AIR QUALITY, ENERGY, AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

BRAWLEY SOLAR ENERGY FACILITY PROJECT

IMPERIAL COUNTY

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	Salton Sea Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
County	County of Imperial
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
ICAPCD	Imperial County Air Pollution Control District
IPCC	International Panel on Climate Change
kWhr	kilowatt-hour

LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
OPR	Office of Planning and Research
Pfc	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality, energy, and GHG emissions impacts associated with the proposed Brawley Solar Energy Facility project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the energy conservation regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable energy and GHG emissions reduction plans and policies.

1.2 Site Locations and Study Area

The project site is located in the County of Imperial (County). The approximately 227-acre project site is currently alfalfa fields within different levels of harvest and is bounded by undeveloped agricultural land to the north and to the east, undeveloped agricultural land and dirt lots used for staging actives to the south, and City of Brawley Wastewater Treatment Plan to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). The nearest school is Brawley Union High School and Desert Valley High School, which is located as near as 2.7 miles south of the project site and Barbara Worth Junior High School, which is located as near as 2.8 miles south of the project site.

1.3 Proposed Project Description

The proposed project would consist of development of solar energy facility located at 5003 Best Ave, Brawley. The Brawley solar energy facility includes a 40 Megawatt (MW)/160 Megawatt hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS). Power generated by the proposed 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. 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. The Project would connect to the North Brawley Geothermal Power Plant substation southwest of the Project site via an approximately 1.6-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line). Energy generated and stored by the project will 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 site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality, Energy, and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the ICAPCD and State of California (State).

Imperial County Air Pollution Control District Regulations

The following lists the ICAPCD regulations are applicable, but not limited to the proposed project.

- Regulation II Permits – Requires all stationary emissions sources to obtain a permit from ICAPCD;
- Regulation VIII – Provides specific rules for the control of fugitive dust.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality, energy, and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

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.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant impact.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

Less than significant impact.

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

No impact.

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

No impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features from the *CEQA Air Quality Handbook* (ICAPCD CEQA Handbook), prepared by ICAPCD, December 12, 2017, that all industrial projects in the County are required to implement.

Project Design Feature 1:
The project applicant shall require the following measures to be implemented during construction of the project:

Fugitive Dust 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% 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 will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

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

d. The transport of Bulk Materials shall be completely covered unless six 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 will 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 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.

Construction Combustion Equipment

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

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

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

d. When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Project Design Feature 2

The project applicant shall require that all construction equipment utilized during construction of the project shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NO_x analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

Project Design Feature 3

The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

Project Design Feature 4

Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

Project Design Feature 5

Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.

Project Design Feature 6

During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less.

Project Design Feature 7

The project applicant shall require the following measures to be implemented during operation of the project (as detailed above in Section 1.2, the project would operate remotely, with no employees typically onsite, as such the measures specific for onsite employees are not applicable to the project):

- Provide for paving a minimum of 100 feet from the property line for commercial driveways that access County paved roads as per County Standard Commercial Driveway Detail 410B.
- Measures which meet mandatory, prescriptive/performance measures as required by Title 24.

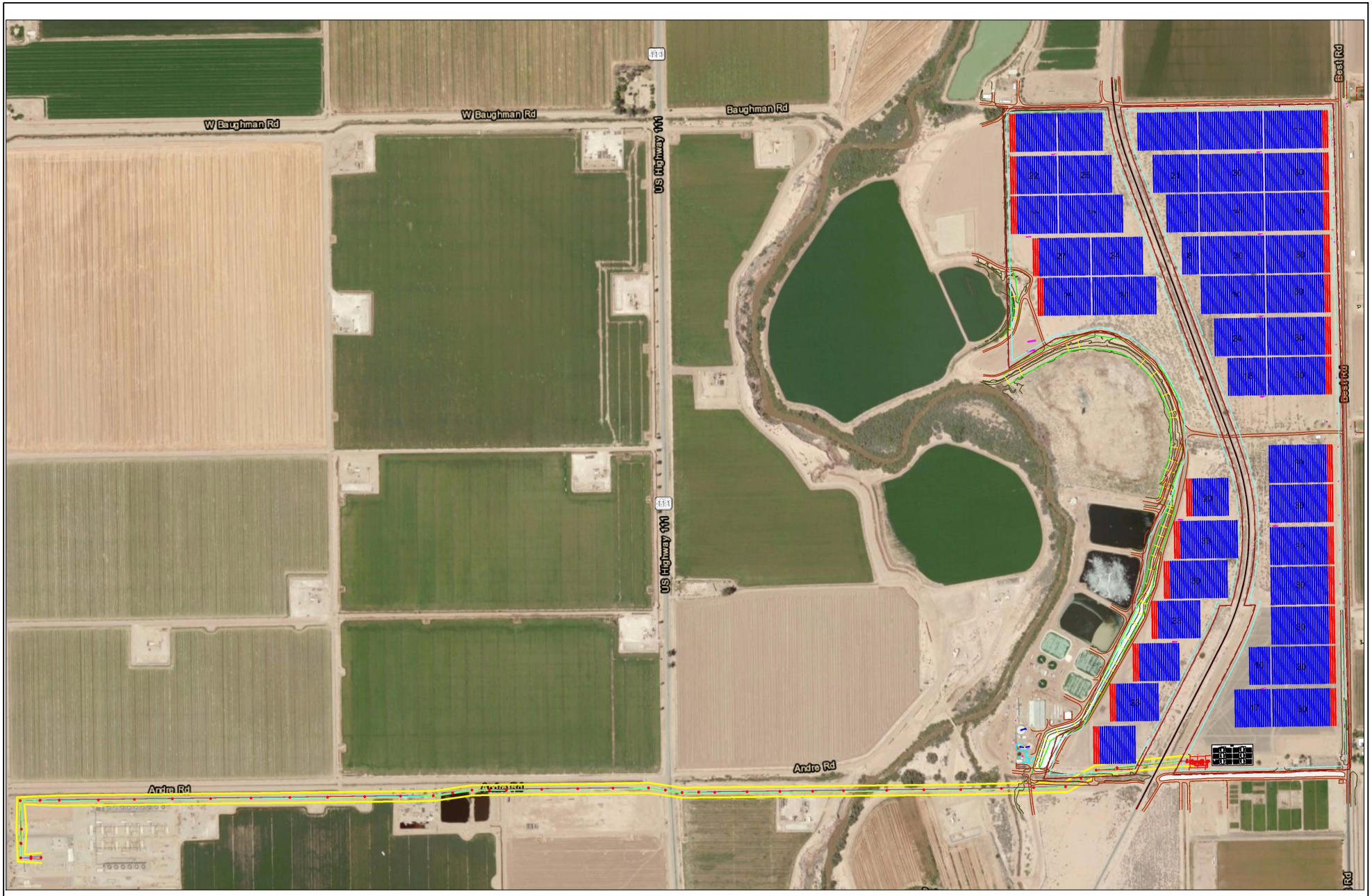
1.6 Mitigation Measures for the Proposed Project

This analysis found that implementation of the State and ICAPCD air quality, energy, and GHG emissions reductions regulations and the Project Design Features provided above in Section 1.5 were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality, energy, and GHG emissions.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



SOURCE: McKently Malak Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of ozone, nitrogen oxides (NOx), CO, sulfur oxides (SOx), lead, and particulate matter (PM). The ozone precursors consist of NOx and Volatile Organic Compounds (VOC). These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

NOx is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NOx and the pollutants formed from NOx can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air, instead it is created by a chemical reaction between NOx and VOC in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,

gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. 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 now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 70 miles northwest of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). 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 methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane 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 have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e). As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2016.3.2 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:

[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to the Carbon Dioxide Information Analysis Center[1], 9,855 million metric tons (MMT) of CO_2e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use[2].

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019,* prepared by EPA, in 2019 total U.S. GHG emissions were 6,558 million metric tons (MMT) of CO_2e emissions. Total U.S. emissions have increased by 4 percent between 1990 and 2016 and GHG emissions decreased by 13 percent between 2005 and 2019. The recent decrease in GHG emissions was a result of multiple factors, including population, economic growth, energy markets, and technological changes the include energy efficiency and energy fuel choices. Between 2018 and 2019, GHG emissions decreased by almost 2 percent due to multiple factors, including a one percent decrease in total energy use.

According to *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators*, prepared by CARB, July 28, 2021, the State of California created 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The 2019 emissions were 7.2 $MMTCO_2e$ lower than 2018 levels and almost 13 $MMTCO_2e$ below the State adopted year 2020 GHG limit of 431 $MMTCO_2e$. The breakdown of California GHG emissions by sector consists of: 39.7 percent from transportation; 21.1 percent from industrial; 14.1 percent from electricity generation; 7.6 percent from agriculture; 10.5 percent from residential and commercial buildings; 4.9 percent from high global warming potential sources, and 2.1 percent from waste.

1 Obtained from: https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html
2 Obtained from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years.

As indicated below in Table C, the ICAPCD portion of the Salton Sea Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone, respirable particulates (PM10), and fine particulate matter (PM2.5). Currently, the ICAPCD is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

Table C – Salton Sea Air Basin Attainment Status

Pollutant	Federal Designation	State Designation
Ozone (O_3) – 2008 Standard	Nonattainment (Moderate)	Nonattainment
Respirable Particulate Matter (PM10)	Nonattainment (Serious)	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment (Moderate)	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment

Source: https://ww3.arb.ca.gov/desig/adm/adm.htm ; and https://ww3.arb.ca.gov/planning/sip/planarea/imperial/staffreport121318.pdf

4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The ICAPCD has been designated by the CARB as a non-attainment area for ozone, PM10, and PM2.5. Currently, the ICAPCD is in attainment with the ambient air quality standards for CO, NO_2, and SO_2.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all non-residential projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in

California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Local – County of Imperial

The ICAPCD is the agency principally responsible for comprehensive air pollution control in the County. To that end, as a regional agency, the ICAPCD works directly with the Southern California Association of Governments (SCAG), the Imperial County Transportation Commission (ICTC), and local governments and cooperates actively with all federal and state agencies.

Imperial County Air Pollution Control District

The ICAPCD is the agency principally responsible for comprehensive air pollution control in Imperial County. To that end, as a regional agency, the ICAPCD works directly with the County and incorporated communities as well as the military bases within the County to control air emissions within the County.

The ICAPCD has addressed each of three nonattainment pollutants in separate State Implementation Plans (SIPs). For ozone the most current SIP is the Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard (2017 Ozone SIP), prepared by ICAPCD, September 2017, which was prepared to detail measures to reduce ozone precursors (i.e., reactive organic gases [ROGs] and NOx) within the County in order to meet the 2008 NAAQS for 8-hour ozone standard of 0.075 parts per million (ppm) by July 20, 2018. Although the Ozone 2017 SIP demonstrates that the County met the 8-hour ozone standard of 0.075 ppm by the July 20, 2018, requirement, it should be noted that in 2015 the USEPA further strengthened its 8-hour ozone standard to 0.070 ppm, which will require an updated SIP for the County to meet the new ozone standard.

Since PM10 in the County has met the 24-hour NAAQS other than for exceptional events that include storms as well as from substantial PM10 concentrations blowing into the County from Mexico, the most current PM10 plan is the Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter (2018 PM10 Plan), prepared by ICAPCD, October 23, 2018. The 2018 PM10 Plan shows that the monitoring of PM10 in the County found that other than exceptional events, no violation of the 24-hour PM10 NAAQS of 150 micrograms per cubic meter (µg/m3) occurred over the 2014 to 2016 time period. As such, the ICAPCD has requested the USEPA to redesignate the Air Basin to maintenance. The redesignation was anticipated to occur sometime in the year 2020.

For PM2.5 the most current SIP is the Imperial County 2018 Annual Particulate Matter less than 2.5 Microns in Diameter State Implementation Plan (2018 PM2.5 SIP), prepared by ICAPCD, April 2018, which was prepared to detail measures to meet the 2012 NAAQS for annual PM2.5¬ standard of 12 µg/m3 by the end of 2021 for the portion of Imperial County (approximately from Brawley to Mexico border) that is designated nonattainment. The PM2.5 Plan found that the only monitoring station in the County that has recorded an exceedance of PM2.5 is the Calexico Monitoring Station and that the exceedance is likely caused by the transport of PM2.5 across the border from Mexico. It is anticipated that the ICAPCD will submit a redesignation request for PM2.5 in the near future.

