adverse impacts to air quality from development projects. The ICAPCD is the agency principally responsible for comprehensive air pollution control in the region.

The ICAPCD has developed rules and regulations that regulate stationary sources, area sources, and certain mobile source emissions, and is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

Air Quality Plans. The ICAPCD has developed plans and strategies to achieve attainment for air quality ambient standards. The latest plans include the following:

- 2009 Imperial County Plan for PM_{10}
- 2012 Annual $PM_{2.5}$ SIP
- 2013 Plan for 2006 24-hour $PM_{2.5}$ for moderate nonattainment area
- 2017 Plan for 2008 8-hour Ozone standard
- 2018 Redesignation Request and Maintenance Plan for PM_{10}

The following ICAPCD rules are applicable to the Project:

Rule 106 – Abatement. If the ICAPCD determines that any person is in violation of the Rules and Regulations for limiting the discharge of air contaminants into the atmosphere, the ICAPCD may issue and order for abatement.

Rule 107 – Land Use. The Air Pollution Control Officer has the responsibility to protect public health and property from the damaging effects of air pollution and will review and advise the appropriate land use authorities on all new construction or changes in land use which could become a source of air pollution problems.

Rule 310 – Operational Development Fee: Provides the ICAPCD with a sound method for mitigating emissions produced from operations of new commercial and residential development projects by requiring project proponents to pay fees based on the project's emissions, type and size. The operational fees would assist in attaining the State and federal ambient air quality standards for PM10 and Ozone.

Rule 401 – Opacity of Emissions: Sets limits for release or discharge of emissions into the atmosphere, other than uncombined water vapor, that are dark or darker in shade as designated as No.1 on the Ringelmann Chart or obscure an observer's view to a degree equal to or greater than smoke does as compared to No.1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

Rule 403 – General Limitations on the Discharge of Air Contaminants. Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

Rule 407 – Nuisance. Rule 407 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Stationary Sources

Rule 201 – Permits Required. The construction, installation, modification, replacement, and operation of any equipment which may emit or control Air Contaminants require ICAPCD permits.

Rule 207 – New and Modified Stationary Source Review. Establishes preconstruction review requirements for new and modified stationary sources to ensure the operations of equipment does not interfere with attainment or maintenance of ambient air quality standards.

Rule 208 – Permit to Operate. The ICAPCD would inspect and evaluate the facility to ensure the facility has been constructed or installed and will operate to comply with the provisions of the Authority to Construct permit and comply with all applicable laws, rules, standards, and guidelines.

Regulation VIII – Fugitive Dust Rules. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. The regulation requires implementation of fugitive dust control measures to reduce emissions from earthmoving, unpaved roads, handling of bulk materials, and control of track-out/carry-out dust from active construction sites.

2.3 CLIMATE CHANGE AND 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 greenhouse gases (GHGs), particularly those generated from the production and use of fossil fuels. 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. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), tetrafluoromethane, hexafluoroethane, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

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 (CO2), methane (CH4), nitrous oxide (N2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO2, CH4, N2O, and fluorinated gases.

GHGs differ in how much heat each can trap in the atmosphere (global warming potential, or GWP). The GWP 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 CO2, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of carbon dioxide equivalent (CO2e). For example, the 2007 International Panel on Climate Change Fourth Assessment Report calculates the GWP of CH4 as 25 and the GWP of N2O as 298, over a 100-year time horizon (IPCC 2007). Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons (MTCO2e), or million metric tons (MMTCO2e) (SMAQMD 2020).

In the U.S., the main source of GHG emissions is electrical generation followed by transportation (USEPA 2016). In California, however, transportation sources are the largest contributors of GHG emissions (CARB 2018). Emissions associated with electricity generation are the second largest contributor. The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

Two terms are typically used when discussing the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

2.3.1 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 (NGOs) 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 Sept. 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 is 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.

2.3.2 State

California has been innovative and proactive in addressing GHG emissions through passage of legislation including Senate and Assembly bills and executive orders, some of which are listed below.

Executive Order (EO) S-3-05. In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction targets. The goal of this EO is to reduce California’s GHG emissions to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The EO further directed the secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming. The first such Climate Action Team Assessment Report was produced in March 2006 and has been updated every 2 years thereafter. This goal was further reinforced with the passage of Assembly Bill 32 (AB 32) in 2006 and Senate Bill 32 (SB 32) in 2016.

