High Desert Solar Project

Air Quality and Greenhouse Gas Assessment

Victorville, California

Prepared For:

MIDDLE RIVER POWER
570 LAKE COOK ROAD, SUITE 126
DEERFIELD, IL 60015

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ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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1.0 INTRODUCTION

This report documents the results of an assessment of both air quality and greenhouse gas emissions (GHG) completed for the High Desert Solar Project (Project), which includes the construction of a 108-megawatt (MW) photovoltaic (PV) solar power plant and related facilities with an integrated battery energy storage system, located in Victorville, California. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Mojave Desert Air Quality Management District (MDAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment.

1.1 Project Description and Location

The proposed Project site is located on approximately 579 acres in Township 6 North, Range 5 West of the San Bernardino Meridian in the City of Victorville, County of San Bernardino, California (see **Figure 1**). Specifically, the Project would be constructed mostly east of Helendale Road and west of Floreate Road, directly north of the Southern California Logistics Airport (SCLA) and the Victor Valley Wastewater Reclamation Authority (VVWRA) properties. Additionally, an approximate 2.3-mile 230kV generation tie (Gen-Tie) line encompassing approximately 35 acres of corridor area would "connect" the Project to the existing Caldwell Substation south of the Project site, for a total of approximately 614 acres (579 acres for the High Desert Solar site and 35 acres for the Gen-Tie line).

Currently the site contains several previously disturbed/developed areas consisting of old structures and illegal dumping and large tracks of undeveloped land. There are several underground utilities that cross and/or run adjacent the site or the Gen-Tie, including: a natural gas pipeline, a petroleum products pipeline, reclaimed water pipeline(s), and telecom communications cables.

The primary objectives of the Project include the construction and operation of a renewable energy resource with integrated energy storage that will help California achieve its ambitious Renewable Portfolio Standard ("RPS") and greenhouse gas ("GHG") reduction goals and enhance grid reliability through the provision of key operational flexibility and dispatchability attributes. The Project would be comprised of the following components:

- Approximately 320,000 – 370,000 PV modules and tracker system
- A single axis tracker system
- Electrical inverters and transformers
- Battery energy storage system (BESS)
- On-site electrical substation
- Meteorological stations
- Remote monitoring system (SCADA)

- Site access roads and maintenance access roads
- Security fencing and desert tortoise exclusion fencing
- Gen-Tie Line structures to interconnect with the SCE 230kV transmission line south of the site and a and 12.47kV service line to interconnect to the VMUS electrical system southwest of the site. (See **Figure 2**.)

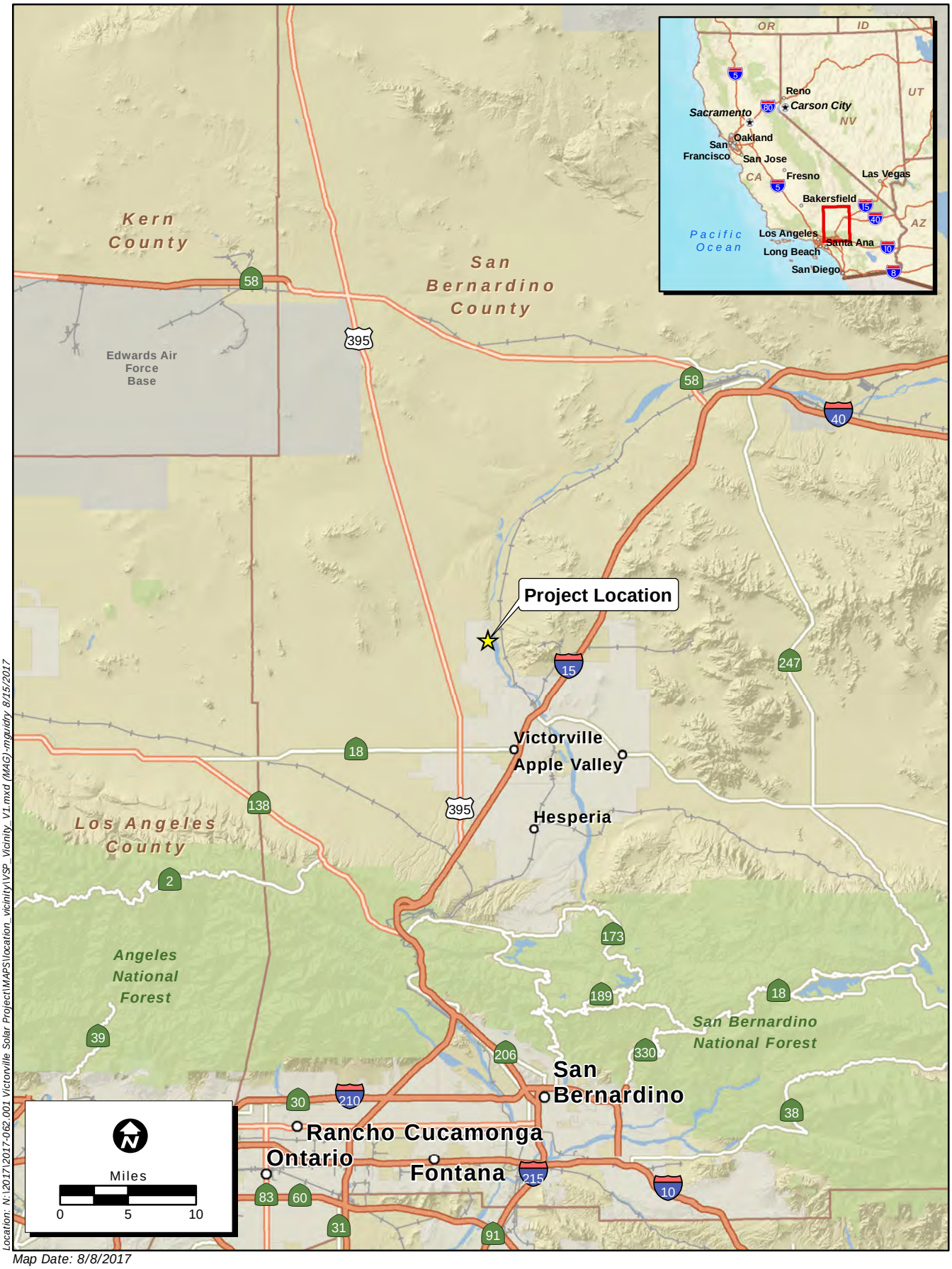
Permanent disturbance to the site would result from construction of roads, the substation, the BESS, equipment pads, PV tracker steel piles, and grading of areas with slopes greater than 5 percent within the Solar Field Area. Temporary disturbance to the site would result from trenching for electrical conductors, construction staging areas, and temporary access roads.

The Project design confines the solar arrays, BESS, substation, and access roads to a footprint of approximately 579 acres, for a total disturbance of approximately 95 percent. The remaining areas within the Project boundary would be left undeveloped. Undeveloped areas would include on-site drainages and riparian buffer zones.

Only limited grading is expected to be required because of the low impact development (LID) approach and nearly flat terrain. Grading would be required on slopes greater than 5 percent for PV power blocks. Project grading requirements are anticipated to be approximately 116 acres, mainly along the eastern side of the Solar Field Area and in the locations of the substation, BESS, and laydown areas, resulting in approximately 354,335 cubic yards of cut-and-fill and no cubic yards of export. The Project may utilize some or all of the old concrete foundation slabs that will be removed during site clearing, as road base aggregate.

Prior to construction there will be activities occurring at the site to support detailed design and to prepare for construction. Geotechnical study would be performed at the Solar Field Area and along the Interconnection Facilities approximately 8 months prior to construction and would include borings up to depths of 50 feet, thermal and electrical resistivity testing, possibly a few test pits about 10 feet deep, some potholing to verify exact locations of existing underground utilities and services, and pile pull tests. Following this, construction of the facility is estimated to be completed over a 10 to 22-month period and will require a peak workforce of approximately 250 management, supervisory, and craft workers.

The Project site is located within the SCLA Specific Plan, which allows for "Power or Power Generating Plant" with a Conditional Use Permit (CUP). The 230kV Gen-Tie would traverse through areas zoned, "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural for the Gen-Tie per the City's Development Code. The proposed Project and its components are consistent with the City's land use ordinances.



Map Date: 8/8/2017
Service Layer Credits: Sources: USGS, ESRI, TANA, AND

Figure 1. Project Vicinity

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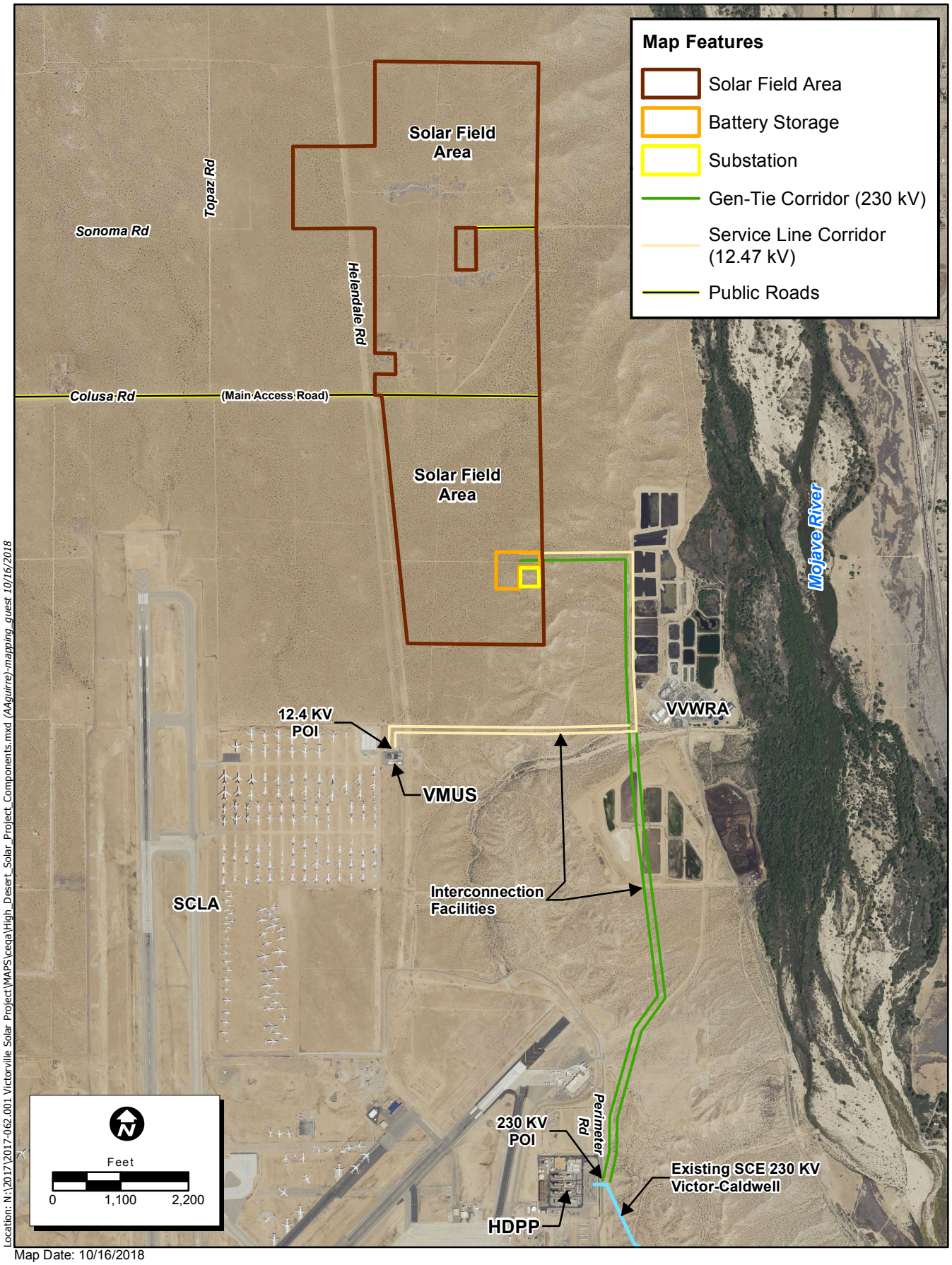