Although ICAPCD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the County. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (CEQA Handbook), prepared by ICAPCD on December 12, 2017, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the CEQA Handbook explains the procedures that ICAPCD recommends be followed for the environmental review process required by CEQA. The CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The ICAPCD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the County, and adverse impacts will be minimized.

The following provides the ICAPCD regulations that are applicable but not limited to industrial development projects in the County.

Regulation II - Permits

Rule 201 requires that a permit to construct and operate be obtained prior to start of construction activities for all facilities that need to obtain an Air Quality Permit from the ICAPCD to operate, which includes backup diesel generators. Rule 208 requires a permit for all facilities prior to the construction, installation, modification, replacement, and operation of any equipment which may emit air contaminants.

Regulation VIII – Fugitive Dust Rules

Rule 800 provides general requirements for the control of fugitive dust. Rule 801 provides specific rules for fugitive dust emissions created during construction and earthmoving activities. Rule 802 provides specific rules for fugitive dust emissions from bulk materials. Rule 803 provides specific rules for carry-out and track-out. Rule 805 provides specific rules for fugitive dust emissions from paved and unpaved roads.

Imperial County Transportation Commission

The ICTC serves as the regional delegated transportation commission for Imperial County that participates in development and implementation of the RTP and distributes and oversees the Local Transportation Fund. ICTC's jurisdiction includes the seven incorporated cities in the County, the unincorporated County and the Imperial Valley Transit (IVT) System.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020 and the *2019 Federal Transportation Improvement* Program (2019 FTIP), adopted September 2018, which addresses regional development and

growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

5.0 ENERGY CONSERVATION MANAGEMENT

The regulatory setting related to energy conservation is primarily addressed through State and County regulations, which are discussed below.

5.1 State

Energy conservation management in the State was initiated by the 1974 Warren-Alquist State Energy Resources Conservation and Development Act that created the California Energy Resource Conservation and Development Commission (currently named California Energy Commission [CEC]), which was originally tasked with certifying new electric generating plants based on the need for the plant and the suitability of the site of the plant. In 1976 the Warren-Alquist Act was expanded to include new restrictions on nuclear generating plants, that effectively resulted in a moratorium of any new nuclear generating plants in the State. The following details specific regulations adopted by the State in order to reduce the consumption of energy.

California Code of Regulations (CCR) Title 20

On November 3, 1976 the CEC adopted the *Regulations for Appliance Efficiency Standards Relating to Refrigerators, Refrigerator-Freezers and Freezers and Air Conditioners,* which were the first energy-efficiency standards for appliances. The appliance efficiency regulations have been updated several times by the Commission and the most current version is the *2016 Appliance Efficiency Regulations*, adopted January 2017 and now includes almost all types of appliances and lamps that use electricity, natural gas as well as plumbing fixtures. The authority for the CEC to control the energy-efficiency of appliances is detailed in California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1609.

California Code of Regulations (CCR) Title 24, Part 6

The CEC is also responsible for implementing the CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24 Part 6) that were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Building

Standards are also updated every three years and the current version is the 2019 California Green Building Standard Code that become effective on January 1, 2020.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide. However, EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA has proposed to amend the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The EPA's proposed amendments do not include any extension of the legal waiver granted to California by the 1970 Clean Air Act and which has allowed the State to set tighter standards for vehicle pipe emissions than the EPA standards. On September 20, 2019, California filed suit over the EPA decision to revoke California's legal waiver that has been joined by 22 other states.

5.2 Local – Imperial County

The Imperial County General Plan Renewable Energy and Transmission Element addresses energy conservation. The General Plan Goals and Policies identified below, address energy conservation.

Table D – Imperial County General Plan Energy Conservation Goals, Objectives and Policies

Goal, Objective, and Polices	General Plan
Goal 1	Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.
Objective 1.1	The County of Imperial supports the overall goals of the Desert Renewable Energy Conservation Plan to provide a balance between the development of renewable energy resources while preserving sensitive environmental resources within its jurisdiction.
Objective 1.2	Lessen impacts of site and design production facilities on agricultural, natural, and cultural resources.
Objective 1.3	Require the use of directional geothermal drilling and "islands" when technically advisable in irrigated agricultural soils and sensitive or unique biological areas.
Objective 1.4	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.
Objective 1.5	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.
Objective 1.6	Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.
Objective 1.7	Assure that development of renewable energy facilities and transmission lines comply with Imperial County Air Pollution Control District's regulations and mitigation measures.
Goal 2	Encourage development of electrical transmission lines along routes which minimize potential environmental effects.
Objective 2.1	To the extent practicable, maximize utilization of IID's transmission capacity in existing easements or rights-of-way. Encourage the location of all major transmission lines within designated corridors, easements, and rights-of-way.
Objective 2.2	Where practicable and cost-effective, design transmission lines to minimize impacts on agricultural, natural, and cultural resources, urban areas, military operation areas, and recreational activities.
Goal 3	Support development of renewable energy resources that will contribute to and enhance the economic vitality of Imperial County.
Objective 3.1	Preserve IID's Balancing Authority and local rate-making authority which allows IID to continue to provide low-cost service. Lower energy rates enhance the economic vitality in Imperial County.
Objective 3.2	Encourage the continued development of the mineral extraction/production industry for job development using geothermal brines from the existing and future geothermal flash power plants.
Objective 3.3	Encourage the development of services and industries associated with renewable energy facilities.
Objective 3.4	Assure that revenues projected from proposed renewable energy facility developments are sufficient to offset operational costs to the County from that particular development.
Objective 3.5	Encourage employment of County residents by the renewable energy industries wherever and whenever possible.
Objective 3.6	Encourage the establishment of necessary and applicable renewable energy training programs in local school systems in association with the renewable energy industry.
Objective 3.7	Evaluate environmental justice issues associated with job creation and displacement when considering the approval of renewable energy projects.
Goal 4	Support development of renewable energy resources that will contribute to the restoration efforts of the Salton Sea.
Objective 4.1	Prioritize the Salton Sea exposed seabed (playa) for renewable energy Development.

Goal, Objective, and Polices	General Plan
Objective 4.2	Encourage the development of renewable energy facilities that will contribute to the reduction or elimination of airborne pollutants created by exposure of the seabed of the Salton Sea as it recedes.
Objective 4.3	Develop mitigation measures and monitoring programs to minimize impacts to avian species and other species that may be affected by renewable energy facilities constructed near the Salton Sea.
Goal 5	Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.
Objective 5.1	Support the implementation of pilot projects intended to test or demonstrate new and innovative renewable energy production technologies.
Objective 5.2	Encourage development of utility-scale distributed generation projects in the County.
Goal 6	Support development of renewable energy while providing for the protection of military aviation and operations.
Objective 6.1	Assure that renewable energy facilities proposed in areas adjacent to military installations and training areas will be compatible with these uses.
Objective 6.2	Facilitate the early exchange of project-related information with the military for proposed renewable energy facilities located within a military operations area (MOA) or within 1,000 feet of a military installation.
Objective 6.3	Assure that renewable energy facilities proposed within MOAs will not jeopardize the safety of existing residents or impact military operations.
Goal 7	Actively minimize the potential for land subsidence to occur as a result of renewable energy operations.
Objective 7.1	Require that all renewable energy facilities, where deemed appropriate, include design features that will prevent subsidence and other surface conditions from impacting existing land uses.
Objective 7.2	For geothermal energy development facilities, establish injection standards consistent with the requirements of the California Division of Oil, Gas, and Geothermal Resources (CDOGGR). Request a CDOGGR subsidence review, if necessary, for consideration prior to setting injection standards.
Objective 7.3	Require renewable energy facility permittees to establish and monitor subsidence detection networks in areas affected by permitted project activities.
Objective 7.4	Require monitoring programs for determining the possibility or extent of induced subsidence.
Objective 7.5	Require corrective measures, in proportion to each developer's activities, if evidence indicates that operation of geothermal energy facilities have caused, or will cause, surface impacts. In determining monitoring or mitigation requirements, the County shall consult with informed parties such as CDOGGR, County Department of Public Works, the IID, the permittee, other developers, and other experts as appropriate.
Objective 7.6	Where geothermal fields have been divided into units or developers have established a cooperative agreement for reservoir management, specific production and injection requirements of individually permitted projects may be modified in accordance with both Federal and State requirements.
Objective 7.7	Require seismic monitoring be performed in conjunction with major geothermal projects.
Objective 7.8	Require operators of geothermal facilities analyze seismic data to determine the effects of geothermal production and injection on seismic activities within the development area.
Objective 7.9	Consult with experts, such as CDOGGR, U.S. Geological Survey, geothermal industry representatives, permittees, and other developers to determine appropriate monitoring and mitigation requirements.

Goal, Objective, and Polices	General Plan
Objective 7.10	Require operators of geothermal facilities to establish a notification system to warn or notify surrounding residents of the accidental release of potentially harmful emissions as part of an emergency response plan.
Objective 7.11	Require all geothermal energy facilities to include operating procedures that would prevent detrimental impacts to geothermal reservoirs.
Goal 8	Develop overlay zones that will facilitate the development of renewable energy resources while preserving and protecting agricultural, natural, and cultural resources. Development of overlay zones shall include coordination with Federal, State, County, Tribal governments, educational entities, the public and local industries.
Objective 8.1	Allow for County review with appropriate development and performance standards for development of local resources within the overlay zones.
Objective 8.2	Promote the exchange of information concerning renewable energy development to be circulated between industry, County staff, and the public.
Objective 8.3	Provide the public adequate opportunity to obtain information on the current status of renewable energy development and to provide input on matters related to the development of renewable energy resources.

Source: County of Imperial General Plan, 2015.

6.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

6.1 International

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

6.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

6.3 State

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the

aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

California Code of Regulations (CCR) Title 24, Part 6

The Title 24 Part 6 standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the Title 24 Part 6 building standards would also reduce GHG emissions, since as detailed above in Section 3.3 Greenhouse Gas Emissions Inventory, energy use for residential and commercial buildings creates 9.7 percent of the GHG emissions in the State.

California Code of Regulations (CCR) Title 24, Part 11

The CalGreen Building standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the CalGreen Building standards would also reduce GHG emissions, since as detailed above under Title 23, Part 6, energy usage from buildings creates 9.7 percent of GHG emissions in the State.

Senate Bill 100

SB 100 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-48-18 and Assembly Bill 2127

Executive Order B-48-18 and AB 2127 provides measures to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025 and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030

as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years. The most recent targets[3] provide GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The Connect SoCal (SCAG 2020) provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other

3 Obtained from: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets

provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

AB 1109 requires reductions in energy usage for lighting and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project

complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 $MMTCO_2e$. The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap-and-Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

AB 1493 or the Pavley Bill sets tailpipe GHG emissions limits for passenger vehicles in California as well as fuel economy standards and is described in more detail above in Section 5.1 under Energy Conservation Management.

6.4 Local – Imperial County

The ICAPCD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. ICAPCD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The ICAPCD has not established formal quantitative or qualitative GHG emissions thresholds through a public rulemaking process. However, the ICAPCD has adopted the Federal PSD and Title V GHG air permitting requirements by reference for stationary sources in Regulation IX in Rules 900 and 903, which are described below.

ICAPCD Rule 900

ICAPCD Rule 900 provides procedures for issuing permits to operate for industrial projects that are subject to Title V of the Federal Clean Air Act Amendments of 1990 (Major Sources) of emissions, which is defined as a source that exceeds 100 tons per year of any regulated pollutant, including GHG emissions.

ICAPCD Rule 903

ICAPCD Rule 903 applies to any stationary source that would have the potential to emit hazardous air pollutants (HAPs). Rule 903 provides a de minimis emissions level of 20,000 tons of CO2e per year, where a stationary source that produces less emissions than the de minimis emissions levels, the source is exempt from the Rule 903 recordkeeping and reporting requirements.

7.0 ATMOSPHERIC SETTING

7.1 Regional Climate

The Project site is located within the central portion of Imperial County, which is part of the Salton Sea Air Basin (Air Basin). The Air Basin comprises the central portion of Riverside County and all of Imperial County. The Riverside County portion of the Air Basin is regulated by the South Coast Air Quality Management District (SCAQMD), and the Imperial County portion of the Air Basin is regulated by the Imperial County Air Pollution Control District (ICAPCD).