Assembly Bill 32 (AB 32 California Global Warming Solution Act). In 2006, California passed the California Global Warming Solutions Act of 2006 (*AB 32*; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB 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 (Health and Safety Code Section 38551(b)). The law requires ARB 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_2e) 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. 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 MMT of CO_2e would have required a 28 percent reduction to reach the 1990 level of 427 MMT of CO_2e.

Senate Bill 97 (SB 97). Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Executive Order (EO) S-01-07 (January 18, 2007). 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. ARB 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 375 (SB 375). Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Executive Order B-30-15. On April 20, 2015, Governor Brown signed EO B-30-15 to establish a GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order 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 California Global Warming Solutions Act of 2006 (AB 32, summarized above). 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°C, the warming threshold at which there will likely be major climate disruptions such as severe droughts and rising of sea levels. The targets stated in EO B-30-15 have not been adopted by the state legislature.

Senate Bill 32 (SB 32) September 2016. Chapter 249 of the bill 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.

Renewable Energy Portfolio. The Renewable Portfolio Standard (RPS) promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with the initial requirement that 20% of electricity retail sales must be served by renewable resources by 2017 (referred to as the "initial RPS"). The goals have been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020.

The program was accelerated in 2015 with SB 350 (de León, 2015) which mandated a 50% RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65% of RPS procurement to be derived from long-term contracts of 10 or more years. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60% by 2030 and requires all the state's electricity to come from carbon-free resources by 2045.

In April 2011, the Governor signed SB 2 (1X) codifying California's 33 percent RPS goal; Section 399.19 requires the California Public Utilities Commission, in consultation with the California Energy Commission, to report to the Legislature on the progress and status of RPS procurement and other benchmarks. The purpose of the RPS upon full implementation was 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 program was further accelerated in 2015 with SB 350 (de León, 2015) which mandated a 50% RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65% of RPS procurement to be derived from long-term contracts of 10 or more years. Most recently, on September 10, 2018, Governor Brown signed the SB 100 which aims at eliminating fossil fuel from electricity generation in California. The Bill sets a target of 100 percent carbon-free electricity by 2045.

The RPS is included in ARB'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. In 2008, as part of the Scoping Plan original estimates, ARB estimated that full achievement of the RPS would decrease statewide GHG emissions by 21.3 million MT CO_2e. In 2010, ARB revised this number upwards to 24.0 million MT CO_2e.

2.3.3 Air Pollutants

2.3.3.1 Criteria Pollutants

The federal and state governments have established ambient air quality standards for six criteria pollutants: carbon monoxide (CO), ozone (O3), particulate matter (PM), nitrogen dioxide (NO2), sulfur dioxide (SO2), and lead (Pb). Ozone and particulate matter are generally considered as regional pollutants because they or their precursors affect air quality across a region. Pollutants such as CO, NO2, SO2, and Pb are local

pollutants in that they tend to accumulate in the air locally. In addition to being a regional pollutant, particulate matter is also considered a local pollutant. In the area of the proposed project site, ozone and particulate matters are of particular concern because of their attainment status at the regional level.

Ozone (O_3) is reactive gas consisting of three atoms of oxygen. Ozone is not directly emitted into the air but is formed by a photochemical reaction in the atmosphere. It is a secondary pollutant that is formed when NOx and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes adverse health effects on respiratory and cardiovascular system and is also a component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

Nitrogen Dioxide (NO_2) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides" (NOx). These gases form when fuel is burned at high temperatures and come principally from on-road and off-road motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A suffocating, brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in air to form corrosive nitric acid, as well as toxic organic nitrates. It also plays a major role in the atmospheric reactions that produce ground-level ozone (or smog).

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is a public health concern because it combines readily with hemoglobin in human blood, reducing the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. CO is formed by the incomplete combustion of fossil fuels and is emitted directly into the air. In urban areas, motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains emit CO, however, the main source of CO is on-road motor vehicles. Because of the local nature of CO problems, ARB and EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Particulate Matter (PM_{10} and $PM_{2.5}$) Particulate matter emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, fugitive dust from earth disturbance activities, dust suspended by vehicle traffic and construction equipment, and secondary PM formed by reactions in the atmosphere. Secondary PM forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Major sources of $PM_{2.5}$ and ultrafine particle are combustion sources such as motor vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources also include sources from roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system and damage the respiratory tract. PM_{10} and $PM_{2.5}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body’s ability to fight infections. Suspended particulates also damage and discolor surfaces on which they settle and contribute to haze and reduce regional visibility.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NOX, suspended SOX particles contribute to the poor visibility. These SOX particles can also combine with other pollutants to form PM2.5. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The health effects of lead poisoning include loss of appetite, weakness, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

2.3.3.2 Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. Although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the ARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation include diesel particulate matter (DPM) and airborne asbestos.