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Map Date: 10/16/2018
Photo Source: NAIP 2016

Figure 2. Project Components

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2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Mojave Desert Air Basin (MDAB), which encompasses the Project site, pursuant to the regulatory authority of the Mojave Desert Air Quality Management District (MDAQMD). The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

Mojave Desert Air Basin

The MDAB is comprised of four air districts, the Kern County APCD, the Antelope Valley AQMD, the Mojave Desert AQMD, and the eastern portion of the South Coast AQMD. The Kern County APCD consists of the eastern portion of Kern County; the Antelope Valley AQMD consists of the northeastern portion of Los Angeles County; the Mojave Desert AQMD includes San Bernardino County and the most eastern portion of Riverside County; and the portion of the South Coast AQMD includes the eastern part of Riverside County.

Topography and Climate

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 feet elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriels by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer, the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert

climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), course particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in **Table 2-1**.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: CAPCOA 2013

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many 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. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Ambient Air Quality

Ambient air quality at the Project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains over 60 monitoring stations throughout California. The Victorville- Park Avenue station air quality monitoring station (14306 Park Avenue, Victorville CA 92392), located approximately 6.3 miles south of the development site, is the closest station to the site. The Victorville- Park Avenue monitoring station monitors ambient concentrations of O_3, PM_{10} and $PM_{2.5}$, which make up the pollutant species the MDAB is currently in nonattainment. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the development area.

Table 2-2 summarizes the published data concerning O_3, PM_{10} and $PM_{2.5}$ since 2015 from the Victorville-Park Avenue Station monitoring station.

Table 2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2015	2016	2017
O_3			
Max 1-hour concentration (ppm)	0.132	0.100	0.088
Max 8-hour concentration (ppm) (state/federal)	0.106 / 0.105	0.086 / 0.085	0.082 / 0.081
Number of days above 1-hour standard (state/federal)	8 / 1	4 / 0	0 / 0
Number of days above 8-hour standard (state/federal)	39 / 38	35 / 33	19 / 17
PM_{10}			
Max 24-hour concentration (µg/m3) (state/federal)	* / 96.1	* / 226.5	* / 182.5
Number of days above 24-hour standard (state/federal)	* / 0	* / 2	* / 1
$PM_{2.5}$			
Max 24-hour concentration (µg/m3) (state/federal)	50.2 / 50.2	41.5 / 41.2	29.3 / 27.2
Number of days above federal 24-hour standard	*	1	0

Source: CARB 2018
µg/m³ = micrograms per cubic meter; ppm = parts per million
** = Insufficient data available*

The U.S. Environment Protection Agency (USEPA) and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do

not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the for the Victorville portion of the MDAB is included in **Table 2-3.**

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and PM_{10} standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2017a).

Table 2-3. Attainment Status of Criteria Pollutants in the City of Victorville Portion of Mojave Desert Air Basin

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified

Source: CARB 2017a

2.2 Regulatory Framework

Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. **Table 2-3** lists the federal attainment status of the MDAB for the criteria pollutants.

State

California Clean Air Act

The California Clean Air Act (CCAA) allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, 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, including setting the California ambient air quality standards. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal Clean Air Act (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the Clean Air Act. The EPA has the responsibility to review all State Implementation Plans to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register.

The MDAQMD is the agency primarily responsible for ensuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in the MDAB. In an attempt to achieve NAAQS and CAAQS and maintain air quality, the air district has completed the following air quality attainment plans and reports, which together constitute the SIP for the portion of the MDAB encompassing the Project:

- Searles Valley PM_{10} Attainment Plan

- Searles Valley PM_{10} Attainment Demonstration & Maintenance Plan
- Mojave Desert Planning Area PM_{10} Attainment Plan
- MDAQMD Ozone Attainment Plan 2004 (State & Federal)
- MDAQMD Reasonable Further Progress/Rate-of-Progress Plan
- MDAQMD Post 1996 Attainment Demonstration and Reasonable Further Progress Plan
- MDAQMD Schedule for District Measures to Reduce PM Pursuant to H&S Code 39614(d)
- MDAQMD 2006 8-Hour Ozone Reasonably Available Control Technology – State Implementation Plan Analysis
- MDAQMD 2014 Supplement to the 2006 8-Hour Ozone Reasonably Available Control Technology – State Implementation Plan Analysis
- MDAQMD 8-Hour Ozone Federal Negative Declarations for 44 Source Categories
- MDAQMD Smoke Management Program
- MDAQMD Ozone Attainment Plan 2008 (Western Mojave Desert Non-Attainment Area)
- MDAQMD 2015 8-Hour Reasonably Available Control Technology – State Implementation Plan Analysis
- MDAQMD 2015 Federal Negative Declaration (8-Hour Ozone Standard) for Nineteen Control Technique Guideline Categories

Local

Mojave Desert Air Quality Management District

As previously described, the MDAQMD is the agency primarily responsible for ensuring that federal and state ambient air quality standards are not exceeded and that air quality conditions are maintained. Responsibilities of the MDAQMD include, but are not limited to, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the federal Clean Air Act and Clean Air Act Amendments. Provisions applicable to the proposed Project are summarized as follows:

- **Rule 201 – Permits to Construct** applies to the construction of air emissions sources that are not otherwise exempt under Rule 219.
- **Rule 203 – Permit to Operate** requires air emissions sources that are not exempted by Rule 219 to obtain operating permit.

- **Rule 204 – Requirements** contains rule language describing New Source Review including Best Available Control Technology (BACT) and emissions offset requirements for stationary sources.
- **Rule 219 – Equipment Not Requiring a Permit** describes the type of equipment that does not require a permit pursuant to District Rules 201 and 203.
- **Rule 401 – Visible Emissions** limits visibility of fugitive dust to less than No. 1 on the Ringlemann Chart (i.e., 20 percent opacity).
- **Rule 402 – Nuisance** applies when complaints from the public are received by the district.
- **Rule 403 – Fugitive Dust** prohibits visible dust beyond the property line of the emission source, requires "every reasonable precaution" to minimize fugitive dust emissions and prevent trackout of materials onto public roadways, and prohibits greater than 100 µg/m3 difference between upwind and downwind particulate concentrations.
- **Rule 404 – Particulate Matter Concentration** sets concentration limits based on the flow rate of the discharge. The concentration limits would apply to discharge from a stack (e.g., baghouse).
- **Rule 405 – Solid Particulate Matter Weight** limits emissions based on the weight of material processed.
- **Rule 900 – New Source Performance Standards** incorporates federal regulation (40 CFR 60) that affects the construction of emissions units. Requirements may or may not apply depending on the size, construction, and manufacture date of equipment that will be used. Specifically, NSPS OOO (40 CFR 60.670) applies to equipment in nonmetallic mineral processing plants.
- **Regulation XIII – New Source Review** contains a number of rules that are applied to new and modified sources.
- **Rule 1520 – Control of Toxic Air Contaminants from Existing Sources** implements AB 2588 Air Toxics Hot Spots requirements.
- **Rule 2002 – General Federal Actions Conformity** requires federal actions to conform to the applicable implementation plan.

2.3 Air Quality Emissions Impact Assessment

Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would:

1) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

2) Conflict with or obstruct implementation of any applicable air quality plan.

3) Expose sensitive receptors to substantial pollutant concentrations.

4) Create objectionable odors affecting a substantial number of people.

5) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Methodology

Air quality impacts were assessed in accordance with methodologies recommended by CARB and the MDAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for San Bernardino County as well as the detailed Project specifications contained in the Initial Study completed for the Project, such as the length of construction activities, types of equipment, the number of worker commute trips and deliveries coupled with average trip lengths, the amount of soil movement and the amount of acres to be graded.

Impact Analysis

PROJECT CONSTRUCTION-GENERATED CRITERIA AIR QUALITY EMISSIONS

Regional Construction Significance Analysis

Construction-generated emissions are temporary and short term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and construction worker commutes. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive particulate matter emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts.

Actual construction of the proposed facility is estimated to be completed over a 10 to 22-month period and would require a peak workforce of approximately 250 management, supervisory, and craft workers. It is anticipated that there could be up to 500 one-way worker commutes per day during the peak of construction traveling between 10 and 60 miles. Temporary construction staging/laydown will include craft parking, office trailers, storage conex boxes and equipment laydown areas. Temporary workspaces, likely located near the primary site entrance off Colusa Road, would be graded and graveled to mitigate fugitive dust and mud during rain events. As construction of the site is nearing completion, the temporary construction facilities would be removed and utilized as part of the solar field. The dry climate

of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to MDAQMD Rule 403 (Fugitive Dust). The purpose of this rule is to prohibit visible dust beyond the property line of the emission source, require "every reasonable precaution" to minimize fugitive dust emissions, and prevent trackout of materials onto public roadways.

All materials for construction of the Project will be delivered to the site by trucks. It is anticipated that there could be up to 30 deliveries per day during the peak of construction traveling between 40 and 500 miles.

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) And Federal Conformity Guidelines* identifies both annual and daily construction significance thresholds for ROG, CO, and NO_X, SO_2, PM_{10}, and $PM_{2.5}$. Construction-generated ozone precursor emissions associated with the proposed Project were calculated using CalEEMod. Predicted maximum annual and daily construction-generated emissions of criteria air pollutants for the proposed Project are summarized in **Table 2-4**. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the MDAQMD's thresholds of significance.