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographical features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine their movement and dispersal, and, consequently, their effect on air quality. The combination of topography and inversion layers generally prevents dispersion of air pollutants in the Air Basin. The following description of climate of Imperial County was obtained from Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter, prepared by ICAPCD, October 23, 2018.

The climate of Imperial County is governed by the large-scale sinking and warming of air in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in the winter, when it is weakest and located farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal areas. Because of the barrier and weakened storms, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The sun shines, on the average, more in Imperial County than anywhere else in the United States.

Winters are mild and dry with daily average temperatures ranging between 65- and 75- degrees Fahrenheit (°F). During winter months it is not uncommon to record maximum temperatures of up to 80 80 °F. Summers are extremely hot with daily average temperatures ranging between 104 and 115 °F. It is not uncommon to record maximum temperatures of 120 °F during summer months.

The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection. The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable, with precipitation from a single heavy storm able to exceed the entire annual total during a later drought condition. The average annual rainfall is just over three 3 inches, with most of it occurring in late summer or mid-winter.

Humidity is low throughout the year, ranging from an average of 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent but drops to about 10 percent during the day.

The wind in Imperial County follows two general patterns. Wind statistics indicate prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Occasionally, Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour (mph), and this occurs most

frequently during the months of April and May. However, speeds of less than 6.8 mph account for more than one-half of the observed wind measurements.

7.2 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. The air quality at any location in the Air Basin is determined by the release of pollutants throughout the Air Basin as well as from air pollutants that travel from the coastal areas and Mexico to the Air Basin. The ICAPCD operates a network of monitoring stations throughout the County that continuously monitor ambient levels of criteria pollutants in compliance with federal monitoring regulations.

Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the Project site, have been used: Brawley-220 Main Street Monitoring Station (Brawley Station), Westmorland Monitoring Station (Westmorland Station) and El Centro – 9th Street Monitoring Station (El Centro Station)

The Brawley Station is located approximately 2.9 miles south of the project site at 220 Main Street, Brawley, the Westmorland Station is located approximately 6.4 miles west of the project site at 202 W First Street, Westmorland, and the El Centro Station is located approximately 15.7 miles south of the project site at 150 9th Street, El Centro. PM10 and PM2.5 were measured at the Brawley Station, ozone was measured at the Westmorland Station, and NO_2 was measured at the El Centro Station. It should be noted that due to the air monitoring stations' distances from the project site, recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy local air quality conditions at the project site.

Table E and shows the most recent three years of monitoring data from CARB. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013.

Table E – Local Area Air Quality Monitoring Summary

	Year[1]		
Pollutant (Standard)	**2018**	**2019**	**2020**
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	0.086	0.071	0.067
Days > CAAQS (0.09 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.068	0.060	0.059
Days > NAAQS (0.070 ppm)	0	0	0
Days > CAAQs (0.070 ppm)	0	0	0
Nitrogen Dioxide: [2]			
Maximum 1-Hour Concentration (ppb)	34.1	41.4	44.8
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) :[3]			
Maximum 24-Hour National Measurement (ug/m^3)	407.0	324.4	166.0

Pollutant (Standard)	Year[1] 2018	2019	2020
Days > NAAQS (150 ug/m^3)	13	2	2
Days > CAAQS (50 ug/m^3)	106	53	73
Annual Arithmetic Mean (AAM) (ug/m^3)	52.2	35.8	39.0
Annual > NAAQS (50 ug/m^3)	**Yes**	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):[3]			
Maximum 24-Hour National Measurement (ug/m^3)	55.1	28.9	23.7
Days > NAAQS (35 ug/m^3)	**2**	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	10.4	8.3	9.4
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	No

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Westmorland Station.
[2] Data obtained from the El Centro Station.
[3] Data obtained from the Brawley Station.
Source: http://www.arb.ca.gov/adam/

Ozone

During the last three years, the State 1-hour and 8-hour concentration standards for ozone have not been exceeded at the Westmorland Station. The Federal 8-hour ozone standard has not been exceeded over the last three years at the Westmorland Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The El Centro Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 53 and 106 days per year over the past three years at the Brawley Station. Over the past three years the Federal 24-hour standard for PM10 has been exceeded between 2 and 13 days per year over the past three years at the Brawley Station. The annual PM10 concentration at the Brawley Station has exceeded the State standard for the past three years and has exceeded the Federal standard for only one of the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between 0 and 2 days each year over the past three years at the Brawley Station. The annual PM2.5 concentrations at the Brawley Station has not exceeded either the State or Federal standard for the past three years. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

8.0 MODELING PARAMETERS AND ASSUMPTIONS

8.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2020.4.0. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Imperial County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of Imperial County, a Climate Zone of 10, and utility company of Imperial Irrigation District. and an opening year of 2023 was utilized in this analysis.

Land Use Parameters

The proposed project would consist of development of a solar energy facility that would include installation of 106,652 PV panels, gen-tie lines via underground conduits onsite and a 1.6 mile long overhead power lines and possible fiber optic cable from southwest corner to the North Brawley 1 Substation, construction of the 100,800 square foot BESS building that would be located at the southwest corner of the project site, and construction of a 1.2-acre substation that would include an air conditioned control room with a 20 kV backup generator for the HVAC system. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving (square feet)
Solar Panels	Other Non-Asphalt Surfaces	223.49 AC	223.49	9,735,224
BESS Building	Refrigerated Warehouse – No Rail	100.80 TSF	2.31	100,800
Substation	Manufacturing	52.27 TSF	1.20	52,270
Offsite Overhead Power Lines	Other Non-Asphalt Surfaces	9.7 AC	9.70	422,532

Notes:
[1] DU = Dwelling Unit; AC = Acres
[2] Lot acreage calculated based on the total project site area of 227-acres and total offsite power line installation area of 9.7 acres (1.6 miles x 50 feet wide).

Construction Parameters

Construction activities have been modeled as starting in December 2021 and taking eight months to complete. The phases of construction activities that have been analyzed are detailed below and include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration.

The following On-Road Fugitive Dust construction parameters were revised in the CalEEMod model: (1) The percent on-road pavement was changed to 85 percent to account for Best Avenue that is adjacent to the project site being paved; and (2) The Material Silt Content was changed to 3 percent in order to

account for ICAPCD Rule 805 F.1.c that requires the installation of gravel or other low silt material with less than 5 percent silt content on all onsite roads.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent regulatory requirements. This includes: (1) Required adherence to ICAPCD Rule 801, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions, that was modeled in CalEEMod with selection of mitigation of water all exposed areas two times per day; and (2) Required adherence to ICAPCD Rule 805 F.1.d that requires the application of water one or more times daily to unpaved roads that was modeled in CalEEMod with selection of Unpaved Road Mitigation of 7 percent moisture content and maximum vehicle speed of 15 miles per hour on unpaved roads. Since the 15 mile per hour speed on unpaved roads is not explicitly required in ICAPCD Rule 805, Project Design Feature 6 has been included in this analysis to ensure this limitation is adhered to.

Site Preparation

The site preparation phase would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from Best Avenue to the City of Brawley wastewater treatment plant. The site preparation phase would begin with clearing of existing brush and installation of fencing around the Project boundary. The site preparation phase is anticipated to start December 2021 and was based on occurring over one month. The site preparation phase would generate up to 240 worker trips per day. In addition, 6 vendor trips per day were added to the CalEEMod model, in order to account for water truck emissions. The onsite equipment was modeled as consisting of two bore/drill rigs, two excavators, three rubber-tired dozers, and four of either tractors, loaders, or backhoes.

PV System Installation and Testing

The PV system Installation and testing phase includes installation of mounting posts, assembling the structural components, mounting PV modules, and wiring. This phase would occur after completion of the site preparation phase and was modeled as occurring over six months. This phase was modeled as a Building Construction phase in CalEEMod. This phase would generate up to 240 worker trips per day and up to 300 vendor truck trips per day. The onsite equipment was modeled as consisting of two aerial lifts, one air compressor, two cranes, three forklifts, one generator set, one grader, two off-highway trucks, one welder, and three of either tractors, loaders, or backhoes.

Site Clean-up and Restoration

The site clean-up and restoration phase would include removal of all waste material and debris from the project site as shredding and distributing the previously cleared vegetation over the project site, and the roads would be left in a condition equal or better than their preconstruction condition. This phase would occur after the PV system installation phase and was modeled as occurring over one month. This phase was modeled as a Grading phase in CalEEMod. This phase would generate up to 240 worker trips per day. In addition, 6 vendor trips per day were added to the CalEEMod model, in order to account for water truck emissions. The onsite equipment was modeled as consisting of two graders, two rubber-tired dozers, two rubber-tired loaders, and two of either tractors, loaders, or backhoes.

Operational Emissions Modeling

Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely from the Brawley Geothermal Power Plant control room, with periodic on-site personnel

visitations for security, maintenance and system monitoring. Therefore, no full-time site personnel would be required on-site during operations and employees would only be on-site up to four times per year to wash the panels. As the Project's PV arrays produce electricity passively, maintenance requirements are anticipated to be very minimal. Any required planned maintenance activities would generally consist of equipment inspection and replacement and would be scheduled to avoid peak load periods. Any unplanned maintenance would be responded to as needed, depending on the event.

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above and the parameters entered for each operational source is described below.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. It is anticipated that the washing of the panels would generate up to 40 trips per day that would occur four times per year. However, in order to provide a worst-case analysis, it was assumed that these trips would occur once per week.

Area Sources

Area sources include emissions from consumer products, landscape equipment, and architectural coatings. Since no workers will typically be onsite, the consumer product emissions were set to zero. No other changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The natural gas emission rates were set to zero, since no natural gas will be used onsite. For electricity use, the proposed solar PV panels system is rated at 40 mega-watts (MW). Since the CalEEMod model requires that the total kilowatt-hours (kWh) per year generated by the solar panels be entered into the model, the 40 MW were converted to 40,000 kW panels and was then multiplied by 8 hours, to provide a conservative average hours per day of sunlight that the solar panels will generate electricity and then divided by 1.2 to account for the loss associated with converting the direct current (DC) power from the solar panels to the alternating current (AC) power on the electrical grid and then multiplying by 365 days, which resulted in the proposed solar panels generating 97,333,333 kilowatt-hours per year that was entered into the CalEEMod model under solar panel mitigation.

Since according to the BESS system specifications, the air conditioning units and power conversion associated with the proposed BESS will not use more than 2 percent of the electricity stored, the calculated 97,333,333 kWh generated by the solar panels was multiplied by 2 percent, which results in the proposed project utilizing 1,946,667 kWh per year that was entered into the CalEEMod.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. Since no workers would typically be onsite, no waste is anticipated to be generated from the project. As such, solid waste generation was set to zero in CalEEMod.

Water and Wastewater

According to the Project Description for the proposed project, estimated annual water consumption for operation and maintenance of the proposed Project, including periodic PV module washing, would be approximately 0.81-acre feet (263,939 gallons) annually, which would be trucked to the Project site as needed. As such, the water usage in CalEEMod was set to 263,939 gallons per year.

Backup Diesel Generator

The proposed project would include the installation of a 20 kW backup diesel-powered generator to provide continuous power to the control room and associated HVAC system for the proposed substation. Since the exact model has not yet been determined, a search for 20 kW diesel generators found that the horsepower ranges between 50 and 62 horsepower, and in order to provide a worst-case analysis, a 62 horsepower generator was analyzed in CalEEMod. Backup generators typically cycle on for 30 minutes on a weekly basis in order to keep the engine lubricated and ready to use in case of a power outage. The typical cycling of a backup generator would operate for approximately 26 hours per year. The backup diesel generator was modeled in CalEEMod based on a 62 horsepower engine, a 0.73 load factor, 0.5 hour per day, and 26 hours per year.

8.2 Energy Use Calculations

The proposed project is anticipated to consume energy during both construction and operation of the proposed project and the parameters utilized to calculate energy use from construction and operation of the proposed project are detailed separately below.

Construction-Related Energy Use

Construction of the proposed project is anticipated to use energy in the forms of petroleum fuel for both off-road equipment as well as from the transport of workers and materials to and from the project site and the calculations for each source are described below.