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998 (CARB,1998). DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities a metal found naturally in the environment as well as in manufactured products.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

Airborne Asbestos. Asbestos occurs naturally in ultramafic rock (which includes serpentine). When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Asbestos is a known carcinogen. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing).

2.3.3.3 Greenhouse Gases

Carbon Dioxide (CO_2)

CO_2 is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 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_2 is removed from the atmosphere by CO_2 "sinks", such as seawater, ocean-dwelling plankton, forests, and grasslands. Under certain circumstances, however, these sinks can also be a source of CO_2. Whereas the biosphere and ocean achieve a natural balance of CO_2 production and absorption, humankind has altered the natural carbon cycle since the industrial revolution. Beginning in the mid-1700s, the burning of coal, oil, natural gas, and wood has increased globally. Prior to the industrial revolution, concentrations of CO_2 were stable between 275 and 285 (ppm). The National Oceanic and Atmospheric Administration (NOAA's) Earth System Research Laboratory indicates that global concentrations of CO_2 were 405.1 ppm in March 2016, an increase that matched the record jump observed in 2015 (NOAA 2017). The 6-year, 6-ppm surge in CO_2 between 2015 and 2017 is unprecedented in the observatory's 59-year record. And, it was a record fifth consecutive year that CO_2 rose by 2 ppm or greater. These concentrations of CO_2 far exceed the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

Methane (CH_4)

CH4 is a colorless, odorless, combustible, non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH4 is the main constituent of natural gas, a fossil fuel. CH4 is released when organic matter decomposes in low oxygen environments. Natural sources include decomposition processes generated by 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 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 CH4. Other anthropogenic sources include fossil fuel combustion and biomass burning.

Nitrous Oxide (N_2O)

N_2O is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Manmade sources of N_2O include agricultural fertilizers, nylon and nitric acid production, cars with catalytic converters, and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

Chlorofluorocarbons (CFCs)

CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. In the 1970s, scientists discovered that CFCs destroy stratospheric ozone, leading to thinning of the Earth's protective ozone layer. Since then there has been an ongoing global effort to halt their production, which 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.

Hydrofluorocarbons (HFCs)

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

Perfluorocarbons (PFCs)

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays can destroy the compounds only in the upper atmosphere. Consequently, 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.

Sulfur Hexafluoride (SF_6)

Sulfur hexafluoride (SF_6) is a manmade and extremely potent GHG. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate. SF_6 is used primarily by 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_6 is used extensively in high-voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

2.3.3.4 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields. Sensitive receptors located within one mile of the Project site consist of a few scattered rural homes, there are no sensitive receptors within 1,500 feet of the Project site boundary.

2.3.3.5 Existing Local Ambient Air Quality

Existing levels of ambient air concentrations and historical trends and projections in the project area are best documented by measurements made by the ICAPCD and CARB. The closest most representative air monitoring station to the project site is the project site is the Niland Monitoring Station on English Road. However, the Niland Monitoring Station only monitors ozone and particulate matter that is 10 microns or less in diameter (PM_{10}). Thus, monitoring data from the Brawley Station for $PM_{2.5}$ is also included below. This was determined to be appropriate since the project area is only nonattainment for ozone, PM_{10} and $PM_{2.5}$. The most recent published data for the monitoring stations is presented in Table 3, which encompasses the years of 2013 through 2017.

Table 3: Existing Local Ambient Air Quality from 2013 – 2017

Pollutant	Averaging Time	Standard	2013	2014	2015	2016	2017
Ozone (O_3)	1-Hour	Maximum Concentration (ppm)	0.102	0.081	0.091	0.079	0.072
		Days > CAAQS (0.09 ppm)	1	0	0	0	0
	8-Hour	Maximum Concentration (ppm)[a]	0.083	0.075	0.074	0.066	0.061
		Days > NAAQS (0.07 ppm)	**5**	**2**	**5**	0	0
Particulate Matter (PM_{10})	24-Hour	Maximum Concentration (□g/m^3) - National	144	173	250	226	345
		Maximum Concentration (□g/m^3) - State	333	276	260	231	*
		Days > NAAQS (150 □g/m^3)	0	**6**	**6**	**6**	**4**
		Days > CAAQS (50 □g/m^3)	145	124	104	87	*
	Annual	State Annual Average (20 □g/m^3)	51.5	50.6	46.11	40.7	n/a
Particulate Matter [c] ($PM_{2.5}$)	24-Hour	Maximum Concentration (□g/m^3)	23.1	24.3	29.5	57.9	46.1
		Days > NAAQS (35 □g/m^3)	0	0	0	**6**	**3**
		National Std. 98th Percentile [b]	17	20	12	32	27
	Annual	National Annual (12.0 □g/m^3)	7.2	7.3	6.6	11.3	9.4