Table 2-4. Unmitigated Construction-Related Emissions (Regional Significance Analysis)						
Construction Year	**Maximum Pollutants (pounds per day)**					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Annual (Maximum Tons per Year)						
Grading & Road Construction - 2019	0.8	6.0	6.4	0.0	2.1	0.7
Grading, Road Construction, & Facility Installation - 2020	3.0	23.3	21.6	0.1	4.8	1.8
Facility Installation - 2021	1.2	8.8	8.9	0.0	1.9	0.7
MDAQMD Annual Significance Threshold	*25*	*25*	*100*	*25*	*15*	*12*
Exceed MDAQMD Annual Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Daily (Maximum Pounds per Day)						
Grading & Road Construction - 2019	14.54	106.49	131.65	0.51	38.95	13.01
Grading & Road Construction – 2020	13.15	93.88	119.42	0.50	38.72	12.69
Facility Installation – 2020	24.49	**186.32**	187.48	0.72	36.53	14.07
Facility Installation – 2021	22.42	**160.97**	177.54	0.71	35.46	13.05
MDAQMD Daily Significance Threshold	*137*	*137*	*548*	*137*	*82*	*65*
Exceed MDAQMD Daily Threshold?	**No**	**Yes**	**No**	**No**	**No**	**No**

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs. **Bolded** values equal threshold exceedences.*

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown in **Table 2-4**, emissions generated during facility installation would exceed the MDAQMD's daily threshold of significance for NO_x emissions. This would be considered a potentially significant impact and require mitigation to reduce emissions to a level below the established threshold. NO_x emissions are primarily associated with the use of diesel-powered construction equipment (e.g., graders, excavators, rubber-tired dozers, tractors, loaders, backhoes). The Clean Air Act of 1990 directed the US Environmental Protection Agency (EPA) to study, and regulate if warranted, the contribution of off-road internal

combustion engines to urban air pollution. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the EPA, the California Air Resources Board (CARB), and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis-Con, and Yanmar). On August 27, 1998, the EPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 horsepower and increasingly more stringent Tier 2, Tier 3, and Tier 4 standards for all equipment with phase-in schedules from 2000 to 2015. As a result, all off-road, diesel-fueled construction equipment manufactured from 2006 to 2015 has been manufactured to Tier 3 standards. The Tier 3 standards can reduce NO_x and PM emissions by as much as 64 and 39 percent, respectively. All off-road, diesel-fueled construction equipment manufactured in 2015 or later has been manufactured to Tier 4 standards. The Tier 4 standards require that emissions of PM and NO_x be further reduced by about 90 percent. By requiring the use of Tier 4 construction equipment during the facility installation phase of Project construction, mitigation measure **AQ-1** would reduce temporary NOx emissions impacts generated during Project construction to a less than significant level, as shown in **Table 2-5.**

Table 2-5. Mitigated Construction-Related Emissions (Regional Significance Analysis)						
Construction Year	**Maximum Pollutants (pounds per day)**					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Annual (Maximum Tons per Year)						
Grading & Road Construction - 2019	0.8	6.0	6.4	0.0	2.1	0.7
Grading, Road Construction & Facility Installation - 2020	2.1	15.9	26.6	0.1	4.5	1.5
Facility Installation - 2021	0.8	6.7	11.3	0.0	1.8	0.6
MDAQMD Annual Significance Threshold	*25*	*25*	*100*	*25*	*15*	*12*
Exceed MDAQMD Annual Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Daily (Maximum Pounds per Day)						
Grading & Road Construction - 2019	14.54	106.49	131.65	0.51	38.95	13.01
Grading & Road Construction - 2020	13.15	93.88	119.42	0.50	38.72	12.69
Facility Installation - 2020	17.06	121.67	231.18	0.72	33.70	11.49
Facility Installation - 2021	15.89	110.52	222.54	0.71	33.21	11.02
MDAQMD Daily Significance Threshold	*137*	*137*	*548*	*137*	*82*	*65*
Exceed MDAQMD Daily Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs. **Bolded** values equal threshold exceedences.*

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown, with implementation of mitigation measure **AQ-1**, NOx emissions would be reduced to a maximum daily emission rate below the MDAQMD threshold. As a result, criteria pollutant emissions generated during Project construction would not result in a violation of air quality standards.

Recommended Mitigation Measures

AQ-1: During solar facility installation activities, as distinguished from site grading and road construction activities, all off-road mobile construction equipment such as rubber-tired dozers, graders, scrapers, excavators, and tractors shall be California Air Resources Board (CARB) Tier 4 Certified. On-site pick-up trucks used to traverse the construction site are precluded from this requirement.

Timing/Implementation: During Project construction

Enforcement/Monitoring: City of Victorville Development Department

PROJECT OPERATIONS CRITERIA AIR QUALITY EMISSIONS

Regional Operational Significance Analysis

Implementation of the Project would result in a negligible amount of long-term operational emissions of criteria air pollutants. Project-generated increases in emissions would be predominantly associated with motor vehicle use for routine maintenance work.

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) And Federal Conformity Guidelines* identifies both annual and daily operational significance thresholds for ROG, CO, and NO_X, SO_2, PM_{10}, and $PM_{2.5}$. Operational-generated criteria air pollutant emissions associated with the proposed Project were calculated using CalEEMod. Predicted maximum annual and daily operational-generated emissions of criteria air pollutants for the proposed Project are summarized in **Table 2-6**.

Table 2-6. Operational-Related Emissions (Regional Significance Analysis)						
Operations	**Maximum Pollutants (pounds per day)**					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Annual (Maximum Tons per Year)						
Area Source	2.7	0.0	0.0	0.0	0.0	0.0
Energy Use	0.0	0.0	0.0	0.0	0.0	0.0
Mobile Source	0.0	0.1	0.3	0.0	0.1	0.0
Total	**2.7**	**0.1**	**0.3**	**0.0**	**0.1**	**0.0**
MDAQMD Annual Significance Threshold	*25*	*25*	*100*	*25*	*15*	*12*
Exceed MDAQMD Annual Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Daily (Maximum Pounds per Day)						
Area Source	14.57	0.00	0.00	0.00	0.00	0.00
Energy Use	0.0	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.09	0.69	2.02	0.00	0.57	0.15
Total	**14.66**	**0.69**	**2.08**	**0.00**	**0.57**	**0.15**
MDAQMD Daily Significance Threshold	*137*	*137*	*548*	*137*	*82*	*65*
Exceed MDAQMD Daily Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.*
Notes: Emission estimates account for more than 12 permanent employee trips daily.

As indicated in **Table 2-6**, operational-generated emissions would not exceed MDAQMD significance thresholds.

CONFLICT WITH MDAQMD AIR QUALITY ATTAINMENT PLANS

As previously mentioned, the Project site is located within the MDAB, which is under the jurisdiction of the MDAQMD. The MDAQMD is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the air basin is in nonattainment. In order to reduce such emissions, the MDAQMD adopts and enforces rules and regulations concerning sources of air pollution, issues permits for stationary sources of air pollution, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the federal Clean Air Act and Clean Air Act Amendments. The MDAQMD also assists CARB in preparing the State Implementation Plan by preparing Attainment Plans that demonstrate how the ambient air quality standards will be achieved. The

Attainment Plans describe the rules that will be developed and other means by which the MDAQMD will manage the emissions within its jurisdiction.

A project is conforming with the MDAQMD Attainment Plans if it complies with all applicable district rules and regulations, complies with all proposed control measures from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). A project is nonconforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. Conformity with growth forecasts can be established by demonstrating that the Project is consistent with the land use plan that was used to generate the growth forecast. An example of a nonconforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).

The Project site is located within the SCLA Specific Plan, which allows for "Power or Power Generating Plant" with a Conditional Use Permit (CUP). The 230kV Gen-Tie would traverse through areas zoned, "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural for the Gen-Tie per the City's Development Code. The proposed Project and its components are consistent with the City's land use ordinances. In addition, there will be no increase in population as a result of the Project. Therefore, the Project would not exceed the population or job growth projections used by the MDAQMD to develop its air quality attainment plans.

Furthermore, the operation of the Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel–based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Project would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal). The Project would generate a maximum of 108 MW of electricity at any one time, or approximately 316,700.3 megawatt-hours of electricity each year.

Table 2-7 shows the emissions that would be displaced by the Proposed Project. Note that this estimate only includes that associated with the combustion of fossil fuels; it does not include the vehicle trips associated with the Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes from fossil fuels and does not include the approximate 45 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (CEC 2017). Displacement of fossil fuel emissions has a direct beneficial effect on human health for those receptors downwind of the location of the fossil fuel power plants.

Table 2-7. Proposed Project Displaced Criteria Pollutant Emissions (Tons)						
	Emissions (Tons)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Emissions Displaced Annually (tons)						
Displaced Natural Gas-Source Emissions	0.0	7.0	2.1	4.8	6.7	2.7
Displaced Coal-Source Emissions	0.0	83.2	3.5	3.9	0.6	0.4
Total	**0.0**	**90.2**	**5.6**	**8.7**	**7.3**	**3.1**
Emissions Displaced over 30 Years (tons)						
Displaced Natural Gas-Source Emissions	0	210	63	144	201	81
Displaced Coal-Source Emissions	0	2,496	105	117	18	12
Total	**0**	**2,706**	**168**	**261**	**219**	**93**

Source: Displaced emissions calculated by ECORP Consulting using U.S. EPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015.

Notes: In order to provide a conservative analysis, the Proposed Project is assumed to generate electricity 25 percent of the time available (2,190 hours annually), which equates to a heat rate/efficiency of 10,000 British Thermal Units (BTU) per kilowatt hour. 108 megawatts (316,700,300 annual kilowatt hours) x 10,000 heat rate = 3,167,003 million BTU displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (89.49%). Coal constitutes 10.13% of all fossil fuel-based energy consumption in California. Therefore, 2,834,151 million of the displaced BTU is displaced natural gas consumption and 332,852 million of the displaced BTU is displaced coal. The heat content of coal is assumed at 24 million BTU per ton of coal burned. At a rate of 24 million BTU per ton of coal burned, the project would displace 13,869 tons of burned coal annually.

As shown, the Proposed Project would potentially displace approximately 2,706 tons of NO_x, 168 tons of CO, 261 tons of SO_2, 219 tons of PM_{10}, and 93 tons of $PM_{2.5}$ over the course of 30 years (the Proposed Project is expected to be in operation for at least 25 to 35 years). Furthermore, as demonstrated in **Table 2-5** and **Table 2-6** above, the Project would not exceed the applicable MDAQMD significance thresholds for construction or operational-source emissions.

The Project would be consistent with the emission-reduction goals of the MDAQMD Attainment Plans.

EXPOSURE OF SENSITIVE RECEPTORS TO TOXIC AIR CONTAMINANTS

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest is a residence located approximately 4,100 feet west of the site.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Accordingly, DPM is the focus of this discussion.