Off-Road Construction Equipment

The off-road construction equipment fuel usage was calculated through use of the CalEEMod model's default off-road equipment assumptions detailed above in Section 8.1. For each piece of off-road equipment, the fuel usage was calculated through use of the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB[4]. The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion

Where:

Load Factor - Obtained from CalEEMod default values

Horsepower – Obtained from CalEEMod default values

Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction

BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367

4 Obtained from: https://ww3.arb.ca.gov/msei/ordiesel.htm

Unit Conversion – Converts pounds to gallons = 7.109

Table G shows the off-road construction equipment fuel calculations based on the above formula. Table G shows that the off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel.

Table G – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Bore/Drill Rig	2	221	0.50	8	368	2,110
Excavators	2	158	0.38	8	368	1,141
Rubber Tired Dozers	3	247	0.40	8	552	2,815
Tractors/Loaders/Backhoes	4	97	0.37	8	736	1,516
PV System Installation and Testing						
Aerial Lifts	2	63	0.31	8	2,064	2,300
Air Compressor	1	78	0.48	8	1,032	2,218
Cranes	2	231	0.29	8	2,064	7,138
Forklifts	3	89	0.20	8	3,096	3,163
Generator Set	1	84	0.74	8	1,032	3,682
Graders	1	187	0.41	8	1,032	4,072
Off-Hwy Trucks	2	402	0.38	8	2,064	16,358
Tractors/Loaders/Backhoes	3	97	0.37	8	3,096	6,377
Welders	1	46	0.45	8	1,032	1,226
Site Clean-up and Restoration						
Graders	2	187	0.41	8	2,064	8,169
Rubber Tired Dozers	2	247	0.40	8	2,064	10,527
Rubber Tired Loaders	2	203	0.36	8	2,064	7,826
Tractors/Loaders/Backhoes	2	97	0.37	8	2,064	4,251
	Total Off-Road Equipment Fuel Used during Construction (gallons)					**84,890**

Notes:
[1] Based on: 23 days for Site Preparation; 129 days for PV System Installation and Testing; 21 days for Site Cleanup and Restoration.
Source: CalEEMod Version 2020.4.0 (see Appendix A); CARB, 2017.

On-Road Construction-Related Vehicle Trips

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run as detailed above in Section 8.1. The calculated total construction miles was then divided by the fleet average for Imperial County miles per gallon rates for the year 2021 calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are shown in Appendix B. The worker trips were based on the entire fleet average miles per gallon rate for gasoline powered vehicles and the vendor trips were based on the Heavy-Heavy Duty Truck (HHDT), Medium Duty Vehicle (MDV), and Medium Heavy-Duty Vehicle (MHDV) fleet average miles per gallon rate for diesel-powered vehicles. Table H shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations.

Table H shows that the on-road construction-related vehicle trips would consume 57,078 gallons of fuel and as detailed above, Table G shows that the off-road construction equipment would consume 84,890 gallons of fuel. This would result in the total consumption of 141,968 gallons of petroleum fuel from construction of the proposed project.

Table H – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Site Preparation						
Worker Trips	240	7.3	1,752	40,296	25.1	1,607
Vendor Truck Trips	6	8.9	53	1,228	7.7	159
PV System Installation and Testing						
Worker Trips	240	7.3	1,752	226,008	25.1	9,015
Vendor Truck Trips	300	8.9	2,670	344,430	7.7	44,683
Site Clean-up and Restoration						
Worker Trips	240	7.3	1,752	36,792	25.1	1,468
Vendor Truck Trips	6	8.9	53	1,121	7.7	145
		Total Fuel Used from On-Road Construction Vehicles (gallons)				**57,078**

Notes:
[1] Based on: 23 days for Site Preparation; 129 days for PV System Installation and Testing; 21 days for Site Cleanup and Restoration.
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2020.4.0; CARB, 2018.

Operations-Related Energy Use

The operation of the proposed project is anticipated to use energy in the forms of petroleum fuel and electricity and create electricity and the calculations for each source are described below. It should be noted that the project would not use any natural gas.

Operational Petroleum Fuel

The on-road operations-related vehicle trips fuel usage was calculated through use of the total annual vehicle miles traveled assumptions from the CalEEMod model run as detailed above in Section 8.1, which found that operation of the proposed project would generate 14,869 vehicle miles traveled per year. It should be noted that the CalEEMod model provides a worst-case analysis, since the proposed project would be operated on an unstaffed basis and be monitored remotely and employees would only be on-site up to four times per year to wash the panels as well as occasional maintenance activities. The calculated total operational miles were then divided by the Imperial County fleet average rate of 27.5 miles per gallon, which was calculated through use of the EMFAC2017 model and based on the year 2021. The EMFAC2017 model printouts are shown in Appendix B. Based on the above calculation methodology, operational vehicle trips generated from the proposed project would consume 541 gallons per year.

Operation of the proposed project would also consume diesel fuel from the operation of the backup generator. The company Generator Source provides a fuel consumption table for backup diesel generators[5], that shows a 20 kW generator would consume 1.3 gallons per hour with a ¾ load. As detailed

5 Obtained from: https://www.generatorsource.com/Diesel_Fuel_Consumption.aspx

above in Section 8.1, the typical maintenance cycling of the proposed diesel generator is anticipated to run 26 hours per year. This would result in the consumption of 34 gallons of diesel per year.

Operational Electricity Use

The operations-related electricity usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity.

9.0 THRESHOLDS OF SIGNIFICANCE

9.1 Criteria Pollutants

The ICAPCD CEQA Handbook (ICAPCD 2017) provides significance thresholds to assist lead agencies in determining whether a project may create a significant air quality impact. The ICAPCD CEQA Handbook defines any projects that emit criteria pollutants below significance levels as a "Tier I project" and is considered by the ICAPCD to create a less than significant adverse impact on air quality. For Tier I projects, the proposed project is required to implement a set of feasible standard mitigation measures provide in the ICAPCD CEQA Handbook. Since these measures are required for all projects in the County, these measures are considered as regulatory requirements and have been provided above in Section 1.5 as Project Design Features. For projects that meet or exceed the thresholds of significance for the operational phases of a project are called a "Tier II project" and will be deemed to have a potentially significant adverse impact on air quality.

Operational Criteria Pollutant Thresholds

The ICAPCD CEQA Handbook details that all operational emissions of a project, including motor vehicle, area source and stationary or point sources shall be quantified and compared to the thresholds shown in Table I.

Table I – ICAPCD Criteria Pollutant Thresholds of Significance for Operations

Pollutant	Tier I	Tier II
NOx and ROG	Less than 137 pounds/day	137 pounds/day and greater
PM10 and Sox	Less than 150 pounds/day	150 pounds/day and greater
CO and PM2.5	Less than 550 pounds/day	550 pounds/day and greater

Source: IPACD CEQA Handbook, Table 1 (ICAPCD, 2017).

Construction Criteria Pollutant Thresholds

The ICAPCD CEQA Handbook also establishes thresholds of significance for criteria pollutant emissions created during construction of projects. Table J provides general guidelines for determining significance of impacts created during construction of the proposed project.

Table J – ICAPCD Criteria Pollutant Thresholds of Significance for Construction

Pollutant	Threshold
PM10	150 pounds/day
ROG	75 pounds/day
NOx	100 pounds/day
CO	550 pounds/day

Source: IPACD CEQA Handbook, Table 4 (ICAPCD, 2017).

9.2 Odor Impacts

The ICAPCD CEQA Handbook states that an odor impact would occur if the proposed project exceeds the standards provided in California Health and Safety Code Sections 41700 and 41705 and ICAPCD Rule 407 that prohibit emissions from any source whatsoever in quantities of air contaminants or other material, that cause injury, detriment, or annoyance to the public health or damage to property.

For projects that would introduce sensitive receptors to a project site, the ICAPCD CEQA Handbook provides screening level distances for potential odor sources. If a project is proposed within one mile of a wastewater treatment plant, sanitary landfill, composting station, feedlot, asphalt plant, painting and coating operation, or rendering plant, a potential odor problem may result. If a project with sensitive receptors is proposed that is located within a mile of one of the above land uses, the ICAPCD should be contacted in order to receive specific information regarding any odor complaints or other odor problems with the identified potential odor source.

9.3 Energy Conservation

The 2018 amendments and additions to the CEQA Checklist includes an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce inefficient, wasteful or unnecessary consumption of energy. Since the Energy Section was recently added, no state or local agencies have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, the 2018 *Guidelines for the Implementation of the California Environmental Quality Act,* provide the following direction on how to analyze a project's energy consumption:

> "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

9.4 Greenhouse Gas Emissions

Neither the County of Imperial nor the ICAPCD has established significance thresholds for GHG emissions. In order to establish context in which to consider the GHG emissions created from the proposed project, this analysis reviewed guidelines used by other public agencies in California and found the most conservative GHG emissions threshold is detailed in CEQA & Climate Change, prepared by California Air Pollution Control Officers Association (CAPCOA 2008), which recommends a threshold of 900 $MTCO_2e$ per year from any project. It should also be noted that a direct comparison of construction GHG emissions with long-term thresholds would not be appropriate, since construction emissions are short-term in nature and would cease upon completion of construction. Other Air Districts, including the SCAQMD, recommend that GHG emissions from construction activities be amortized over 30 years, when construction emissions are compared to operational-related GHG emissions thresholds.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 10.8 and 10.9.

10.0 IMPACT ANALYSIS

10.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

10.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the applicable air quality plans, which include the 2017 Ozone SIP, 2018 PM10 Plan, and 2018 PM2.5 SIP that are described above in the air quality regulatory setting. The ICAPCD CEQA Handbook (ICAPCD 2017), details that for any project that emits less than the screening thresholds provided above in Section 9.1 for construction and operations, the project is compliant with the most current ozone and PM10 attainment plans and no further demonstration of compliance with these plans is required.

The construction and operational air emissions have been calculated through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed above in Section 7.1 and the CalEEMod model printouts are provided in Appendix A. Table K shows the maximum summer or winter daily emissions for each year of construction activities for the proposed project with implementation of the Project Design Features shown above in Section 1.5.

Table K – Construction-Related Criteria Pollutant Emissions

Construction Year	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
2021	6.11	51.82	39.73	0.08	67.20	12.54
2022	4.57	39.74	36.41	0.12	128.90	14.44
Maximum Daily Emissions	**6.11**	**51.82**	**39.73**	**0.12**	**128.90**	**14.44**
ICAPCD Thresholds	**75**	**100**	**550**	**--**	**150**	**--**
Exceeds Threshold?	No	No	No	--	No	--

Source: CalEEMod Version 2020.4.0.

Table K shows that construction activities for the proposed project will not exceed the ICAPCD thresholds of significance. Therefore, a less than significant air quality impact would occur from construction of the proposed project.

The calculated maximum daily emissions created from operation of the proposed project are shown in Table L.

Table L – Operational Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**ROG**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	5.35	0.00	0.04	0.00	0.00	0.00
Energy Usage[2]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[3]	0.17	0.18	1.31	0.00	2.35	0.27
Backup Generator[4]	0.05	0.17	0.18	0.00	0.01	0.01
Total Emissions	**5.57**	**0.35**	**1.53**	**0.00**	**2.35**	**0.28**
ICAPCD Operational Thresholds	**137**	**137**	**550**	**150**	**150**	**550**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (no natural gas usage during operation of the project).
[3] Mobile sources consist of emissions from vehicles and road dust.
[4] Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.
Source: Calculated from CalEEMod Version 2020.4.0.

The data provided in Table L shows that none of the analyzed criteria pollutants would exceed the ICAPCD thresholds of significance. Therefore, a less than significant air quality impact would occur from operation of the proposed project.

As shown above, both construction and operational emissions created from the proposed project would be within their respective ICAPCD thresholds. According to the ICAPCD Handbook, projects that are within the ICAPCD thresholds are consistent with the regional air quality plans. Furthermore, the standard mitigation measures provided in the ICAPCD Handbook have been incorporated into the proposed project as Project Design Features (see Section 1.5, above), and the proposed project will be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans and impacts would be less than significant.

Level of Significance

Less than significant impact.

10.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not 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.