AAM – Annual Arithmetic Mean; CAAQS – California ambient air quality standards; g/m^3 – micrograms per cubic meter; NAAQS – National ambient air quality standards; ppm – parts per million; n/a – sufficient data not available to determine the value

*The estimated number of measured concentrations above national standards are shown in **bold**.*

Note: Ambient data for CO, NO_2, SO_2 and airborne lead are not included in this table since the entire Imperial County is currently in compliance with state and federal standards for these pollutants.

[a] The 8-hour ozone standard is attained when the fourth highest concentration in a year, averaged over 3 years, is less than or equal to the new national standard of 0.07 ppm. (Values listed in table represent midnight-to-midnight 24-hour averaged and exclude exceptional events.)

[b] Attainment condition for $PM_{2.5}$ is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard.

[c] O_3 and PM_{10} data are from Niland Monitoring Station located at 7711 English Road, approximately 13 miles from the project site. $PM_{2.5}$ concentrations are not measured at Niland station; the listed data are from Brawley Monitoring Station located at 220 Main Street, about 4 miles southeast of Project site.

Source: CARB,2019, EPA 2019

3.0 IMPACTS AND MITIGATION MEASURES

3.1 THRESHOLDS OF SIGNIFICANCE

Based upon criteria presented in Appendix G of the California Environmental Quality Act (CEQA), a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The ICAPCD has also established significance thresholds based on the state CEQA significance criteria. adopted guidelines for implementation of CEQA in its *CEQA Air Quality Handbook* (ICAPCD, 2007, as updated December 12, 2017). The ICAPCD recommended thresholds of significance are discussed below. The thresholds are adopted for construction and operation emissions of criteria pollutants for residential, commercial and industrial projects.

3.1.1 Construction

For construction-related emissions, ICAPCD indicates the thresholds presented in Table 4. The ICAPCD guidelines in its CEQA Handbook states that the approach to evaluating construction emissions should be qualitative rather than quantitative. In any case, regardless of the size of the project, the standard mitigation measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. The implementation of discretionary mitigation measures, including those listed in Section 7.1 of the ICAPCD's Handbook, apply to those construction sites which are 5 acres or more for non-residential developments or 10 acres or more in size for residential developments that generate emissions above the levels in Table 4. The list of mitigation measures that would be implemented for the proposed Project (derived from Section 7.1 of the ICAPCD CEQA Guidelines) is provided in Section 5.1)

Table 4: ICAPCD Construction Thresholds of Significance

Pollutant	Threshold (lbs/day)
ROG	75
NOx	100
CO	550
PM_{10}	150

3.1.2 Operations

ICAPCD has determined in its CEQA Air Quality Handbook (ICAPCD 2017) that, because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is

important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in Table 5. Table 5 provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

Table 5: ICAPCD Operations Thresholds of Significance

Pollutant	Tier I	Tier II
NOx and ROG	Less than 137 lbs/day	137 lbs/day and greater
PM_{10} and Sox	Less than 150 lbs/day	150 lbs/day and greater
CO and $PM_{2.5}$	Less than 550 lbs/day	550 lbs/day and greater
Level of Significance	Less than Significance	Significant Impact
Level of Analysis	Initial Study	Comprehensive Air Quality Analysis
Environmental Document	Negative Declaration	Mitigated ND or EIR

Source: CEQA Air Quality Handbook, ICAPCD, 2017

As shown, projects with emissions of criteria pollutants below Tier I may potentially have an adverse impact on local air quality but will be required to develop an initial study to determine the level of significance of potential impact. Tier II projects with a potential to emit criteria pollutants above the thresholds of Tier I are considered to have a significant impact on regional and local air quality. Tier II projects are required to implement all standard mitigation measures, as well as identify and implement all feasible discretionary mitigation measures.

Based upon criteria presented in Appendix G of the California Environmental Quality Act (CEQA), a project would have a significant air quality impact if it would:

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

The ICAPCD has not adopted threshold of significance for projects' GHG emissions. However, projects in the Imperial County use the SCAQMD's Interim Thresholds as follows:

- Industrial projects: 10,000 metric ton (MT) per year emissions of carbon monoxide equivalent (CO_2e)
- Residential, commercial and mixed-use projects: 3,000 MT CO2e per year

The proposed Project is considered a commercial development; as such, this analysis, compares the direct and indirect emissions from the project with the 3,000 MT threshold level.