Based on the emission modeling conducted the maximum construction-related emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be 3.63 pounds per day (see **Attachment A**) during construction activity ($PM_{2.5}$ is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$), according to CARB. Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) Furthermore, even during the most intense month of construction, emissions of DPM would be generated from different locations on the Project site, rather than a single location, because different types of construction activities (e.g., site preparation, grading, paving) would not occur at the same place at the same time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-, 30-, or 9-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed Project. Consequently, an important consideration is the fact that construction of the proposed Project is anticipated to last between 10 and 14 months, or approximately one year. Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense season of construction, the relatively short duration of construction activities (approximately a year) required to develop the site, the highly dispersive properties of DPM, and the lack of nearby sensitive receptors, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics.

Operational Air Contaminants

The proposed Project involves the construction of a solar energy generation facility. The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, would not generate quantifiable air toxic emissions from Project operations.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations across the state have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The analysis prepared for CO attainment in the SCAQMD *1992 Federal Attainment Plan for Carbon Monoxide* (1992 CO Plan) in Los Angeles County can be used to demonstrate the potential for CO exceedances. The SCAQMD CO hot spot analysis was conducted for four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the level of service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be level of service (LOS) E at peak morning traffic and LOS F at peak afternoon traffic (LOS E and F are the two least efficient traffic LOS ratings). Even with the inefficient LOS and volume of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992).

The Project would not increase traffic volumes at any intersection to more than 100,000 vehicles per day, there is no likelihood of the Project traffic exceeding CO values.

ODORS

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have

sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Construction

During construction, the proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, under CEQA, construction odors would result in a less than significant impact related to odor emissions.

Operations

The California Air Resources Board's (CARB's) *Air Quality and Land Use Handbook* (2005) identifies the sources of the most common operational odor complaints received by local air districts. Typical sources include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Project does not contain any of the land uses identified as typically associated with emissions of objectionable odors. As such, a less than significant impact would occur.

CUMULATIVE AIR QUALITY IMPACTS

The cumulative setting for air quality includes San Bernardino County and the MDAB. The region is designated as a nonattainment area for the federal O_3 and PM_{10} standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2017a). Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the MDAB and associated growth and development anticipated in the air basin.

The MDAQMD's approach to assessing cumulative impacts is based on whether a proposed project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. In other words, the MDAQMD considers the impact of a project to be less than cumulatively considerable if it does not exceed significance thresholds under project-level conditions and does not conflict with the MDAQMD's air quality plans. As identified above in **Table 2-5** and **Table 2-6,** the Project would not exceed MDAQMD construction or operational significance thresholds. Additionally, as previously described the Project would not conflict with any MDAQMD air quality plans. Thus, the Project would result in less than significant cumulative air quality impacts.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (IPCC 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every

year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1] EPA 2016a, [2] EPA 2016b, [3] EPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Sources of Greenhouse Gas Emissions

In June 2017, CARB released the 2017 edition of the California GHG inventory covering calendar year 2015 emissions. In 2015, California emitted 440.4 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2015, accounting for approximately 37 percent of total GHG emissions in the state. This sector was followed by the industrial sector (21 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent) (CARB 2017b).

Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing carbon dioxide from the atmosphere.

3.2 Regulatory Framework

State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

While dated, this executive order remains relevant because a more recent California Appellate Court decision, Cleveland National Forest Foundation v. San Diego Association of Governments (November 24, 2014) 231 Cal.App.4th 1056, examined whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. While the California Supreme Court ruled that the San Diego Association of Governments did not abuse its discretion by declining "to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal, the decision also recognized that the goal of a 40 percent reduction in 1990 GHG levels by 2030 is "widely acknowledged" as a "necessary interim target to ensure that California meets its longer-range goal of reducing greenhouse gas emissions 80 percent below 1990 levels by the year 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill 32 (Health and Safety Code §38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments and notes that successful implementation relies on local governments' land use planning and urban growth decisions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which was re-approved by CARB on August 24, 2011, that outlines measures to meet the 2020 GHG reduction goals. To meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures for further study and possible State implementation, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, and forestry sectors and other sources could be achieved should the State implement all of the measures in the Scoping Plan.

The Scoping Plan is required by AB 32 to be updated at least every five years. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by CARB. The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill 32 (SB

32) as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include: increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Executive Order B-30-15

On April 20, 2015 Governor Brown signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California.

In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly-owned utilities to procure 50 percent of their electricity from renewable resources by 2030. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 RPS.

Local

Mojave Desert Air Quality Management District

Under CEQA, the MDAQMD is an expert commenting agency on air quality and related matters within its jurisdiction or impacting on its jurisdiction. The MDAQMD provides guidelines to assessing the significance of project specific GHG emissions and offers both daily and annual thresholds for GHG emissions.

City of Victorville

The City of Victorville adopted a community-wide climate action plan (CAP) in September 2015. A climate action plan is a comprehensive strategy for a community to reduce emissions of GHGs, which, according to scientific consensus, are primarily responsible for causing climate change. The 2015 CAP presents GHG inventories, identifies the effectiveness of California initiatives to reduce GHG emissions, and identifies local measures to reduce GHG emissions and achieve a City-identified GHG reduction target. The City participated in the San Bernardino County Regional GHG Reduction Plan, which presents the collective results of all local efforts Countywide to reduce GHG emissions consistent with statewide GHG targets expressed in AB 32. The City of Victorville used the technical information within the County Regional GHG Reduction Plan to develop the City CAP. The CAP builds on this regional work and refines it to provide City-specific information and to develop the local implementation plan for Victorville-centric GHG reduction measures. The CAP identifies how the GHG reduction measures will be implemented and monitored by the City to ensure that progress is being made toward the GHG reduction target.

3.3 Greenhouse Gas Emissions Impact Assessment

Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to GHG emissions if it would:

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

2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Methodology

GHG impacts were assessed in accordance with methodologies recommended by CARB and the MDAQMD. Where quantification was required, GHG emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for San Bernardino County as well as the detailed Project

specifications contained in the Initial Study completed for the Project, such as the length of construction activities, types of equipment, the number of worker commute trips and deliveries coupled with average trip lengths, the amount of soil movement and the amount of acres to be graded.

Impact Analysis

CONTRIBUTION OF GREENHOUSE GAS EMISSIONS

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) And Federal Conformity Guidelines* identifies both annual and daily construction significance thresholds for GHG emissions. The proposed Project is compared to the MDAQMD annual threshold of 100,000 metric tons of CO_2e annually as well as the MDAQMD daily threshold of 578,000 pounds of CO_2e daily.

Construction

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). **Table 3-2** illustrates the specific construction-generated GHG emissions that would result from construction of the Project.

Table 3-2. Construction-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/ Year)**
Annual (Maximum Tons per Year)	
Grading & Road Construction - Year 2019	2,539
Grading, Road Construction & Facility Installation - Year 2020	8,302
Facility Installation - Year 2021	3,522
MDAQMD Annual Threshold	*100,000 metric tons/year*
Exceed Annual Threshold?	**No**
Daily (Maximum Pounds per Day)	
Grading & Road Construction - Year 2019	53,475
Grading & Road Construction - Year 2020	52,461
Facility Installation - Year 2020	74,589
Facility Installation - Year 2021	73,770
MDAQMD Daily Threshold	*548,000 pounds/day*
Exceed Daily Threshold?	**No**

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.*

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown in **Table 3-2**, construction-generated emissions would not exceed MDAQMD significance thresholds.

Operations

Operation of the Project would result in GHG emissions associated with minimal worker trips and equipment usage associated with ongoing operations, maintenance, repair, and security. Additionally, the Project expected to use 175,000 gallons per year, the pumping of which will require electricity. Project construction is expected to consume approximately 65,170,287 gallons of water and this quantify has been amortized over the life of the Project. Resultant emissions have been added to the operational totals identified in **Table 3-3**, which summarizes all the direct and indirect annual GHG emissions level associated with the Project.

Table 3-3. Operational Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/ Year)**
Annual (Maximum Tons per Year)	
Area Source (landscaping, hearth)	0
Energy	86
Mobile	116
Waste	0
Water	7
Total	**209**
MDAQMD Annual Threshold	*100,000 metric tons/year*
Exceed Annual Threshold?	**No**
Summer Daily (Maximum Pounds per Day)	
Area Source (landscaping, hearth)	0.14
Energy	0.00
Mobile	749.79
Waste	0.00
Water	0.00
Total	**749.93**
MDAQMD Daily Threshold	*548,000 pounds/day*
Exceed Daily Threshold?	**No**
Winter Daily (Maximum Pounds per Day)	
Area Source (landscaping, hearth)	0.14
Energy	0.00
Mobile	694.29
Waste	0.00
Water	0.00
Total	**694.43**
MDAQMD Daily Threshold	*548,000 pounds/day*
Exceed Daily Threshold?	**No**

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.*

Notes: Emission estimates account for more than 12 permanent employee trips daily, the pumping of 175,000 gallons of water annually for operations, and the pumping of 65,170,287 gallons of water during construction, amortized over the 30-year lifespan of the Project.

As shown in **Table 3-3**, operational-generated emissions would not exceed MDAQMD significance thresholds.

CONFLICT WITH ANY APPLICABLE PLAN, POLICY, OR REGULATION OF AN AGENCY ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES

The City of Victorville Climate Action Plan establishes a GHG emissions reduction target for the year 2020 that is 29 percent below projected year 2020 emission levels. The GHG Plan is consistent with AB 32 and sets the City on a path to achieve a more substantial long-term reduction in the post-2020 period. Achieving this level of emissions would ensure that the contribution to GHG emissions from activities covered by the Climate Action Plan would not be cumulatively considerable. Applicants are required to use the Victorville Climate Action Plan GHG Emissions Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that garner 45 or more points on the Screening Tables are considered less than significant. (The point system was devised to ensure project compliance with the reduction measures in the Climate Action Plan such that the GHG emissions from new development, when considered together with those from existing development, would allow the City to meet its year 2020 target and support longer-term reductions in GHG emissions beyond year 2020.)

As previously described, the Project proposes a 108-megawatt PV solar power plant, battery energy storage system (BESS), substation. GHG emissions generated by energy sources account for all stages of the life-cycle (including mining, construction, etc.), which are referred to as the cumulative GHG emissions and are usually expressed in grams of carbon dioxide equivalent per unit of busbar electricity (i.e., gCO_2/kWh_e). When comparing various fossil-fueled energy generators, the GHG emissions generated are dependent on the type of fuel (i.e., gas, oil, coal). GHG emissions generated by some of the more common types of fossil-fueled plants and solar power plants are summarized in **Table 3-4**.