The ICAPCD CEQA Handbook provides project emissions limits that are provided above in Section 9.1 for both construction and operation of projects within the County. The ICAPCD Handbook details that if the air emissions created from a project are below the air emissions thresholds shown in Section 9.1, then the proposed project's air emissions would result in a less than significant impact, provided that all standard mitigation measures listed in the ICAPCD Handbook are implemented as well as all applicable ICAPCD rules controlling emissions are adhered to.

As shown above in Table J, construction activities for the proposed project will not exceed the ICAPCD thresholds of significance for construction. Also, as shown in Table I, daily operations of the proposed project will not exceed the ICAPCD thresholds of significance for operations.

The standard mitigation measures from the ICAPCD Handbook for both construction and operations have been incorporated into the proposed project as Project Design Features 1 through 7 (see Section 1.5, above). Furthermore, the proposed project would be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. Therefore, the proposed project would result in a less than significant cumulatively considerable net increase of any criteria pollutant.

Friant Ranch Decision

In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." As shown in Table L above, and unlike the project at issue in the *Friant Ranch* case, the project's emissions of criteria pollutants would not exceed the ICAPCD's thresholds and would not have a significant air quality impact. Therefore, it is not necessary to connect this small project's air quality impacts to likely health impacts. However, for informational purposes this analysis considers the Court's direction as follows:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

Although it has been determined that the project would not result in significant air quality impacts, this analysis details the specific health risks created from each criteria pollutant above in Section 2.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that

analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case[6] (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone.

As shown above in Table K, project-related construction activities would generate a maximum of 6.11 pounds per day of VOC and 51.82 pounds per day of NOx and as shown above in Table L, operation of the proposed project would generate 5.57 pounds per day of VOC and 0.35 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

10.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). The nearest school is Brawley

6 Obtained from: https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf

Union High School and Desert Valley High School, which is located as near as 2.7 miles south of the project site.

The IPACD CEQA Guidelines detail that any development project that is located within close proximity to sensitive receptors and where the proposed project either 1) Has the potential to emit toxic or hazardous pollutant; or 2) Exceeds the ICAPCD criteria pollutant thresholds for construction and operation of the proposed project. In addition, any proposed industrial or commercial project located within 1,000 feet of a school must be referred to the ICAPCD for review.

As detailed above in Section 10.2, the proposed project would not exceed the ICAPCD criteria pollutant threshold from either construction or operation of the proposed project. However, construction and operation of the proposed project would have the potential to emit TAC emissions, which have been analyzed separately below.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to CARB methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. By January, 2022, 50 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The proposed project would consist of development of a solar facility with a BESS and a substation. Although the proposed solar PV panels, the lithium batteries utilized in the BESS, and the transformers utilized in the substation are made with toxic materials, only a negligible amount of TAC emissions are emitted from off-gassing from the PV panels, which would not create TAC concentrations high enough to create a significant cancer risk from TAC emissions. In addition, the proposed project would include a

backup diesel generator, which would emit DPM emissions, which is categorized as a TAC. The backup diesel generator would be located in the southwest portion of the project site, where the nearest offsite sensitive receptor is a home on the east side of Best Avenue that located approximately 1,900 feet to the east. Due to the distance that the nearest sensitive receptor, a less than significant TAC impact would occur from the backup diesel generator. Therefore, a less than significant TAC impact would occur during the on-going operations of the proposed project and no mitigation would be required

Therefore, construction and operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

10.5 Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as adherence to ICAPCD Rule 407 that limits the discharge of any emissions that create odors in quantities that would cause a nuisance or annoyance to any considerable number of persons. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of solar energy facility, which does not include any components that are a known sources of odors. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

10.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, and petroleum based fuel supplies and distribution systems. The proposed project would not utilize any natural gas during either construction or operation of the proposed project, and no further analysis of natural gas is provided in this analysis. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. In 2019, Imperial Irrigation District, which provides electricity to the project vicinity provided 3,322 Gigawatt-hours per year of electricity[7].

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. In 2017, 83 million gallons of gasoline and 12 million gallons of diesel was sold in Imperial County[8].

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. The proposed project would consume energy resources during construction in three (3) general forms:

7 Obtained from: http://www.ecdms.energy.ca.gov/elecbyutil.aspx
8 Obtained from: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g., hauling of construction waste material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the project site by Imperial Irrigation District (IID) and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

The proposed project would include installation of an approximately 1.6 mile long overhead power lines from the southwest corner of the project site to the North Brawley 1 Substation, which would provide adequate capacity to handle the power generated and utilized by the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with County guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown above in Section 8.2, which found that the off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel.

The on-road construction trips fuel usage was calculated through use of the construction vehicle trip assumptions and fuel use assumptions shown above in Section 8.2, which found that the on-road trips generated from construction of the proposed project would consume 57,078 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 141,968 gallons of petroleum fuel. This equates to 0.15 percent of the gasoline and diesel consumed annually in Imperial County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), lighting, and electronics. Energy would also be consumed during operations related to water usage and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption and production of electricity at the project site. As detailed above in Section 8.2 the proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity. This equates to 2.8 percent of the electricity consumed annually by IID. As such, the operations-related electricity use would provide a significant renewable resource for the IID and would help IID achieve the State' Renewable Portfolio Standards requirement for non-carbon sources of electricity. No impact would occur from electricity-related energy consumption from the proposed project.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. As detailed above in Section 8.2 the proposed project would consume 541 gallons of petroleum fuel per year from vehicle travel. This equates to 0.001 percent of the gasoline and diesel consumed in Imperial County annually. As such, the operations-related petroleum use would be nominal, when compared to current petroleum usage rates

It should be noted that, the proposed project would comply with all Federal, State, and County requirements related to the consumption of transportation energy and would provide a non-carbon source of electricity to power electric vehicles in Imperial County. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

In conclusion, the proposed project would comply with regulatory compliance measures outlined by the State and County related to Air Quality, Greenhouse Gas Emissions (GHG), Transportation/Circulation, and Water Supply. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the proposed project is the *Renewable Energy and Transmission Element County of Imperial General Plan,* Revised October 6, 2015. The proposed project's consistency with the applicable energy-related policies in the Natural Resource Element of the General Plan are shown in Table M.

Table M – Proposed Project Compliance with Applicable General Plan Energy Policies

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
Goal 1	Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.	Consistent. The proposed project provides protection to environmental resources while helping to produce renewable energy.
Objective 1.1	The County of Imperial supports the overall goals of the Desert Renewable Energy Conservation Plan to provide a balance between the developments of renewable energy resources while preserving sensitive environmental resources within its jurisdiction.	Not Applicable. This objective is related to the County requirements.
Objective 1.2	Lessen impacts of site and design production facilities on agricultural, natural, and cultural resources.	Consistent. The proposed project impacts related to these subjects have been evaluated in the DEIR prepared for this project.
Objective 1.3	Require the use of directional geothermal drilling and "islands" when technically advisable in irrigated agricultural soils and sensitive or unique biological areas.	Not applicable. The proposed project would not include any geothermal drilling
Objective 1.4	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.	Consistent. This DEIR prepared for this project has analyzed the potential impacts related to these subjects.
Objective 1.5	Require appropriate mitigation and monitoring for environmental issues associated with developing renewable energy facilities.	Consistent. The proposed Project provides a mitigation monitoring program.
Objective 1.6	Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.	Consistent. The proposed Project will be designed to meet Title 24 Part 11 requirements that require implementation of water-efficiency measures.
Objective 1.7	Assure that development of renewable energy facilities and transmission lines comply with	Consistent. The proposed Project will be required to obtain all required air permits from

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	Imperial County Air Pollution Control District's regulations and mitigation measures.	the ICAPCD and to adhere to all of the ICAPCD rules and regulations.
Goal 2	Encourage development of electrical transmission lines along routes which minimize potential environmental effects.	Consistent. Any required improvements or extensions of existing IID electrical transmission lines will occur adjacent to existing routes.
Objective 2.1	To the extent practicable, maximize utilization of IID's transmission capacity in existing easements or rights-of-way. Encourage the location of all major transmission lines within designated corridors, easements, and rights-of-way.	Consistent. Any required improvements or extensions of IID electrical transmission lines will occur within existing easements or right-of-ways.
Objective 2.2	Where practicable and cost-effective, design transmission lines to minimize impacts on agricultural, natural, and cultural resources, urban areas, military operation areas, and recreational activities.	Consistent. Any required improvements or extensions of IID electrical transmission lines will occur within existing easements or right-of-ways.
Goal 3	Support development of renewable energy resources that will contribute to and enhance the economic vitality of Imperial County.	Consistent. The proposed project will provide additional employment opportunities as well as contribute to the tax base of the County, that will enhance the economic vitality of the County.
Objective 3.1	Preserve IID's Balancing Authority and local rate-making authority which allows IID to continue to provide low-cost service. Lower energy rates enhance the economic vitality in Imperial County.	Not Applicable. This measure applies to the IID.
Objective 3.2	Encourage the continued development of the mineral extraction/production industry for job development using geothermal brines from the existing and future geothermal flash power plants.	Not applicable. The proposed project would not include any geothermal activities.
Objective 3.3	Encourage the development of services and industries associated with renewable energy facilities.	Consistent. The proposed project implements this Objective.
Objective 3.4	Assure that revenues projected from proposed renewable energy facility developments are sufficient to offset operational costs to the County from that particular development.	Consistent. The proposed project would generate more revenue for the County than any costs incurred by the County.
Objective 3.5	Encourage employment of County residents by the renewable energy industries wherever and whenever possible.	Consistent. The proposed project will provide additional employment opportunities to residents in the County.
Objective 3.6	Encourage the establishment of necessary and applicable renewable energy training programs in local school systems in association with the renewable energy industry.	Not Applicable. This measure applies to the local school systems.
Objective 3.7	Evaluate environmental justice issues associated with job creation and displacement when considering the approval of renewable energy projects.	Consistent. No impacts to disadvantaged communities would occur from implementation of the proposed Project.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
Goal 4	Support development of renewable energy resources that will contribute to the restoration efforts of the Salton Sea.	Not applicable. The proposed project is not located within the Salton Sea restoration area.
Objective 4.1	Prioritize the Salton Sea exposed seabed (playa) for renewable energy	Not applicable. The location of the project was chosen to be in close proximity to the existing North Brawley Geothermal Power Plant Substation.
Objective 4.2	Encourage the development of renewable energy facilities that will contribute to the reduction or elimination of airborne pollutants created by exposure of the seabed of the Salton Sea as it recedes.	Not applicable. The proposed project is not located within the Salton Sea restoration area.
Objective 4.3	Develop mitigation measures and monitoring programs to minimize impacts to avian species and other species that may be affected by renewable energy facilities constructed near the Salton Sea.	Not applicable. The proposed project is not located near the Salton Sea.
Goal 5	Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.	Consistent. The proposed project will utilize the innovative renewable technologies in its design.
Objective 5.1	Support the implementation of pilot projects intended to test or demonstrate new and innovative renewable energy production technologies.	Consistent. Although the proposed project is for full production and not a pilot project, it will demonstrate new and innovative renewable energy production technologies.
Objective 5.2	Encourage development of utility-scale distributed generation projects in the County.	Consistent. The proposed project consists of a utility-scale solar PV system with a BESS.
Goal 6	Support development of renewable energy while providing for the protection of military aviation and operations.	Consistent. The proposed project will be designed to meet all aviation requirements.
Objective 6.1	Assure that renewable energy facilities proposed in areas adjacent to military installations and training areas will be compatible with these uses.	Not Applicable. No military facilities exist in the local vicinity to the project site.
Objective 6.2	Facilitate the early exchange of project-related information with the military for proposed renewable energy facilities located within a military operations area (MOA) or within 1,000 feet of a military installation.	Not Applicable. No military facilities exist within 1,000 feet of the project site.
Objective 6.3	Assure that renewable energy facilities proposed within MOAs will not jeopardize the safety of existing residents or impact military operations.	Not Applicable. No military facilities exist in the local vicinity to the project site.
Goal 7	Actively minimize the potential for land subsidence to occur as a result of renewable energy operations.	Consistent. The proposed project will be designed to minimize land subsidence.
Objective 7.1	Require that all renewable energy facilities, where deemed appropriate, include design features that will prevent subsidence and other surface conditions from impacting existing land uses.	Consistent. The proposed project will be designed to minimize land subsidence.
Objective 7.2	For geothermal energy development facilities, establish injection standards consistent with the requirements of the California Division of Oil, Gas,	Not applicable. The proposed project would not include any geothermal energy development.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	and Geothermal Resources (CDOGGR). Request a CDOGGR subsidence review, if necessary, for consideration prior to setting injection standards.	
Objective 7.3	Require renewable energy facility permittees to establish and monitor subsidence detection networks in areas affected by permitted project activities.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.4	Require monitoring programs for determining the possibility or extent of induced subsidence.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.5	Require corrective measures, in proportion to each developer's activities, if evidence indicates that operation of geothermal energy facilities have caused, or will cause, surface impacts. In determining monitoring or mitigation requirements, the County shall consult with informed parties such as CDOGGR, County Department of Public Works, the IID, the permittee, other developers, and other experts as appropriate.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.6	Where geothermal fields have been divided into units or developers have established a cooperative agreement for reservoir management, specific production and injection requirements of individually permitted projects may be modified in accordance with both Federal and State requirements.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.7	Require seismic monitoring be performed in conjunction with major geothermal projects.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.8	Require operators of geothermal facilities analyze seismic data to determine the effects of geothermal production and injection on seismic activities within the development area.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.9	Consult with experts, such as CDOGGR, U.S. Geological Survey, geothermal industry representatives, permittees, and other developers to determine appropriate monitoring and mitigation requirements.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.10	Require operators of geothermal facilities to establish a notification system to warn or notify surrounding residents of the accidental release of potentially harmful emissions as part of an emergency response plan.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.11	Require all geothermal energy facilities to include operating procedures that would prevent detrimental impacts to geothermal reservoirs.	Not applicable. The proposed project would not include any geothermal energy development
Goal 8	Develop overlay zones that will facilitate the development of renewable energy resources while	Not Applicable. This measure is applicable to the County Planning Department.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	preserving and protecting agricultural, natural, and cultural resources. Development of overlay zones shall include coordination with Federal, State, County, Tribal governments, educational entities, the public and local industries.	
Objective 8.1	Allow for County review with appropriate development and performance standards for development of local resources within the overlay zones.	Not Applicable. This measure is applicable to the County Planning Department.
Objective 8.2	Promote the exchange of information concerning renewable energy development to be circulated between industry, County staff, and the public.	Not Applicable. This measure is applicable to the County Planning Department.