3.1.3 Displaced Grid Electricity Emissions

Indirect sources of emissions can be of different forms. The proposed Project generates electricity from solar energy, a renewable source and as such, is an indirect source of reduction in fossil fuel-powered electricity generation. The proposed Project would provide a renewable energy resource that would displace generation from higher GHG emitting sources. There would be a small amount of indirect GHG emissions from the proposed Project water use.

4.0 METHODOLOGY

The proposed Project would result in both short-term and long-term emissions of air pollutants associated with construction and operations of the proposed Project. Construction emissions would include exhaust from the operation of conventional construction equipment, on-road emissions from employee vehicle trips and haul truck trips, fugitive dust as a result of grading and vehicle travel on paved and unpaved surfaces. Operational emissions would include four vehicle trips per day of full-time employees to commute to and from the project site, to control the site operation and equipment and perform limited maintenance of equipment.

Construction and operational emissions were estimated using the latest version of California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model utilizes widely accepted federal and state models for emission estimates and default data from sources such as USEPA AP-42 emission factors, California Air Resources Board (CARB) vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC). The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

4.1 CONSTRUCTION EMISSIONS

Construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces and fugitive dust from material handling activities were calculated using CalEEMod version 2016.3.2. Emissions modeling included emissions generated during site preparation, grading, trenching, construction of roads, transmission lines, and installation of electrical infrastructure, substations and solar array modules.

Modeling input data was based on anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using information provided by the applicant, or derived from similar projects, and default parameters contained in the model for the Project area (Imperial County). The exact construction schedule has not yet been identified however the construction duration for the 20 MW facility is assumed to be between 6 to 9 months. Table 6 includes the construction phasing and anticipated equipment used in each phase for the 20 MW facility.

Table 6: Construction Phasing and Anticipated Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips	
	Type	Number	Hours/ day	Workers (LD Mix)	Trucks (HHDT)
1. Site Preparation	Forklifts	1	8		
(30 working days)	Generator Sets	2	3		
	Off-Highway Trucks	2	4		
	Rollers	1	8	30	25
	Rubber Tired Dozers	2	5		
	Trenchers	2	7		
	Tractors/Loaders/Backhoes	2	6		
2. Facility Installation	Cranes	1	4		
(110 working days)	Forklifts	2	8		
	Generator Sets	2	4		
	Off-Highway Trucks	2	4	50	30
	Other Construction Equipment	2	6		
	Tractors/Loaders/Backhoes	1	7		
	Welders	1	7		
3. Gen-Tie, Site Restoration	Cranes	1	4		
(20 working days)	Forklifts	2	6		
	Generator Sets	1	3	20	20
	Off-Highway Trucks	1	4		
	Tractors/Loaders/Backhoes	3	6		
	Welders	1	7		

Notes:
For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road vehicles trip lengths), CalEEMod defaults were used. Assumed 98% paved roads for workers and truck trips.

4.2 OPERATIONAL EMISSIONS

The Project requires minimal operations and maintenance activities and would not require presence of full-time employees. However, for estimation of operational emissions, it is conservatively assumed that for day-to-day inspection and minor maintenance, some employees would commute to the site. The annual operations are assumed to be as follows:

- For site inspection and minor repairs, up to 4 one-way worker trips per day would be generated.
- Routine maintenance activities would include panel washing, which is expected to occur four times annually over a total of 20 days. Panel washing activities are estimated to require additional daily trips of 4 workers and 6 haul trucks for transport of water during each event. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day,

and 5 days/week. The default model generated trip lengths were used for workers commute and haul trucks.

Operational emissions associated with the proposed project were quantified using CalEEMod version 2016.3.2.

4.3 DISPLACED GRID ENERGY EMISSIONS

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 MWh/year (for 25 MW facility), provided by the project proponent. Emission factors were derived from the U.S. EPA's *Emissions Generation Resource Integration Database* (eGRID; 2016) as well as CalEEMod for Imperial County. The lower estimated displaced emissions were used in this report. Emissions Calculations and assumptions and model output files are included in Appendix A of this report.

5.0 IMPACT ANALYSIS

Impact AQ-1	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. A project is conforming with applicable adopted plans if it complies with the applicable ICAPCD rules and regulations and emission control strategies in the applicable air quality attainment plans. The project would comply with the applicable rules and regulations, including the use of standard mitigation measures for construction equipment and fugitive PM_{10}.

Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled (VMT) within the region, which is used for development of the emissions inventories contained in the air quality plans. While the Project would contribute to energy supply, which is one factor of population growth, the proposed Project would not significantly increase employment or growth within the region. Moreover, development of the proposed Project would increase the amount of renewable energy and help California meet its Renewable Portfolio Standard (RPS).

Furthermore, the thresholds of significance, adopted by the air district (ICAPCD), determine compliance with the goals of attainment plans in the region. As such, emissions below the ICAPCD regional mass daily emissions thresholds presented in Tables 4 and 5 would not conflict with or obstruct implementation of the applicable air quality plans. As Tables 7 and 8 show, the emissions from proposed Project construction and operation are below the thresholds of significance; therefore, the proposed Project does not conflict with implementation of the ICAPCD applicable air quality plans. No mitigation is required.

Impact AQ-2	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The Project implementation would generate emissions of criteria air pollutants during construction and operation. The estimated emissions from construction and operations of the Project are summarized in Tables 7 and 8. The detailed assumptions and calculations, as well as CalEEMod outputs are provided in Appendix A of this report.

Table 7: Unmitigated Construction Emissions Summary

Construction Phase	Pollutant Emission (pounds per day)					
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2
1. Site Preparation	4.1	39.6	25.7	27.8	7.9	0.06
2. Facility Installation	3.4	30.4	25.0	27.6	4.0	0.06
3. Gen-Tie, Site Restoration	2.0	17.9	14.8	14.2	2.2	0.03
Peak Daily Emission	*4.1*	*39.6*	*25.7*	*27.8*	*7.9*	*0.06*
ICAPCD Significance Thresholds	*75*	*100*	*550*	*150*	--	--
Threshold Exceeded?	*No*	*No*	*No*	*No*	--	--

NA = Not applicable, no threshold

ICAPCD significance thresholds are based on maximum daily emissions.

Emission were quantified using CalEEMod, version 2016.3.2 using "general light industry" land use category and modifying default values, where applicable.

Model results and assumptions are provided in Appendix A.

As Table 7 shows, estimated unmitigated construction emissions for all pollutants are below ICAPCD significance thresholds.

Prior to construction, the construction contractor will perform recordkeeping of a construction equipment list. The equipment list will include the Make, Model, Horsepower, and actual hours of usage for off-road equipment. The equipment list(s) will be submitted periodically to the ICAPCD to perform a NOx analysis. The ICAPCD's NOx analysis will then be used to assure the Project has remained in compliance with the Less Than Significant Finding of this report. If the ICAPCD's NOx analysis indicates exceedances of thresholds, the Project would be mitigated per Policy 5.

The Project's operation is limited to inspection activities, conservatively assumed up to 4 employee vehicle trips per day, and panel cleaning events 4 times per year with 4 additional employees and 6 water truck trips per day. Operational emissions are summarized in Table 8. As shown, the Project emissions during operations of the facility would be well below the significance thresholds.

Table 8: Unmitigated Operational Emissions Summary

Activity	Pollutant Emission (pounds per day)				
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Panel Washing	0.14	1.68	0.86	2.14	0. 26
Normal Maintenance	0.02	0.02	0.24	0.63	0.07
Peak Daily Emission (Total Operational)	*0.16*	*1.70*	*1.09*	*2.77*	*0.33*
ICAPCD Significance Thresholds	*137*	*137*	*550*	*150*	*550*
Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*

ICAPCD significance thresholds are based on maximum daily emissions.

Emission were quantified using CalEEMod, version 2016.3.2 using "user defined industrial" category and modifying default values using project-specific data/assumptions, where available.

The data for PM_{10} and $PM_{2.5}$ emissions, include the standard mitigation for fugitive dust that is required for all projects in Imperial County.

Model results and assumptions are provided in Appendix A.

Decommissioning. The proposed Project is anticipated to operate a total of approximately 20 – 25 years. At the end of the Project site operational term, the applicant may determine that the Project site should be decommissioned and deconstructed, or it may seek an extension of its CUP. The emissions associated with decommissioning of the Project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than project construction, and the emissions from off-road and on-road equipment are expected to be much lower than those for the Project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant.

As presented above, the proposed Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. The impact is less than significant, and no mitigation required; however, per requirements of ICAPCD, the standard mitigation measures would be implemented during construction and operation of the Project, including an Operational Dust Control Plan (ODCP) outlining strategies for controlling dust emissions during Project operations. The required ICAPCD mitigation measures (for all projects) are listed in Section 5.1 of this report.