Table 3-4. Life-Cycle Greenhouse Gas Emissions for Various Types of Energy Generators

Fossil Fueled	
Coal	950 to 1,250
Oil	500 to 1,200
Gas	440 to 780
Solar	43 to 73[3]

Source: Weisser 2007

Notes:

[1] gCO_2e/kWh_e = grams of carbon dioxide equivalent per unit of busbar electricity.

[2] Emissions are based on lifecycle of energy source including mining, construction, operation, etc.

[3] Solar PV life-cycle emissions result from using fossil-fuel-based energy to produce the materials for solar cells, modules, and systems, as well as directly from smelting, production, and manufacturing facilities.

As shown in **Table 3-4**, solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. Therefore, the proposed Project would contribute to the continued reduction of GHG emissions in the interconnected California and western United States electricity systems, as the energy produced by the Project would displace GHG emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas,

coal, arid renewable combustion resources). The Project would generate a maximum of 108 megawatts (MW) of electricity at any one time. Therefore, over a 30-year lifespan approximately 6,528,600 megawatt-hours (MWh) of electricity would be produced or approximately 8,754,842 megawatt-hours of electricity would be produced or approximately 316,700 megawatt-hours of electricity each year (see footnotes under **Table 3-5**). **Table 3-5** shows the emissions that would be displaced by the proposed Project. Note that this estimate only includes that associated with the combustion of fossil fuels; it does not include the vehicle trips associated with the Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes from fossil fuels and does not include the approximate 45 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (CEC 2017).

Table 3-5. Proposed Project Displaced GHG Emissions (Metric Tons)

	Emissions (Metric Tons)			
	Carbon Dioxide (CO_2)	**Methane (CH_4)**	**Nitrous Oxide (N_2O)**	**Carbon Dioxide Equivalent (CO_2e)**
Emissions Displaced Annually (metric tons)				
Displaced Natural Gas-Source Emissions	141,410	0	0	141,410
Displaced Coal-Source Emissions	37,997	0.3	0.2	38,064
Total	**179,407**	**0.3**	**0.2**	**179,474**
Emissions Displaced over 30 Years (metric tons)				
Displaced Natural Gas-Source Emissions	4,242,300	0	0	4,242,300
Displaced Coal-Source Emissions	1,139,910	9	6	1,141,923
Total	**5,382,210**	**9**	**6**	**5,384,223**

Source: Displaced emissions calculated by ECORP Consulting using U.S. EPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015.

Notes: In order to provide a conservative analysis, the Proposed Project is assumed to generate electricity 25 percent of the time available (2,190 hours annually), which equates to a heat rate/efficiency of 10,000 British Thermal Units (BTU) per kilowatt hour. 108 megawatts (316,700,300 annual kilowatt hours) x 10,000 heat rate = 3,167,003 million BTU displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (89.49%). Coal constitutes 10.13% of all fossil fuel-based energy consumption in California. Therefore, 2,834,151 million of the displaced BTU is displaced natural gas consumption and 332,852 million of the displaced BTU is displaced coal. The heat content of coal is assumed at 24 million BTU per ton of coal burned. At a rate of 24 million BTU per ton of coal burned, the project would displace 13,869 tons of burned coal annually.

As shown, the Project would potentially displace approximately 179,474 metric tons of CO_2e per year, and approximately 5,384,223 metric tons of CO_2e over the course of 30 years.

While the Project would emit some GHG emissions during construction and a very small amount during operations, the contribution of renewable resource energy production to meet the goals of the Renewable Portfolio Standard (AB 32 Scoping Plan Measure E-3) would result in a net cumulative reduction of GHG emissions, a key environmental benefit. (AB 32 Scoping Plan Measure E-3, Renewable Portfolio Standard, of the AB 32 Climate Change Scoping Plan requires that all investor-owned utility companies generate 33 percent of their energy demand from renewable sources.) Therefore, the short-term minor generation of GHG emissions during construction which is necessary to create this new, low-GHG-emitting power-generating facility, as well as the negligible amount generated during ongoing maintenance operations, would be more than offset by GHG emission reductions associated with solar-generated energy during operation.

Increasing sources of solar energy is one of the measures identified under AB 32 to reduce statewide GHG emissions. The proposed Project would reduce GHG emissions in a manner consistent with AB 32 and other California GHG-reducing legislation by creating a new source of solar power to replace the current use of fossil fuel power and reduce GHG emissions power generation and use. For these reasons, the proposed Project would result in the generation of more than 100 percent of the power needs of the Project, achieving 60 points when compared to the Victorville Climate Action Plan GHG Emissions Screening Tables. Therefore, the Project would conform with the City Climate Action Plan.

CUMULATIVE GHG IMPACTS

Climate change is a global problem. And GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe.

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed Project as well as other cumulative related projects would also be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As previously discussed, the proposed Project would not exceed MDAQMD significance thresholds and would actually assist to reduce GHG emissions. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant.

4.0 REFERENCES

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ATTACHMENT A

CalEEMod Output Files

High Desert Solar

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	614.00	Acre	614.00	26,745,840.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

High Desert Solar - San Bernardino-Mojave Desert County, Annual

Project Characteristics -

Land Use -

Construction Phase - Estimated 22 months of construction

Off-road Equipment - Equipment per Table 7 of Initial Study Project Description

Off-road Equipment - Equipment per Table 7 of the Initial Study Project Description

Trips and VMT - Worker commute trips, vendor trips and trip length per Initial Study Project Description. Haul trucks account for the movement of 354,335 cubic yards on-site

Grading -

Vehicle Trips - 5 permanent workers = 10 daily trips

Energy Use - Lighting specification derived from CalEEMod 'Parking Lot' land use default. Project calculations assume to employ 1/20 lighting as standard 614-acre parking lot

Water And Wastewater - Operations = 175,000 gallons/yr. Construction = 65,170,287 gallons over 14 months. Construction water consumption amortized over life of the project (35 years)

Construction Off-road Equipment Mitigation - Tier 4 engine mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10,850.00	337.00
tblConstructionPhase	NumDays	420.00	142.00
tblEnergyUse	LightingElect	0.00	0.01
tblGrading	MaterialExported	0.00	354,335.00
tblOffRoadEquipment	HorsePower	231.00	399.00
tblOffRoadEquipment	HorsePower	89.00	93.00
tblOffRoadEquipment	HorsePower	84.00	549.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	46.00	45.00
tblOffRoadEquipment	HorsePower	16.00	189.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	402.00	250.00
tblOffRoadEquipment	HorsePower	172.00	291.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	78.00	63.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	44,292.00	22,146.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripNumber	0.00	30.00
tblTripsAndVMT	VendorTripNumber	4,384.00	30.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	500.00
tblTripsAndVMT	WorkerTripNumber	11,233.00	500.00
tblVehicleTrips	CC_TL	6.60	60.00
tblVehicleTrips	CNW_TL	6.60	60.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TL	14.70	60.00
tblVehicleTrips	HO_TL	0.00	60.00
tblVehicleTrips	HS_TL	0.00	60.00
tblVehicleTrips	HW_TL	0.00	60.00
tblVehicleTrips	PR_TP	0.00	100.00

tblVehicleTrips	ST_TR	0.00	0.02
tblVehicleTrips	SU_TR	0.00	0.02
tblVehicleTrips	WD_TR	0.00	0.02
tblWater	OutdoorWaterUseRate	0.00	2,037,008.00

2.0 Emissions Summary

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					
2019	0.7969	6.2842	6.3554	0.0273	1.9997	0.1410	2.1407	0.5909	0.1313	0.7222	0.0000	2,535.2853	2,535.2853	0.1325	0.0000	2,538.5982
2020	2.9796	23.3882	21.6084	0.0889	4.1019	0.7516	4.8535	1.1129	0.7069	1.8198	0.0000	8,284.2693	8,284.2693	0.7085	0.0000	8,301.9822
2021	1.1923	8.8396	8.8866	0.0377	1.6056	0.2799	1.8854	0.4353	0.2630	0.6983	0.0000	3,514.6972	3,514.6972	0.3108	0.0000	3,522.4682
Maximum	**2.9796**	**23.3882**	**21.6084**	**0.0889**	**4.1019**	**0.7516**	**4.8535**	**1.1129**	**0.7069**	**1.8198**	**0.0000**	**8,284.2693**	**8,284.2693**	**0.7085**	**0.0000**	**8,301.9822**

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					
2019	0.7706	6.0023	6.3602	0.0273	1.9997	0.1233	2.1230	0.5909	0.1151	0.7060	0.0000	2,535.2852	2,535.2852	0.1325	0.0000	2,538.5980
2020	2.1218	15.9080	26.6132	0.0889	4.1019	0.4228	4.5247	1.1129	0.4064	1.5194	0.0000	8,284.2658	8,284.2658	0.7085	0.0000	8,301.9786
2021	0.8399	6.1151	11.3164	0.0377	1.6056	0.1586	1.7641	0.4353	0.1531	0.5884	0.0000	3,514.6956	3,514.6956	0.3108	0.0000	3,522.4665
Maximum	**2.1218**	**15.9080**	**26.6132**	**0.0889**	**4.1019**	**0.4228**	**4.5247**	**1.1129**	**0.4064**	**1.5194**	**0.0000**	**8,284.2658**	**8,284.2658**	**0.7085**	**0.0000**	**8,301.9786**

High Desert Solar - San Bernardino-Mojave Desert County, Annual

	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	**24.88**	**27.23**	**-20.19**	**0.00**	**0.00**	**39.90**	**5.27**	**0.00**	**38.74**	**13.16**	**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)
4	**7-30-2019**	**10-29-2019**	4.0986	3.9169
5	**10-30-2019**	**1-29-2020**	4.0911	3.9105
6	**1-30-2020**	**4-29-2020**	6.3107	4.3745
7	**4-30-2020**	**7-29-2020**	6.8521	4.5096
8	**7-30-2020**	**10-29-2020**	6.9563	4.5880
9	**10-30-2020**	**1-29-2021**	6.7305	4.5187
10	**1-30-2021**	**4-29-2021**	5.9470	4.1155
11	**4-30-2021**	**7-29-2021**	2.1617	1.4902
		Highest	6.9563	4.5880

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	2.6592	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	85.2180	85.2180	3.5200e-003	7.3000e-004	85.5229
Mobile	0.0152	0.1342	0.3176	1.2600e-003	0.1021	1.1800e-003	0.1033	0.0274	1.1100e-003	0.0285	0.0000	116.2160	116.2160	4.5500e-003	0.0000	116.3298
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	0.0000	7.2108	7.2108	3.0000e-004	6.0000e-005	7.2366
Total	**2.6744**	**0.1343**	**0.3233**	**1.2600e-003**	**0.1021**	**1.2000e-003**	**0.1033**	**0.0274**	**1.1300e-003**	**0.0285**	**0.0000**	**208.6557**	**208.6557**	**8.4000e-003**	**7.9000e-004**	**209.1010**