Source: County of Imperial, 2015.

As shown in Table M, the proposed project would be consistent with all applicable energy-related policies from the General Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.8 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. Neither the County of Imperial nor the ICAPCD has established significance thresholds for GHG emissions. In order to establish context in which to consider the GHG emissions created from the proposed project, this analysis reviewed guidelines used by other public agencies in California and found the most conservative GHG emissions threshold is detailed in CEQA & Climate Change, prepared by California Air Pollution Control Officers Association (CAPCOA 2008), which recommends a threshold of 900 $MTCO_2e$ per year from any project. It should also be noted that a direct comparison of construction GHG emissions with long-term thresholds would not be appropriate, since construction emissions are short-term in nature and would cease upon completion of construction. Other Air Districts, including the SCAQMD, recommend that GHG emissions from construction activities be amortized over 30 years, when construction emissions are compared to operational-related GHG emissions thresholds.

The proposed project is anticipated to generate GHG emissions from area sources, energy usage and production, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed above in Section 8.1. A summary of the results is shown below in Table N and the CalEEMod model run is provided in Appendix C.

Table N – Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Area Sources[1]	0.01	0.00	0.00	0.01
Energy Usage and Production[2]	-4,299.50	-0.75	-0.09	-4,345.14
Mobile Sources[3]	5.35	0.00	0.00	5.44
Backup Generator[4]	0.61	0.00	0.00	0.62
Solid Waste[5]	0.00	0.00	0.00	0.00
Water and Wastewater[6]	0.38	0.01	0.00	0.66
Construction[7]	18.63	0.00	0.00	18.88
Total GHG Emissions	**-4,274.52**	**-0.73**	**-0.09**	**-4,319.54**
GHG Emissions Threshold of Significance[8]				**900**
Exceed Thresholds?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity used and generated onsite.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.
[5] Solid Waste. Since no employees would be onsite during typical operations, no solid waste is anticipated to be generated from the project.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
[8] GHG emissions threshold from CAPCOA, 2008.
Source: CalEEMod Version 2020.4.0.

The data provided in Table N shows that the proposed project would reduce GHG emissions created in Imperial County by 4,319.54 $MTCO_2e$ per year by providing a zero carbon source of electricity generation. The proposed project would not exceed the annual GHG emissions threshold of 900 $MTCO_2e$ per year. Therefore, no greenhouse gas emissions impact would occur from construction and operation of the proposed project.

Level of Significance

No impact.

10.9 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. Neither the County of Imperial nor the ICAPCD has adopted a climate action plan to reduce GHG emissions in the proposed project area. As such, the only applicable plans for reducing GHG emissions for the proposed project area are statewide plans that include AB 32, AB 197, and SB 32. As shown above in Section 10.8, the proposed project would reduce GHG emissions created in Imperial County by 4,319.54 $MTCO_2e$ per year and would assist the County in meeting the zero carbon sources of electricity generation as required by the State's Renewable Portfolio Standards.

Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. No impact would occur.

Level of Significance

No impact.

11.0 REFERENCES

Breeze Software, *California Emissions Estimator Model* (CalEEMod) version 2020.4.0.

California Air Pollution Control Officers Association (CAPCOA), *CEQA & Climate Change,* January 2008.

California Air Resources Board, *2017 Off-Road Diesel Emission Factor Update for NOx and PM,* 2017.

California Air Resources Board, *Appendix VII Risk Characterization Scenarios,* October 2000.

California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* November 2017.

California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators,* July 28, 2021.

California Air Resources Board, *First Update to the Climate Change Scoping Plan,* May 2014.

California Air Resources Board, *Resolution 08-43,* December 12, 2008.

California Air Resources Board, *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act,* on October 24, 2008.

California Air Resources Board, *Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*, October 2017.

California Air Resources Board, *The California Almanac of Emissions and Air Quality 2013 Edition*.

California Department of Conservation, *A General Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos,* August, 2000.

California Energy Commission, *California Green Building Standards Code (CALGreen),* July 2019.

California Energy Commission, *2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings,* July 2018.

County of Imperial, *Renewable Energy and Transmission Element County of Imperial General Plan*, Revised October 6, 2015.

Environmental Protection Agency, *Nonattainment Major New Source Review Implementation Under 8-Hour Ozone National Ambient Air Quality Standard: Reconsideration*, June 30, 2005.

Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019.*

Imperial County Air Pollution Control District (ICAPCD), *Rules and Regulations of the Imperial County Air Pollution Control District,* 2020.

Imperial County Air Pollution Control District (ICAPCD), *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter*, October 23, 2018.

Imperial County Air Pollution Control District (ICAPCD), *CEQA Air Quality Handbook,* December 12, 2017.

Imperial County Air Pollution Control District (ICAPCD), *Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard,* September, 2017.

Office of Environmental Health Hazard Assessment (OEHHA), *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments,* February 2015

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

Southern California Association of Governments, *2019 Federal Transportation Improvement Program (FTIP) Guidelines*, September 2018.

University of California, Davis, *Transportation Project-Level Carbon Monoxide Protocol,* December 1997.

U.S. Geological Survey, *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* 2011.

APPENDIX A

CalEEMod Model Daily Printouts

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.1144	51.7576	39.7322	0.0820	170.3175	2.4518	172.7693	25.3583	2.2559	27.6142	0.0000	8,016.3379	8,016.3379	2.1660	0.0702	8,091.4105
2022	4.5657	38.2859	36.4080	0.1247	347.7005	1.5639	349.0465	35.1849	1.4389	36.4563	0.0000	12,667.9079	12,667.9079	1.5904	1.0848	13,017.1350
Maximum	**6.1144**	**51.7576**	**39.7322**	**0.1247**	**347.7005**	**2.4518**	**349.0465**	**35.1849**	**2.2559**	**36.4563**	**0.0000**	**12,667.9079**	**12,667.9079**	**2.1660**	**1.0848**	**13,017.1350**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.1144	51.7576	39.7322	0.0820	64.7451	2.4518	67.1969	10.2869	2.2559	12.5428	0.0000	8,016.3379	8,016.3379	2.1660	0.0702	8,091.4105
2022	4.5657	38.2859	36.4080	0.1247	127.5575	1.5639	128.9035	13.1706	1.4389	14.4420	0.0000	12,667.9079	12,667.9079	1.5904	1.0848	13,017.1350
Maximum	**6.1144**	**51.7576**	**39.7322**	**0.1247**	**127.5575**	**2.4518**	**128.9035**	**13.1706**	**2.2559**	**14.4420**	**0.0000**	**12,667.9079**	**12,667.9079**	**2.1660**	**1.0848**	**13,017.1350**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.88**	**0.00**	**62.42**	**61.26**	**0.00**	**57.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5698**	**0.3316**	**1.5313**	**2.6300e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4200e-003**	**0.2794**		**270.1451**	**270.1451**	**0.0164**	**0.0118**	**274.0823**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5698**	**0.3316**	**1.5313**	**2.6300e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4200e-003**	**0.2794**		**270.1451**	**270.1451**	**0.0164**	**0.0118**	**274.0823**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	
2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					28.5329	0.0000	28.5329	11.0608	0.0000	11.0608			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417		6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**28.5329**	**2.4366**	**30.9696**	**11.0608**	**2.2417**	**13.3025**		**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0205	0.3494	0.1436	1.4500e-003	4.2024	7.1300e-003	4.2095	0.4263	6.8300e-003	0.4331		152.7438	152.7438	1.0100e-003	0.0214	159.1493
Worker	1.2310	0.5588	7.7429	0.0134	137.5822	8.0400e-003	137.5903	13.8711	7.4000e-003	13.8785		1,353.4284	1,353.4284	0.0594	0.0488	1,369.4576
Total	**1.2515**	**0.9082**	**7.8864**	**0.0148**	**141.7846**	**0.0152**	**141.7998**	**14.2974**	**0.0142**	**14.3116**		**1,506.1723**	**1,506.1723**	**0.0604**	**0.0702**	**1,528.6069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.8398	0.0000	12.8398	4.9774	0.0000	4.9774			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417	0.0000	6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**12.8398**	**2.4366**	**15.2764**	**4.9774**	**2.2417**	**7.2191**	**0.0000**	**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0205	0.3494	0.1436	1.4500e-003	1.5439	7.1300e-003	1.5511	0.1604	6.8300e-003	0.1673		152.7438	152.7438	1.0100e-003	0.0214	159.1493
Worker	1.2310	0.5588	7.7429	0.0134	50.3614	8.0400e-003	50.3694	5.1491	7.4000e-003	5.1565		1,353.4284	1,353.4284	0.0594	0.0488	1,369.4576
Total	**1.2515**	**0.9082**	**7.8864**	**0.0148**	**51.9053**	**0.0152**	**51.9205**	**5.3095**	**0.0142**	**5.3237**		**1,506.1723**	**1,506.1723**	**0.0604**	**0.0702**	**1,528.6069**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1652	0.0000	14.1652	6.8495	0.0000	6.8495			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281		4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**14.1652**	**1.5523**	**15.7175**	**6.8495**	**1.4281**	**8.2776**		**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0161	0.2892	0.1259	1.4200e-003	4.2024	4.0900e-003	4.2065	0.4263	3.9100e-003	0.4302		149.3641	149.3641	8.0000e-004	0.0208	155.5824
Worker	1.1333	0.4929	7.0125	0.0129	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.1493**	**0.7822**	**7.1385**	**0.0144**	**141.7846**	**0.0116**	**141.7962**	**14.2974**	**0.0108**	**14.3082**		**1,465.5457**	**1,465.5457**	**0.0541**	**0.0656**	**1,486.4530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3743	0.0000	6.3743	3.0823	0.0000	3.0823			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281	0.0000	4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**6.3743**	**1.5523**	**7.9266**	**3.0823**	**1.4281**	**4.5104**	**0.0000**	**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0161	0.2892	0.1259	1.4200e-003	1.5439	4.0900e-003	1.5480	0.1604	3.9100e-003	0.1643		149.3641	149.3641	8.0000e-004	0.0208	155.5824
Worker	1.1333	0.4929	7.0125	0.0129	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.1493**	**0.7822**	**7.1385**	**0.0144**	**51.9053**	**0.0116**	**51.9169**	**5.3095**	**0.0108**	**5.3203**		**1,465.5457**	**1,465.5457**	**0.0541**	**0.0656**	**1,486.4530**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691		3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**		**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.8027	14.4610	6.2971	0.0710	210.1182	0.2043	210.3226	21.3137	0.1955	21.5092		7,468.2049	7,468.2049	0.0402	1.0400	7,779.1206
Worker	1.1333	0.4929	7.0125	0.0129	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.9359**	**14.9539**	**13.3096**	**0.0839**	**347.7005**	**0.2118**	**347.9123**	**35.1849**	**0.2024**	**35.3872**		**8,784.3864**	**8,784.3864**	**0.0934**	**1.0848**	**9,109.9911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691	0.0000	3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**	**0.0000**	**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.8027	14.4610	6.2971	0.0710	77.1961	0.2043	77.4004	8.0215	0.1955	8.2170		7,468.2049	7,468.2049	0.0402	1.0400	7,779.1206
Worker	1.1333	0.4929	7.0125	0.0129	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.9359**	**14.9539**	**13.3096**	**0.0839**	**127.5575**	**0.2118**	**127.7693**	**13.1706**	**0.2024**	**13.3729**		**8,784.3864**	**8,784.3864**	**0.0934**	**1.0848**	**9,109.9911**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Unmitigated	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Unmitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (50 - 75 HP)	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**0.0509**	**0.1659**	**0.1846**	**2.4000e-004**		**7.4800e-003**	**7.4800e-003**		**7.4800e-003**	**7.4800e-003**		**26.0249**	**26.0249**	**3.6500e-003**		**26.1162**