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptors locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields. Sensitive receptors located within one mile of the Project site consist of a few scattered rural homes, the nearest of which is located approximately 2,000 feet southwest of the Project site boundary.

Implementation of the proposed Project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. Short-term construction activities (6 to 9 months) could result in temporary increases in pollutant concentrations. Emissions of all criteria pollutants are below the ICAPCD thresholds and would not have any significant impact. The Project's emissions of toxic air pollutants would be minimal and would consist of DPM (diesel particulate matter) emissions during construction activities. The employee commuting to the site during project construction or operation would use gasoline-fueled vehicles.

In conclusion, because of the minimal emissions of DPM during the short-term Project construction (6 to 9 months), the distance from nearest sensitive receptor (2,000 feet), implementation of the Project would not expose sensitive receptors to substantial pollutant concentrations.

Fugitive Dust. During construction and operations activities, the Project would implement dust control measures as shown in Section 5.1, including an ODCP, to ensure receptors in the project vicinity would not be impacted by the Project's long-term dust emissions during operations.

Naturally Occurring Asbestos. Airborne asbestos is classified as a known human carcinogen and was identified by as a TAC by CARB in 1986. The California Geological Survey prepared maps and lists of the naturally occurring asbestos areas within California counties. According to the 2011 report, the proposed project location is not an area of naturally occurring asbestos (USGS 2011).

Impact AQ-4	**Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

No Impact. Short term Project construction occurs more than 1,200 feet from the nearest sensitive receptor in an agricultural rural set, therefore the odors from construction equipment would not affect sensitive receptors. Operation of the Project does not include any component with the potential to generate odorous emissions that could affect a substantial number of people. No impact would occur.

Impact AQ-5	**Would the project generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment?**

Beneficial Impact. The Project-related direct and indirect emissions of GHGs were estimated using the similar methods for quantification of criteria air pollutants. The estimated emissions are summarized in Table 9. Detailed assumptions and calculations, as well as CalEEMod outputs are provided in Appendix A of this report. Total GHG emissions from all phases of construction activities were amortized over the estimated 20-year life of the project and added to the annual operational emissions of GHGs. The Project would offset GHG emissions through renewable energy generation and thereby result in environmental benefits by lessening the impacts of global climate change, as such, the annual displaced GHG emissions were estimated to include all direct and indirect emissions associated with implementation of the Project. Project decommissioning emissions were not calculated as the equipment and fuel types that would exist 20 or more years in the future are unknown. Also as described above, it is anticipated that the decommissioning emissions would be lower than the construction emissions.

Table 9: Greenhouse Gas Emissions Summary

Emissions Source	GHG Emissions (Metric Tons CO_2e/year)
Construction Emissions – Amortized [1]	18.8
Operational Emissions – Facility site [2]	9.0
Displaced Emissions (from Project Operation) [3,4]	-65,165
Total Annual Emissions	-65,136
Significance Threshold [5]	3,000
Threshold Exceeded?	No

1. Total construction emissions amortized over project life of 20 years.
2. Includes direct and indirect emissions of project site operation and maintenance, not including the indirect displaced GHG emissions.
3. Estimation of emissions avoided due to displacement of fossil fuel powered electricity generation.
4. The CalEEMod value of carbon intensity factor for Imperial Irrigation District (IID) is used to estimate displaced GHG emissions.
5. In the absence of ICAPCD-adopted threshold for GHG emissions, the SCAQMD threshold of 3,000 MT/year for commercial projects is used. Calculations, assumptions and model outputs are provided in Appendix A

As Table 9 shows, 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, as such, the overall effect of the proposed Project is to reduce GHG emissions. Therefore, the proposed project would have a beneficial GHG emissions impact.

Impact AQ-6 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Less Than Significant Impact. Currently, there are no federal, State, or local climate change or GHG emissions regulations that address the GHG emissions Project construction. The project operation will, there are a number of federal, State, and local plans and policies, and GHG emissions reduction strategies that are potentially applicable to the proposed project, either directly or indirectly. The project operation is consistent with the followings

- The Project is consistent with the AB 32 scoping plan strategies to increase the total amount of renewable energy sources consistent with the goal of the State's Renewable Portfolio Standard (RPS).
- The Project is consistent with the CARB's emission reduction strategy presented in the Scoping Plans. The 2008 Scoping Plan specifically addresses critical measures directed at emission sources that are included in the cap-and-trade program that are designed to achieve cost-effective emissions reductions while accelerating the necessary transition to the low-carbon economy.
- The proposed Project implementation will help California meet its Renewable Portfolio Standard (RPS) requirements.