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	2.6592	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	85.2180	85.2180	3.5200e-003	7.3000e-004	85.5229
Mobile	0.0152	0.1342	0.3176	1.2600e-003	0.1021	1.1800e-003	0.1033	0.0274	1.1100e-003	0.0285	0.0000	116.2160	116.2160	4.5500e-003	0.0000	116.3298
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	0.0000	7.2108	7.2108	3.0000e-004	6.0000e-005	7.2366
Total	**2.6744**	**0.1343**	**0.3233**	**1.2600e-003**	**0.1021**	**1.2000e-003**	**0.1033**	**0.0274**	**1.1300e-003**	**0.0285**	**0.0000**	**208.6557**	**208.6557**	**8.4000e-003**	**7.9000e-004**	**209.1010**

	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 - Road Construction	Site Preparation	8/1/2019	2/15/2020	5	142	
2	Solar Facility Construction	Building Construction	2/16/2020	6/1/2021	5	337	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 614

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 - Road Construction	Dumpers/Tenders	3	8.00	189	0.38
Site Preparation - Road Construction	Graders	1	6.00	174	0.41
Site Preparation - Road Construction	Rollers	1	8.00	95	0.38
Site Preparation - Road Construction	Rubber Tired Dozers	1	6.00	357	0.40
Site Preparation - Road Construction	Scrapers	1	8.00	313	0.48
Site Preparation - Road Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Cranes	1	8.00	399	0.29
Solar Facility Construction	Excavators	4	8.00	168	0.38
Solar Facility Construction	Forklifts	4	8.00	93	0.20
Solar Facility Construction	Generator Sets	3	8.00	549	0.74
Solar Facility Construction	Graders	1	6.00	174	0.41
Solar Facility Construction	Off-Highway Trucks	8	8.00	250	0.38
Solar Facility Construction	Other Construction Equipment	4	8.00	291	0.42
Solar Facility Construction	Plate Compactors	2	8.00	8	0.43
Solar Facility Construction	Rollers	1	8.00	95	0.38
Solar Facility Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Trenchers	1	8.00	63	0.50
Solar Facility Construction	Welders	2	8.00	45	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 - Road Construction	8	500.00	30.00	22,146.00	60.00	270.00	0.50	LD_Mix	HDT_Mix	HHDT
Solar Facility Construction	32	500.00	30.00	0.00	60.00	270.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - Road Construction - 2019

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					0.3746	0.0000	0.3746	0.1503	0.0000	0.1503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1685	1.8288	1.3142	1.8300e-003		0.0889	0.0889		0.0818	0.0818	0.0000	164.0329	164.0329	0.0519	0.0000	165.3304
Total	**0.1685**	**1.8288**	**1.3142**	**1.8300e-003**	**0.3746**	**0.0889**	**0.4635**	**0.1503**	**0.0818**	**0.2321**	**0.0000**	**164.0329**	**164.0329**	**0.0519**	**0.0000**	**165.3304**

3.2 Site Preparation - Road Construction - 2019

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	0.0220	1.0064	0.1245	1.4200e-003	4.6700e-003	6.9000e-004	5.3600e-003	1.2700e-003	6.6000e-004	1.9300e-003	0.0000	135.8115	135.8115	0.0250	0.0000	136.4353
Vendor	0.1185	2.9997	0.6392	0.0123	0.4017	0.0436	0.4453	0.1158	0.0417	0.1575	0.0000	1,174.0621	1,174.0621	0.0226	0.0000	1,174.6265
Worker	0.4879	0.4493	4.2776	0.0118	1.2187	7.7900e-003	1.2265	0.3236	7.1800e-003	0.3307	0.0000	1,061.3789	1,061.3789	0.0331	0.0000	1,062.2061
Total	**0.6284**	**4.4554**	**5.0413**	**0.0255**	**1.6251**	**0.0521**	**1.6772**	**0.4406**	**0.0495**	**0.4901**	**0.0000**	**2,371.2524**	**2,371.2524**	**0.0806**	**0.0000**	**2,373.2678**

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					0.3746	0.0000	0.3746	0.1503	0.0000	0.1503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1422	1.5469	1.3190	1.8300e-003		0.0713	0.0713		0.0656	0.0656	0.0000	164.0327	164.0327	0.0519	0.0000	165.3302
Total	**0.1422**	**1.5469**	**1.3190**	**1.8300e-003**	**0.3746**	**0.0713**	**0.4459**	**0.1503**	**0.0656**	**0.2159**	**0.0000**	**164.0327**	**164.0327**	**0.0519**	**0.0000**	**165.3302**

3.2 Site Preparation - Road Construction - 2019

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	0.0220	1.0064	0.1245	1.4200e-003	4.6700e-003	6.9000e-004	5.3600e-003	1.2700e-003	6.6000e-004	1.9300e-003	0.0000	135.8115	135.8115	0.0250	0.0000	136.4353
Vendor	0.1185	2.9997	0.6392	0.0123	0.4017	0.0436	0.4453	0.1158	0.0417	0.1575	0.0000	1,174.0621	1,174.0621	0.0226	0.0000	1,174.6265
Worker	0.4879	0.4493	4.2776	0.0118	1.2187	7.7900e-003	1.2265	0.3236	7.1800e-003	0.3307	0.0000	1,061.3789	1,061.3789	0.0331	0.0000	1,062.2061
Total	**0.6284**	**4.4554**	**5.0413**	**0.0255**	**1.6251**	**0.0521**	**1.6772**	**0.4406**	**0.0495**	**0.4901**	**0.0000**	**2,371.2524**	**2,371.2524**	**0.0806**	**0.0000**	**2,373.2678**

3.2 Site Preparation - Road Construction - 2020

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					0.2030	0.0000	0.2030	0.0559	0.0000	0.0559	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0474	0.5068	0.3778	5.5000e-004		0.0244	0.0244		0.0224	0.0224	0.0000	48.5740	48.5740	0.0157	0.0000	48.9668
Total	**0.0474**	**0.5068**	**0.3778**	**5.5000e-004**	**0.2030**	**0.0244**	**0.2273**	**0.0559**	**0.0224**	**0.0783**	**0.0000**	**48.5740**	**48.5740**	**0.0157**	**0.0000**	**48.9668**

3.2 Site Preparation - Road Construction - 2020

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	6.0900e-003	0.2938	0.0347	4.3000e-004	3.9100e-003	1.5000e-004	4.0600e-003	1.0000e-003	1.4000e-004	1.1400e-003	0.0000	40.9407	40.9407	7.2600e-003	0.0000	41.1222
Vendor	0.0285	0.7552	0.1639	3.6900e-003	0.1216	8.9000e-003	0.1305	0.0351	8.5200e-003	0.0436	0.0000	352.5394	352.5394	6.4300e-003	0.0000	352.7001
Worker	0.1364	0.1209	1.1674	3.4400e-003	0.3690	2.3000e-003	0.3713	0.0980	2.1200e-003	0.1001	0.0000	311.2999	311.2999	8.8300e-003	0.0000	311.5207
Total	**0.1710**	**1.1699**	**1.3659**	**7.5600e-003**	**0.4945**	**0.0114**	**0.5059**	**0.1340**	**0.0108**	**0.1448**	**0.0000**	**704.7799**	**704.7799**	**0.0225**	**0.0000**	**705.3430**

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					0.2030	0.0000	0.2030	0.0559	0.0000	0.0559	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0402	0.4289	0.3799	5.5000e-004		0.0196	0.0196		0.0181	0.0181	0.0000	48.5740	48.5740	0.0157	0.0000	48.9667
Total	**0.0402**	**0.4289**	**0.3799**	**5.5000e-004**	**0.2030**	**0.0196**	**0.2226**	**0.0559**	**0.0181**	**0.0740**	**0.0000**	**48.5740**	**48.5740**	**0.0157**	**0.0000**	**48.9667**

3.2 Site Preparation - Road Construction - 2020

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	6.0900e-003	0.2938	0.0347	4.3000e-004	3.9100e-003	1.5000e-004	4.0600e-003	1.0000e-003	1.4000e-004	1.1400e-003	0.0000	40.9407	40.9407	7.2600e-003	0.0000	41.1222
Vendor	0.0285	0.7552	0.1639	3.6900e-003	0.1216	8.9000e-003	0.1305	0.0351	8.5200e-003	0.0436	0.0000	352.5394	352.5394	6.4300e-003	0.0000	352.7001
Worker	0.1364	0.1209	1.1674	3.4400e-003	0.3690	2.3000e-003	0.3713	0.0980	2.1200e-003	0.1001	0.0000	311.2999	311.2999	8.8300e-003	0.0000	311.5207
Total	**0.1710**	**1.1699**	**1.3659**	**7.5600e-003**	**0.4945**	**0.0114**	**0.5059**	**0.1340**	**0.0108**	**0.1448**	**0.0000**	**704.7799**	**704.7799**	**0.0225**	**0.0000**	**705.3430**

3.3 Solar Facility Construction - 2020

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	1.6172	15.6322	10.6266	0.0313		0.6382	0.6382		0.5999	0.5999	0.0000	2,924.2735	2,924.2735	0.5644	0.0000	2,938.3825
Total	**1.6172**	**15.6322**	**10.6266**	**0.0313**		**0.6382**	**0.6382**		**0.5999**	**0.5999**	**0.0000**	**2,924.2735**	**2,924.2735**	**0.5644**	**0.0000**	**2,938.3825**

3.3 Solar Facility Construction - 2020

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	0.1976	5.2405	1.1375	0.0256	0.8440	0.0618	0.9058	0.2432	0.0591	0.3023	0.0000	2,446.4096	2,446.4096	0.0446	0.0000	2,447.5253
Worker	0.9465	0.8389	8.1007	0.0239	2.5604	0.0160	2.5764	0.6798	0.0147	0.6945	0.0000	2,160.2323	2,160.2323	0.0613	0.0000	2,161.7646
Total	**1.1441**	**6.0794**	**9.2382**	**0.0495**	**3.4044**	**0.0777**	**3.4821**	**0.9230**	**0.0738**	**0.9968**	**0.0000**	**4,606.6419**	**4,606.6419**	**0.1059**	**0.0000**	**4,609.2899**

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	0.7666	8.2299	15.6292	0.0313		0.3141	0.3141		0.3038	0.3038	0.0000	2,924.2700	2,924.2700	0.5644	0.0000	2,938.3791
Total	**0.7666**	**8.2299**	**15.6292**	**0.0313**		**0.3141**	**0.3141**		**0.3038**	**0.3038**	**0.0000**	**2,924.2700**	**2,924.2700**	**0.5644**	**0.0000**	**2,938.3791**