11.0 Vegetation

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	5.7537	51.8179	37.6436	0.0800	170.3175	2.4518	172.7693	25.3583	2.2559	27.6142	0.0000	7,813.7633	7,813.7633	2.1680	0.0714	7,889.2246
2022	4.2367	39.7414	34.7570	0.1228	347.7005	1.5639	349.0471	35.1849	1.4389	36.4568	0.0000	12,479.9658	12,479.9658	1.5926	1.0901	12,830.8045
Maximum	**5.7537**	**51.8179**	**37.6436**	**0.1228**	**347.7005**	**2.4518**	**349.0471**	**35.1849**	**2.2559**	**36.4568**	**0.0000**	**12,479.9658**	**12,479.9658**	**2.1680**	**1.0901**	**12,830.8045**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	5.7537	51.8179	37.6436	0.0800	64.7451	2.4518	67.1969	10.2869	2.2559	12.5428	0.0000	7,813.7633	7,813.7633	2.1680	0.0714	7,889.2246
2022	4.2367	39.7414	34.7570	0.1228	127.5575	1.5639	128.9040	13.1706	1.4389	14.4425	0.0000	12,479.9658	12,479.9658	1.5926	1.0901	12,830.8045
Maximum	**5.7537**	**51.8179**	**37.6436**	**0.1228**	**127.5575**	**2.4518**	**128.9040**	**13.1706**	**2.2559**	**14.4425**	**0.0000**	**12,479.9658**	**12,479.9658**	**2.1680**	**1.0901**	**12,830.8045**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.88**	**0.00**	**62.42**	**61.26**	**0.00**	**57.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5086**	**0.3471**	**1.2684**	**2.3500e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4300e-003**	**0.2794**		**241.2797**	**241.2797**	**0.0170**	**0.0122**	**245.3268**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5086**	**0.3471**	**1.2684**	**2.3500e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4300e-003**	**0.2794**		**241.2797**	**241.2797**	**0.0170**	**0.0122**	**245.3268**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	
2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					28.5329	0.0000	28.5329	11.0608	0.0000	11.0608			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417		6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**28.5329**	**2.4366**	**30.9696**	**11.0608**	**2.2417**	**13.3025**		**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.3846	0.1478	1.4500e-003	4.2024	7.1500e-003	4.2095	0.4263	6.8400e-003	0.4331		152.8621	152.8621	9.9000e-004	0.0215	159.2931
Worker	0.8710	0.5839	5.6500	0.0114	137.5822	8.0400e-003	137.5903	13.8711	7.4000e-003	13.8785		1,150.7356	1,150.7356	0.0615	0.0499	1,167.1279
Total	**0.8908**	**0.9685**	**5.7978**	**0.0128**	**141.7846**	**0.0152**	**141.7998**	**14.2974**	**0.0142**	**14.3117**		**1,303.5976**	**1,303.5976**	**0.0625**	**0.0714**	**1,326.4210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.8398	0.0000	12.8398	4.9774	0.0000	4.9774			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417	0.0000	6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**12.8398**	**2.4366**	**15.2764**	**4.9774**	**2.2417**	**7.2191**	**0.0000**	**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.3846	0.1478	1.4500e-003	1.5439	7.1500e-003	1.5511	0.1604	6.8400e-003	0.1673		152.8621	152.8621	9.9000e-004	0.0215	159.2931
Worker	0.8710	0.5839	5.6500	0.0114	50.3614	8.0400e-003	50.3694	5.1491	7.4000e-003	5.1565		1,150.7356	1,150.7356	0.0615	0.0499	1,167.1279
Total	**0.8908**	**0.9685**	**5.7978**	**0.0128**	**51.9053**	**0.0152**	**51.9205**	**5.3095**	**0.0142**	**5.3237**		**1,303.5976**	**1,303.5976**	**0.0625**	**0.0714**	**1,326.4210**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1652	0.0000	14.1652	6.8495	0.0000	6.8495			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281		4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**14.1652**	**1.5523**	**15.7175**	**6.8495**	**1.4281**	**8.2776**		**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0153	0.3181	0.1303	1.4200e-003	4.2024	4.1000e-003	4.2065	0.4263	3.9200e-003	0.4302		149.5357	149.5357	7.8000e-004	0.0209	155.7798
Worker	0.8050	0.5142	5.1442	0.0110	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**0.8203**	**0.8323**	**5.2745**	**0.0124**	**141.7846**	**0.0116**	**141.7962**	**14.2974**	**0.0108**	**14.3082**		**1,269.1931**	**1,269.1931**	**0.0563**	**0.0666**	**1,290.4510**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3743	0.0000	6.3743	3.0823	0.0000	3.0823			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281	0.0000	4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**6.3743**	**1.5523**	**7.9266**	**3.0823**	**1.4281**	**4.5104**	**0.0000**	**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0153	0.3181	0.1303	1.4200e-003	1.5439	4.1000e-003	1.5480	0.1604	3.9200e-003	0.1644		149.5357	149.5357	7.8000e-004	0.0209	155.7798
Worker	0.8050	0.5142	5.1442	0.0110	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**0.8203**	**0.8323**	**5.2745**	**0.0124**	**51.9053**	**0.0116**	**51.9169**	**5.3095**	**0.0108**	**5.3203**		**1,269.1931**	**1,269.1931**	**0.0563**	**0.0666**	**1,290.4510**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691		3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**		**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7672	15.9057	6.5145	0.0711	210.1182	0.2049	210.3231	21.3137	0.1960	21.5097		7,476.7870	7,476.7870	0.0390	1.0444	7,788.9894
Worker	0.8050	0.5142	5.1442	0.0110	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**1.5722**	**16.4199**	**11.6587**	**0.0821**	**347.7005**	**0.2124**	**347.9128**	**35.1849**	**0.2029**	**35.3878**		**8,596.4443**	**8,596.4443**	**0.0945**	**1.0901**	**8,923.6606**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691	0.0000	3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**	**0.0000**	**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7672	15.9057	6.5145	0.0711	77.1961	0.2049	77.4010	8.0215	0.1960	8.2175		7,476.7870	7,476.7870	0.0390	1.0444	7,788.9894
Worker	0.8050	0.5142	5.1442	0.0110	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**1.5722**	**16.4199**	**11.6587**	**0.0821**	**127.5575**	**0.2124**	**127.7698**	**13.1706**	**0.2029**	**13.3735**		**8,596.4443**	**8,596.4443**	**0.0945**	**1.0901**	**8,923.6606**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Unmitigated	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Unmitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (50 - 75 HP)	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**0.0509**	**0.1659**	**0.1846**	**2.4000e-004**		**7.4800e-003**	**7.4800e-003**		**7.4800e-003**	**7.4800e-003**		**26.0249**	**26.0249**	**3.6500e-003**		**26.1162**

11.0 Vegetation

APPENDIX B

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: IMPERIAL
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
IMPERIAL	2021	HHDT	Aggregate	Aggregate	GAS	2.825263	137.49617	56.52785	0.03343
IMPERIAL	2021	LDA	Aggregate	Aggregate	GAS	145175.9	5643786.6	683437.9	186.6888
IMPERIAL	2021	LDT1	Aggregate	Aggregate	GAS	17276.41	612064.25	77482.43	24.00773
IMPERIAL	2021	LDT2	Aggregate	Aggregate	GAS	52024.47	1908388.1	240462.6	80.63031
IMPERIAL	2021	LHDT1	Aggregate	Aggregate	GAS	4280.077	144693.38	63766.77	13.54718
IMPERIAL	2021	LHDT2	Aggregate	Aggregate	GAS	703.9896	23736.979	10488.4	2.547752
IMPERIAL	2021	MCY	Aggregate	Aggregate	GAS	6622.21	59214.749	13244.42	1.502854
IMPERIAL	2021	MDV	Aggregate	Aggregate	GAS	45128.95	1607774.8	205347.3	82.99022
IMPERIAL	2021	MH	Aggregate	Aggregate	GAS	859.4062	7399.0473	85.975	1.434682
IMPERIAL	2021	MHDT	Aggregate	Aggregate	GAS	505.9482	28400.557	10123.01	5.522487
IMPERIAL	2021	OBUS	Aggregate	Aggregate	GAS	132.3029	6896.0896	2647.116	1.352893
IMPERIAL	2021	SBUS	Aggregate	Aggregate	GAS	30.84301	1760.5474	123.372	0.187748
IMPERIAL	2021	UBUS	Aggregate	Aggregate	GAS	8.282969	947.79829	33.13188	0.241693

vehicle miles per day (All Categories)	10045200	401	1,000 gall per day
		400,688	gallons per day
Fleet Avg Miles per gallon	25.1		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: IMPERIAL
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
IMPERIAL	2021	HHDT	Aggregate	Aggregated	DSL	4859.163	727200.53	57864.68	102.13909
IMPERIAL	2021	LDA	Aggregate	Aggregated	DSL	1274.529	50425.669	6002.429	0.9672779
IMPERIAL	2021	LDT1	Aggregate	Aggregated	DSL	13.16284	292.61362	42.55079	0.0113065
IMPERIAL	2021	LDT2	Aggregate	Aggregated	DSL	259.9127	11016.192	1284.794	0.2840536
IMPERIAL	2021	LHDT1	Aggregate	Aggregated	DSL	4178.056	148628.22	52554.68	7.1691825
IMPERIAL	2021	LHDT2	Aggregate	Aggregated	DSL	1332.595	49408.266	16762.37	2.5735426
IMPERIAL	2021	MDV	Aggregate	Aggregated	DSL	896.497	36985.877	4343.927	1.2992358
IMPERIAL	2021	MH	Aggregate	Aggregated	DSL	282.4584	2576.735	28.24584	0.2323685
IMPERIAL	2021	MHDT	Aggregate	Aggregated	DSL	2054.337	118673.4	15348.12	11.096555
IMPERIAL	2021	OBUS	Aggregate	Aggregated	DSL	135.3162	9408.1492	1254.028	1.0144107
IMPERIAL	2021	SBUS	Aggregate	Aggregated	DSL	203.9511	6376.6912	2353.568	0.8660474
IMPERIAL	2021	UBUS	Aggregate	Aggregated	DSL	27.95502	3506.4503	111.8201	0.5197596

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	882,860	115	1,000 gall per day
		114,535	gallons per day
Diesel Truck Fleet Avg Miles per gallon	7.7		