The Project would help promote California's GHG policies by creating renewable energy resources and would not exceed applicable GHG screening levels. Therefore, the proposed Project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Moreover, Projects that are consistent with applicable plan, policy, or regulation adopted to reduce GHG emissions are considered less than significant during construction, operation and reclamation.

5.1 MITIGATION MEASURES

As discussed in the ICAPCD CEQA Handbook, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for control of fugitive dust. In addition, the Handbook lists additional (discretionary) mitigation measures that may be warranted as feasible, to control fugitive dust and equipment exhaust emissions.

5.2 CONSTRUCTION

In compliance with the ICAPCD requirements, the following measures would be implemented during construction of the Project:

AQ-MM.1 **Regulation VIII (Fugitive Dust Control Measures)**. All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII.

5.2.1 Standard Mitigation Measures for Fugitive Dust (PM10) Control

a. All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.

b. All on-site and off-site unpaved roads would be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

c. All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day would be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

d. The transport of Bulk Materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

e. All Track-Out or Carry-Out would be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area.

f. Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient amounts of water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

g. The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

5.2.2 Discretionary Measures for Fugitive Dust (PM10) Control

For projects with construction site of 5 acres or more for non-residential developments, in order to provide a greater degree of PM_{10} reductions, above that required by Regulation VIII, the ICAPCD recommends the following:

a. Water exposed soil with adequate frequency for continued moist soil.

b. Replace ground cover in disturbed areas as quickly as possible.

c. Use automatic sprinkler system installed on all soil piles.

d. Limit vehicle speed for all construction vehicles to 15 miles per hour on any unpaved surface at the construction site.

e. Develop a trip reduction plan to achieve a 1.5 AVR for construction employees.

f. Implement a shuttle service to and from retail services and food establishments during lunch hours.

AQ-MM.2 Construction Equipment Control Measures

5.2.3 Standard Mitigation Measures for Equipment Exhaust Emissions Control

These include:

a. Use of equipment with alternative fueled or catalyst-equipped diesel engine, including for all off-road and portable diesel-powered equipment.

b. Minimize idling time either by shutting equipment off when not in use or limit the idling time to a maximum of 5 minutes.

c. Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the number of equipment in use.

d. Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

5.2.4 Enhanced Mitigation Measures for Construction Equipment

To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures.

a. Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.
b. Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

5.3 OPERATION

5.3.1 Operational Dust Control Plan

To help reduce fugitive dust emissions from onsite unpaved roads and accumulation of small dunes during operations, an Operational Dust Control Plan (ODCP) would be prepared. The ODCP would include strategies for how dust emissions would be controlled and maintained during Project operations. The ODCP would be submitted to the ICAPCD for approval prior to the issuance of a Certificate of Occupancy.

6.0 REFERENCES

California Air Resources Board (CARB). 2016. Ambient Air Quality Standards Chart. May 4. Available online at: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf

_____. 2017. Area Designation Maps. Available online at: https://www.arb.ca.gov/desig/adm/adm.htm

_____. 2018. California Greenhouse Gas Emission Inventory – 2018 Edition: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

_____. 2019. Air Quality Data Statistics; Top Four Summary for Monitored data at Niland and Brawley Stations. Available online: https://www.arb.ca.gov/adam/

California Air Pollution Officers Association (CAPCOA). California Emission Estimator Model (CalEEMod). Version 2016.3.2. http://www.caleemod.com/

California Energy Commission (CEC). 2006. Renewable Energy Program Guidelines.

California Geological Survey and U.S. Geological Survey. 2011. *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California, 2011.* Available online at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ms/59/MS59_Pamphlet.pdf

Imperial County Air Pollution Control District (ICAPCD). 2017. *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Environmental Quality Act.* Revised December 12.

Imperial County Planning and Development Services Department. 2015. *General Plan: Renewable Energy and Transmission Element.* Revised October 6.

Intergovernmental Panel on Climate Change (IPCC). 2007. IPCC Fourth Assessment Report: Climate Change 2007 (AR4): The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Table 2.14. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020. CEQA Guidance and Tools. Available at: http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools.

United States Environmental Protection Agency (USEPA). 2019. Nonattainment Areas for Criteria Pollutants (Green Book). December 31. Available online at: https://www.epa.gov/green-book

_____. 2016. Fast Facts from the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014. Available at: https://www.epa.gov/sites/production/files/2016-06/documents/us_ghg_inv_fastfacts2016.pdf.