3.3 Solar Facility Construction - 2020

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	0.1976	5.2405	1.1375	0.0256	0.8440	0.0618	0.9058	0.2432	0.0591	0.3023	0.0000	2,446.4096	2,446.4096	0.0446	0.0000	2,447.5253
Worker	0.9465	0.8389	8.1007	0.0239	2.5604	0.0160	2.5764	0.6798	0.0147	0.6945	0.0000	2,160.2323	2,160.2323	0.0613	0.0000	2,161.7646
Total	**1.1441**	**6.0794**	**9.2382**	**0.0495**	**3.4044**	**0.0777**	**3.4821**	**0.9230**	**0.0738**	**0.9968**	**0.0000**	**4,606.6419**	**4,606.6419**	**0.1059**	**0.0000**	**4,609.2899**

3.3 Solar Facility Construction - 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					
Off-Road	0.7026	6.4733	4.9172	0.0148		0.2631	0.2631		0.2472	0.2472	0.0000	1,379.1821	1,379.1821	0.2648	0.0000	1,385.8015
Total	**0.7026**	**6.4733**	**4.9172**	**0.0148**		**0.2631**	**0.2631**		**0.2472**	**0.2472**	**0.0000**	**1,379.1821**	**1,379.1821**	**0.2648**	**0.0000**	**1,385.8015**

3.3 Solar Facility Construction - 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	0.0723	2.0112	0.4508	0.0120	0.3980	9.4500e-003	0.4075	0.1147	9.0400e-003	0.1238	0.0000	1,149.1763	1,149.1763	0.0199	0.0000	1,149.6747
Worker	0.4173	0.3551	3.5187	0.0109	1.2075	7.3400e-003	1.2149	0.3206	6.7600e-003	0.3274	0.0000	986.3388	986.3388	0.0261	0.0000	986.9920
Total	**0.4896**	**2.3663**	**3.9694**	**0.0229**	**1.6056**	**0.0168**	**1.6224**	**0.4353**	**0.0158**	**0.4511**	**0.0000**	**2,135.5151**	**2,135.5151**	**0.0461**	**0.0000**	**2,136.6667**

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	0.3503	3.7488	7.3470	0.0148		0.1418	0.1418		0.1373	0.1373	0.0000	1,379.1805	1,379.1805	0.2648	0.0000	1,385.7999
Total	**0.3503**	**3.7488**	**7.3470**	**0.0148**		**0.1418**	**0.1418**		**0.1373**	**0.1373**	**0.0000**	**1,379.1805**	**1,379.1805**	**0.2648**	**0.0000**	**1,385.7999**

3.3 Solar Facility Construction - 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	0.0723	2.0112	0.4508	0.0120	0.3980	9.4500e-003	0.4075	0.1147	9.0400e-003	0.1238	0.0000	1,149.1763	1,149.1763	0.0199	0.0000	1,149.6747
Worker	0.4173	0.3551	3.5187	0.0109	1.2075	7.3400e-003	1.2149	0.3206	6.7600e-003	0.3274	0.0000	986.3388	986.3388	0.0261	0.0000	986.9920
Total	**0.4896**	**2.3663**	**3.9694**	**0.0229**	**1.6056**	**0.0168**	**1.6224**	**0.4353**	**0.0158**	**0.4511**	**0.0000**	**2,135.5151**	**2,135.5151**	**0.0461**	**0.0000**	**2,136.6667**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.0152	0.1342	0.3176	1.2600e-003	0.1021	1.1800e-003	0.1033	0.0274	1.1100e-003	0.0285	0.0000	116.2160	116.2160	4.5500e-003	0.0000	116.3298
Unmitigated	0.0152	0.1342	0.3176	1.2600e-003	0.1021	1.1800e-003	0.1033	0.0274	1.1100e-003	0.0285	0.0000	116.2160	116.2160	4.5500e-003	0.0000	116.3298

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	12.28	12.28	12.28	268,195	268,195
Total	12.28	12.28	12.28	268,195	268,195

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
Other Non-Asphalt Surfaces	60.00	60.00	60.00	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	85.2180	85.2180	3.5200e-003	7.3000e-004	85.5229
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	85.2180	85.2180	3.5200e-003	7.3000e-004	85.5229
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

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					
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
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**

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					
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
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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	267458	85.2180	3.5200e-003	7.3000e-004	85.5229
Total		**85.2180**	**3.5200e-003**	**7.3000e-004**	**85.5229**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	267458	85.2180	3.5200e-003	7.3000e-004	85.5229
Total		**85.2180**	**3.5200e-003**	**7.3000e-004**	**85.5229**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	2.6592	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Unmitigated	2.6592	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117

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	0.9298					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7289					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Total	**2.6592**	**5.0000e-005**	**5.6800e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0110**	**0.0110**	**3.0000e-005**	**0.0000**	**0.0117**

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	0.9298					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7289					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0110	0.0110	3.0000e-005	0.0000	0.0117
Total	**2.6592**	**5.0000e-005**	**5.6800e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0110**	**0.0110**	**3.0000e-005**	**0.0000**	**0.0117**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.2108	3.0000e-004	6.0000e-005	7.2366
Unmitigated	7.2108	3.0000e-004	6.0000e-005	7.2366

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 2.03701	7.2108	3.0000e-004	6.0000e-005	7.2366
Total		**7.2108**	**3.0000e-004**	**6.0000e-005**	**7.2366**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 2.03701	7.2108	3.0000e-004	6.0000e-005	7.2366
Total		**7.2108**	**3.0000e-004**	**6.0000e-005**	**7.2366**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

High Desert Solar

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	614.00	Acre	614.00	26,745,840.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

High Desert Solar - San Bernardino-Mojave Desert County, Summer

Project Characteristics -

Land Use -

Construction Phase - Estimated 22 months of construction

Off-road Equipment - Equipment per Table 7 of Initial Study Project Description

Off-road Equipment - Equipment per Table 7 of the Initial Study Project Description

Trips and VMT - Worker commute trips, vendor trips and trip length per Initial Study Project Description. Haul trucks account for the movement of 354,335 cubic yards on-site

Grading -

Vehicle Trips - 5 permanent workers = 10 daily trips

Energy Use - Lighting specification derived from CalEEMod 'Parking Lot' land use default. Project calculations assume to employ 1/20 lighting as standard 614-acre parking lot

Water And Wastewater - Operations = 175,000 gallons/yr. Construction = 65,170,287 gallons over 14 months. Construction water consumption amortized over life of the project (35 years)

Construction Off-road Equipment Mitigation - Tier 4 engine mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

High Desert Solar - San Bernardino-Mojave Desert County, Summer

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10,850.00	337.00
tblConstructionPhase	NumDays	420.00	142.00
tblEnergyUse	LightingElect	0.00	0.01
tblGrading	MaterialExported	0.00	354,335.00
tblOffRoadEquipment	HorsePower	231.00	399.00
tblOffRoadEquipment	HorsePower	89.00	93.00
tblOffRoadEquipment	HorsePower	84.00	549.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	46.00	45.00
tblOffRoadEquipment	HorsePower	16.00	189.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	402.00	250.00
tblOffRoadEquipment	HorsePower	172.00	291.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	78.00	63.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	44,292.00	22,146.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripNumber	0.00	30.00
tblTripsAndVMT	VendorTripNumber	4,384.00	30.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	500.00
tblTripsAndVMT	WorkerTripNumber	11,233.00	500.00
tblVehicleTrips	CC_TL	6.60	60.00
tblVehicleTrips	CNW_TL	6.60	60.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TL	14.70	60.00
tblVehicleTrips	HO_TL	0.00	60.00
tblVehicleTrips	HS_TL	0.00	60.00
tblVehicleTrips	HW_TL	0.00	60.00
tblVehicleTrips	PR_TP	0.00	100.00

tblVehicleTrips	ST_TR	0.00	0.02
tblVehicleTrips	SU_TR	0.00	0.02
tblVehicleTrips	WD_TR	0.00	0.02
tblWater	OutdoorWaterUseRate	0.00	2,037,008.00

2.0 Emissions Summary

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					
2019	15.0334	111.6702	131.5674	0.5218	36.6975	2.5858	39.2833	10.9137	2.4089	13.3227	0.0000	53,406.1560	53,406.1560	2.7365	0.0000	53,474.5681
2020	24.5035	186.3317	187.4899	0.7247	36.8520	6.2524	39.0164	10.9517	5.8836	14.0804	0.0000	74,426.2237	74,426.2237	6.5271	0.0000	74,589.4015
2021	22.4310	160.9850	177.5566	0.7164	30.2848	5.1827	35.4675	8.1967	4.8703	13.0670	0.0000	73,609.4827	73,609.4827	6.4118	0.0000	73,769.7782
Maximum	**24.5035**	**186.3317**	**187.4899**	**0.7247**	**36.8520**	**6.2524**	**39.2833**	**10.9517**	**5.8836**	**14.0804**	**0.0000**	**74,426.2237**	**74,426.2237**	**6.5271**	**0.0000**	**74,589.4015**

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					
2019	14.5506	106.4982	131.6556	0.5218	36.6975	2.2619	38.9594	10.9137	2.1116	13.0253	0.0000	53,406.1560	53,406.1560	2.7365	0.0000	53,474.5681
2020	17.0748	121.6833	231.1817	0.7247	36.8520	3.4222	38.7271	10.9517	3.2977	12.6977	0.0000	74,426.2237	74,426.2237	6.5271	0.0000	74,589.4015
2021	15.9066	110.5306	222.5534	0.7164	30.2848	2.9361	33.2208	8.1967	2.8351	11.0318	0.0000	73,609.4827	73,609.4827	6.4118	0.0000	73,769.7782
Maximum	**17.0748**	**121.6833**	**231.1817**	**0.7247**	**36.8520**	**3.4222**	**38.9594**	**10.9517**	**3.2977**	**13.0253**	**0.0000**	**74,426.2237**	**74,426.2237**	**6.5271**	**0.0000**	**74,589.4015**

High Desert Solar - San Bernardino-Mojave Desert County, Summer

	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	**23.30**	**26.20**	**-17.88**	**0.00**	**0.00**	**38.52**	**2.51**	**0.00**	**37.37**	**9.18**	**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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
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	0.0904	0.6945	2.0222	7.3800e-003	0.5718	6.4900e-003	0.5783	0.1530	6.1200e-003	0.1591		749.0706	749.0706	0.0289		749.7922
Total	**14.6643**	**0.6950**	**2.0853**	**7.3800e-003**	**0.5718**	**6.7200e-003**	**0.5785**	**0.1530**	**6.3500e-003**	**0.1594**		**749.2050**	**749.2050**	**0.0292**	**0.0000**	**749.9356**