APPENDIX C

CalEEMod Model Annual Printouts

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	62.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	26.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0673	0.5957	0.4398	9.3000e-004	1.9054	0.0282	1.9336	0.2863	0.0259	0.3123	0.0000	82.3825	82.3825	0.0226	7.4000e-004	83.1663
2022	0.3224	2.8858	1.9135	5.3100e-003	13.2919	0.1150	13.4069	1.6918	0.1062	1.7980	0.0000	476.5250	476.5250	0.1029	0.0142	483.3328
Maximum	**0.3224**	**2.8858**	**1.9135**	**5.3100e-003**	**13.2919**	**0.1150**	**13.4069**	**1.6918**	**0.1062**	**1.7980**	**0.0000**	**476.5250**	**476.5250**	**0.1029**	**0.0142**	**483.3328**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0673	0.5957	0.4398	9.3000e-004	0.7253	0.0282	0.7535	0.1164	0.0259	0.1423	0.0000	82.3824	82.3824	0.0226	7.4000e-004	83.1662
2022	0.3224	2.8858	1.9135	5.3100e-003	4.9473	0.1150	5.0623	0.6646	0.1062	0.7708	0.0000	476.5247	476.5247	0.1029	0.0142	483.3324
Maximum	**0.3224**	**2.8858**	**1.9135**	**5.3100e-003**	**4.9473**	**0.1150**	**5.0623**	**0.6646**	**0.1062**	**0.7708**	**0.0000**	**476.5247**	**476.5247**	**0.1029**	**0.0142**	**483.3324**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.67**	**0.00**	**62.09**	**60.52**	**0.00**	**56.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**12-1-2021**	**2-28-2022**	1.5345	1.5345
2	**3-1-2022**	**5-31-2022**	1.4049	1.4049
3	**6-1-2022**	**8-31-2022**	0.9317	0.9317
		Highest	1.5345	1.5345

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	167.7322	167.7322	0.0291	3.5300e-003	169.5130
Mobile	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Stationary	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0837	0.2962	0.3799	8.6500e-003	2.1000e-004	0.6586
Total	**0.9800**	**8.9200e-003**	**0.0370**	**7.0000e-005**	**0.0610**	**2.5000e-004**	**0.0612**	**7.0100e-003**	**2.5000e-004**	**7.2600e-003**	**0.0837**	**173.9958**	**174.0796**	**0.0382**	**4.0200e-003**	**176.2331**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-4,299.5009	-4,299.5009	-0.7468	-0.0905	-4,345.1483
Mobile	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Stationary	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0837	0.2962	0.3799	8.6500e-003	2.1000e-004	0.6586
Total	**0.9800**	**8.9200e-003**	**0.0370**	**7.0000e-005**	**0.0610**	**2.5000e-004**	**0.0612**	**7.0100e-003**	**2.5000e-004**	**7.2600e-003**	**0.0837**	**-4,293.2373**	**-4,293.1536**	**-0.7378**	**-0.0900**	**-4,338.4282**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2,567.44**	**2,566.20**	**2,031.87**	**2,339.80**	**2,561.76**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3281	0.0000	0.3281	0.1272	0.0000	0.1272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0559	0.5848	0.3662	7.7000e-004		0.0280	0.0280		0.0258	0.0258	0.0000	67.9181	67.9181	0.0220	0.0000	68.4673
Total	**0.0559**	**0.5848**	**0.3662**	**7.7000e-004**	**0.3281**	**0.0280**	**0.3562**	**0.1272**	**0.0258**	**0.1530**	**0.0000**	**67.9181**	**67.9181**	**0.0220**	**0.0000**	**68.4673**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	4.3500e-003	1.6700e-003	2.0000e-005	0.0468	8.0000e-005	0.0468	4.7500e-003	8.0000e-005	4.8200e-003	0.0000	1.5940	1.5940	1.0000e-005	2.2000e-004	1.6610
Worker	0.0111	6.5600e-003	0.0719	1.4000e-004	1.5305	9.0000e-005	1.5306	0.1544	9.0000e-005	0.1545	0.0000	12.8704	12.8704	6.1000e-004	5.1000e-004	13.0380
Total	**0.0114**	**0.0109**	**0.0735**	**1.6000e-004**	**1.5773**	**1.7000e-004**	**1.5775**	**0.1591**	**1.7000e-004**	**0.1593**	**0.0000**	**14.4644**	**14.4644**	**6.2000e-004**	**7.3000e-004**	**14.6990**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1477	0.0000	0.1477	0.0572	0.0000	0.0572	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0559	0.5848	0.3662	7.7000e-004		0.0280	0.0280		0.0258	0.0258	0.0000	67.9180	67.9180	0.0220	0.0000	68.4672
Total	**0.0559**	**0.5848**	**0.3662**	**7.7000e-004**	**0.1477**	**0.0280**	**0.1757**	**0.0572**	**0.0258**	**0.0830**	**0.0000**	**67.9180**	**67.9180**	**0.0220**	**0.0000**	**68.4672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	4.3500e-003	1.6700e-003	2.0000e-005	0.0172	8.0000e-005	0.0173	1.7900e-003	8.0000e-005	1.8700e-003	0.0000	1.5940	1.5940	1.0000e-005	2.2000e-004	1.6610
Worker	0.0111	6.5600e-003	0.0719	1.4000e-004	0.5605	9.0000e-005	0.5606	0.0574	9.0000e-005	0.0575	0.0000	12.8704	12.8704	6.1000e-004	5.1000e-004	13.0380
Total	**0.0114**	**0.0109**	**0.0735**	**1.6000e-004**	**0.5777**	**1.7000e-004**	**0.5778**	**0.0592**	**1.7000e-004**	**0.0593**	**0.0000**	**14.4644**	**14.4644**	**6.2000e-004**	**7.3000e-004**	**14.6990**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.9137	0.0000	0.9137	0.4418	0.0000	0.4418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2204	2.4190	1.1704	3.1600e-003		0.1001	0.1001		0.0921	0.0921	0.0000	277.9642	277.9642	0.0899	0.0000	280.2117
Total	**0.2204**	**2.4190**	**1.1704**	**3.1600e-003**	**0.9137**	**0.1001**	**1.0138**	**0.4418**	**0.0921**	**0.5339**	**0.0000**	**277.9642**	**277.9642**	**0.0899**	**0.0000**	**280.2117**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-003	0.0202	8.2300e-003	9.0000e-005	0.2622	2.6000e-004	0.2625	0.0266	2.5000e-004	0.0269	0.0000	8.7440	8.7440	5.0000e-005	1.2200e-003	9.1088
Worker	0.0576	0.0324	0.3658	7.6000e-004	8.5842	4.8000e-004	8.5847	0.8658	4.4000e-004	0.8663	0.0000	70.2210	70.2210	3.0600e-003	2.6300e-003	71.0819
Total	**0.0586**	**0.0526**	**0.3740**	**8.5000e-004**	**8.8465**	**7.4000e-004**	**8.8472**	**0.8924**	**6.9000e-004**	**0.8931**	**0.0000**	**78.9650**	**78.9650**	**3.1100e-003**	**3.8500e-003**	**80.1907**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4111	0.0000	0.4111	0.1988	0.0000	0.1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2204	2.4190	1.1704	3.1600e-003		0.1001	0.1001		0.0921	0.0921	0.0000	277.9639	277.9639	0.0899	0.0000	280.2113
Total	**0.2204**	**2.4190**	**1.1704**	**3.1600e-003**	**0.4111**	**0.1001**	**0.5113**	**0.1988**	**0.0921**	**0.2909**	**0.0000**	**277.9639**	**277.9639**	**0.0899**	**0.0000**	**280.2113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-003	0.0202	8.2300e-003	9.0000e-005	0.0964	2.6000e-004	0.0967	0.0100	2.5000e-004	0.0103	0.0000	8.7440	8.7440	5.0000e-005	1.2200e-003	9.1088
Worker	0.0576	0.0324	0.3658	7.6000e-004	3.1435	4.8000e-004	3.1439	0.3217	4.4000e-004	0.3222	0.0000	70.2210	70.2210	3.0600e-003	2.6300e-003	71.0819
Total	**0.0586**	**0.0526**	**0.3740**	**8.5000e-004**	**3.2398**	**7.4000e-004**	**3.2406**	**0.3318**	**6.9000e-004**	**0.3325**	**0.0000**	**78.9650**	**78.9650**	**3.1100e-003**	**3.8500e-003**	**80.1907**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0259	0.2449	0.2425	4.3000e-004		0.0119	0.0119		0.0112	0.0112	0.0000	36.9923	36.9923	9.0000e-003	0.0000	37.2173
Total	**0.0259**	**0.2449**	**0.2425**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0112**	**0.0112**	**0.0000**	**36.9923**	**36.9923**	**9.0000e-003**	**0.0000**	**37.2173**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1200e-003	0.1640	0.0670	7.5000e-004	2.1343	2.1500e-003	2.1365	0.2166	2.0500e-003	0.2187	0.0000	71.1722	71.1722	3.8000e-004	9.9300e-003	74.1416
Worker	9.3700e-003	5.2800e-003	0.0595	1.2000e-004	1.3974	8.0000e-005	1.3975	0.1410	7.0000e-005	0.1410	0.0000	11.4313	11.4313	5.0000e-004	4.3000e-004	11.5715
Total	**0.0175**	**0.1693**	**0.1266**	**8.7000e-004**	**3.5318**	**2.2300e-003**	**3.5340**	**0.3576**	**2.1200e-003**	**0.3597**	**0.0000**	**82.6035**	**82.6035**	**8.8000e-004**	**0.0104**	**85.7131**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0259	0.2449	0.2425	4.3000e-004		0.0119	0.0119		0.0112	0.0112	0.0000	36.9922	36.9922	9.0000e-003	0.0000	37.2172
Total	**0.0259**	**0.2449**	**0.2425**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0112**	**0.0112**	**0.0000**	**36.9922**	**36.9922**	**9.0000e-003**	**0.0000**	**37.2172**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1200e-003	0.1640	0.0670	7.5000e-004	0.7845	2.1500e-003	0.7867	0.0817	2.0500e-003	0.0837	0.0000	71.1722	71.1722	3.8000e-004	9.9300e-003	74.1416
Worker	9.3700e-003	5.2800e-003	0.0595	1.2000e-004	0.5117	8.0000e-005	0.5118	0.0524	7.0000e-005	0.0525	0.0000	11.4313	11.4313	5.0000e-004	4.3000e-004	11.5715
Total	**0.0175**	**0.1693**	**0.1266**	**8.7000e-004**	**1.2963**	**2.2300e-003**	**1.2985**	**0.1340**	**2.1200e-003**	**0.1362**	**0.0000**	**82.6035**	**82.6035**	**8.8000e-004**	**0.0104**	**85.7131**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Unmitigated	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	-4,299.5009	-4,299.5009	-0.7468	-0.0905	-4,345.1483
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	167.7322	167.7322	0.0291	3.5300e-003	169.5130
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.94645e+006	167.7322	0.0291	3.5300e-003	169.5130
Total		**167.7322**	**0.0291**	**3.5300e-003**	**169.5130**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	-1.296e+007	-1,116.8083	-0.1940	-0.0235	-1,128.6653
Other Non-Asphalt Surfaces	-1.296e+007	-2,233.6166	-0.3880	-0.0470	-2,257.3307
Refrigerated Warehouse-No Rail	-1.10136e+007	-949.0761	-0.1649	-0.0200	-959.1523
Total		**-4,299.5009**	**-0.7468**	**-0.0905**	**-4,345.1483**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Unmitigated	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Total	**0.9752**	**3.0000e-005**	**3.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9000e-003**	**6.9000e-003**	**2.0000e-005**	**0.0000**	**7.3600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Total	**0.9752**	**3.0000e-005**	**3.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9000e-003**	**6.9000e-003**	**2.0000e-005**	**0.0000**	**7.3600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.3799	8.6500e-003	2.1000e-004	0.6586
Unmitigated	0.3799	8.6500e-003	2.1000e-004	0.6586

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0.263939 / 0	0.3799	8.6500e-003	2.1000e-004	0.6586
Total		**0.3799**	**8.6500e-003**	**2.1000e-004**	**0.6586**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0.263939 / 0	0.3799	8.6500e-003	2.1000e-004	0.6586
Total		**0.3799**	**8.6500e-003**	**2.1000e-004**	**0.6586**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Total	**1.3200e-003**	**4.3100e-003**	**4.8000e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.6139**	**0.6139**	**9.0000e-005**	**0.0000**	**0.6160**

11.0 Vegetation