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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
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	0.0904	0.6945	2.0222	7.3800e-003	0.5718	6.4900e-003	0.5783	0.1530	6.1200e-003	0.1591		749.0706	749.0706	0.0289		749.7922
Total	**14.6643**	**0.6950**	**2.0853**	**7.3800e-003**	**0.5718**	**6.7200e-003**	**0.5785**	**0.1530**	**6.3500e-003**	**0.1594**		**749.2050**	**749.2050**	**0.0292**	**0.0000**	**749.9356**

	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 - Road Construction	Site Preparation	8/1/2019	2/15/2020	5	142	
2	Solar Facility Construction	Building Construction	2/16/2020	6/1/2021	5	337	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 614

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 - Road Construction	Dumpers/Tenders	3	8.00	189	0.38
Site Preparation - Road Construction	Graders	1	6.00	174	0.41
Site Preparation - Road Construction	Rollers	1	8.00	95	0.38
Site Preparation - Road Construction	Rubber Tired Dozers	1	6.00	357	0.40
Site Preparation - Road Construction	Scrapers	1	8.00	313	0.48
Site Preparation - Road Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Cranes	1	8.00	399	0.29
Solar Facility Construction	Excavators	4	8.00	168	0.38
Solar Facility Construction	Forklifts	4	8.00	93	0.20
Solar Facility Construction	Generator Sets	3	8.00	549	0.74
Solar Facility Construction	Graders	1	6.00	174	0.41
Solar Facility Construction	Off-Highway Trucks	8	8.00	250	0.38
Solar Facility Construction	Other Construction Equipment	4	8.00	291	0.42
Solar Facility Construction	Plate Compactors	2	8.00	8	0.43
Solar Facility Construction	Rollers	1	8.00	95	0.38
Solar Facility Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Trenchers	1	8.00	63	0.50
Solar Facility Construction	Welders	2	8.00	45	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 - Road Construction	8	500.00	30.00	22,146.00	60.00	270.00	0.50	LD_Mix	HDT_Mix	HHDT
Solar Facility Construction	32	500.00	30.00	0.00	60.00	270.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - Road Construction - 2019

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	3.0919	33.5563	24.1132	0.0335		1.6320	1.6320		1.5014	1.5014		3,317.7127	3,317.7127	1.0497		3,343.9549
Total	**3.0919**	**33.5563**	**24.1132**	**0.0335**	**6.3254**	**1.6320**	**7.9574**	**2.6932**	**1.5014**	**4.1946**		**3,317.7127**	**3,317.7127**	**1.0497**		**3,343.9549**

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	0.3830	18.7604	1.8745	0.0273	0.0871	0.0117	0.0988	0.0237	0.0112	0.0349		2,889.0964	2,889.0964	0.4772		2,901.0270
Vendor	2.1784	51.9365	11.7743	0.2255	7.4887	0.7993	8.2880	2.1531	0.7646	2.9178		23,760.4420	23,760.4420	0.4553		23,771.8231
Worker	9.3801	7.4171	93.8054	0.2355	22.7963	0.1429	22.9392	6.0437	0.1317	6.1754		23,438.9049	23,438.9049	0.7543		23,457.7631
Total	**11.9415**	**78.1139**	**107.4542**	**0.4883**	**30.3721**	**0.9539**	**31.3260**	**8.2205**	**0.9075**	**9.1280**		**50,088.4433**	**50,088.4433**	**1.6868**		**50,130.6132**

3.2 Site Preparation - Road Construction - 2019

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.6091	28.3842	24.2014	0.0335		1.3080	1.3080		1.2041	1.2041	0.0000	3,317.7127	3,317.7127	1.0497		3,343.9549
Total	**2.6091**	**28.3842**	**24.2014**	**0.0335**	**6.3254**	**1.3080**	**7.6334**	**2.6932**	**1.2041**	**3.8973**	**0.0000**	**3,317.7127**	**3,317.7127**	**1.0497**		**3,343.9549**

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	0.3830	18.7604	1.8745	0.0273	0.0871	0.0117	0.0988	0.0237	0.0112	0.0349		2,889.0964	2,889.0964	0.4772		2,901.0270
Vendor	2.1784	51.9365	11.7743	0.2255	7.4887	0.7993	8.2880	2.1531	0.7646	2.9178		23,760.4420	23,760.4420	0.4553		23,771.8231
Worker	9.3801	7.4171	93.8054	0.2355	22.7963	0.1429	22.9392	6.0437	0.1317	6.1754		23,438.9049	23,438.9049	0.7543		23,457.7631
Total	**11.9415**	**78.1139**	**107.4542**	**0.4883**	**30.3721**	**0.9539**	**31.3260**	**8.2205**	**0.9075**	**9.1280**		**50,088.4433**	**50,088.4433**	**1.6868**		**50,130.6132**

3.2 Site Preparation - Road Construction - 2020

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.8725	30.7122	22.8975	0.0335		1.4773	1.4773		1.3591	1.3591		3,245.0735	3,245.0735	1.0495		3,271.3116
Total	**2.8725**	**30.7122**	**22.8975**	**0.0335**	**6.3254**	**1.4773**	**7.8027**	**2.6932**	**1.3591**	**4.0523**		**3,245.0735**	**3,245.0735**	**1.0495**		**3,271.3116**

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	0.3500	18.0867	1.7184	0.0272	0.2417	8.4300e-003	0.2502	0.0617	8.0600e-003	0.0697		2,877.3333	2,877.3333	0.4584		2,888.7923
Vendor	1.7293	43.2109	9.9663	0.2236	7.4886	0.5394	8.0280	2.1531	0.5161	2.6691		23,565.9961	23,565.9961	0.4281		23,576.6986
Worker	8.6506	6.5952	84.7153	0.2280	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		22,707.7406	22,707.7406	0.6658		22,724.3859
Total	**10.7299**	**67.8927**	**96.4000**	**0.4788**	**30.5266**	**0.6871**	**31.2138**	**8.2584**	**0.6524**	**8.9109**		**49,151.0700**	**49,151.0700**	**1.5523**		**49,189.8767**

3.2 Site Preparation - Road Construction - 2020

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.4334	25.9922	23.0231	0.0335		1.1880	1.1880		1.0937	1.0937	0.0000	3,245.0735	3,245.0735	1.0495		3,271.3116
Total	**2.4334**	**25.9922**	**23.0231**	**0.0335**	**6.3254**	**1.1880**	**7.5133**	**2.6932**	**1.0937**	**3.7869**	**0.0000**	**3,245.0735**	**3,245.0735**	**1.0495**		**3,271.3116**

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	0.3500	18.0867	1.7184	0.0272	0.2417	8.4300e-003	0.2502	0.0617	8.0600e-003	0.0697		2,877.3333	2,877.3333	0.4584		2,888.7923
Vendor	1.7293	43.2109	9.9663	0.2236	7.4886	0.5394	8.0280	2.1531	0.5161	2.6691		23,565.9961	23,565.9961	0.4281		23,576.6986
Worker	8.6506	6.5952	84.7153	0.2280	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		22,707.7406	22,707.7406	0.6658		22,724.3859
Total	**10.7299**	**67.8927**	**96.4000**	**0.4788**	**30.5266**	**0.6871**	**31.2138**	**8.2584**	**0.6524**	**8.9109**		**49,151.0700**	**49,151.0700**	**1.5523**		**49,189.8767**

3.3 Solar Facility Construction - 2020

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	14.1236	136.5256	92.8083	0.2731		5.5737	5.5737		5.2393	5.2393		28,152.4871	28,152.4871	5.4332		28,288.3171
Total	**14.1236**	**136.5256**	**92.8083**	**0.2731**		**5.5737**	**5.5737**		**5.2393**	**5.2393**		**28,152.4871**	**28,152.4871**	**5.4332**		**28,288.3171**

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
Vendor	1.7293	43.2109	9.9663	0.2236	7.4886	0.5394	8.0280	2.1531	0.5161	2.6691		23,565.9961	23,565.9961	0.4281		23,576.6986
Worker	8.6506	6.5952	84.7153	0.2280	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		22,707.7406	22,707.7406	0.6658		22,724.3859
Total	**10.3799**	**49.8061**	**94.6816**	**0.4516**	**30.2849**	**0.6787**	**30.9636**	**8.1968**	**0.6443**	**8.8411**		**46,273.7367**	**46,273.7367**	**1.0939**		**46,301.0844**

3.3 Solar Facility Construction - 2020

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	6.6949	71.8772	136.5001	0.2731		2.7434	2.7434		2.6534	2.6534	0.0000	28,152.4871	28,152.4871	5.4332		28,288.3171
Total	**6.6949**	**71.8772**	**136.5001**	**0.2731**		**2.7434**	**2.7434**		**2.6534**	**2.6534**	**0.0000**	**28,152.4871**	**28,152.4871**	**5.4332**		**28,288.3171**

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
Vendor	1.7293	43.2109	9.9663	0.2236	7.4886	0.5394	8.0280	2.1531	0.5161	2.6691		23,565.9961	23,565.9961	0.4281		23,576.6986
Worker	8.6506	6.5952	84.7153	0.2280	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		22,707.7406	22,707.7406	0.6658		22,724.3859
Total	**10.3799**	**49.8061**	**94.6816**	**0.4516**	**30.2849**	**0.6787**	**30.9636**	**8.1968**	**0.6443**	**8.8411**		**46,273.7367**	**46,273.7367**	**1.0939**		**46,301.0844**

3.3 Solar Facility Construction - 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					
Off-Road	13.0116	119.8760	91.0589	0.2732		4.8718	4.8718		4.5777	4.5777		28,153.4827	28,153.4827	5.4049		28,288.6049
Total	**13.0116**	**119.8760**	**91.0589**	**0.2732**		**4.8718**	**4.8718**		**4.5777**	**4.5777**		**28,153.4827**	**28,153.4827**	**5.4049**		**28,288.6049**

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
Vendor	1.3421	35.1872	8.3681	0.2226	7.4885	0.1750	7.6634	2.1530	0.1674	2.3204		23,472.2626	23,472.2626	0.4052		23,482.3935
Worker	8.0772	5.9218	78.1296	0.2207	22.7963	0.1360	22.9323	6.0437	0.1252	6.1689		21,983.7373	21,983.7373	0.6017		21,998.7799
Total	**9.4194**	**41.1090**	**86.4977**	**0.4433**	**30.2848**	**0.3109**	**30.5957**	**8.1967**	**0.2926**	**8.4893**		**45,456.0000**	**45,456.0000**	**1.0069**		**45,481.1734**

3.3 Solar Facility Construction - 2021

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	6.4872	69.4216	136.0557	0.2732		2.6251	2.6251		2.5425	2.5425	0.0000	28,153.4827	28,153.4827	5.4049		28,288.6048
Total	**6.4872**	**69.4216**	**136.0557**	**0.2732**		**2.6251**	**2.6251**		**2.5425**	**2.5425**	**0.0000**	**28,153.4827**	**28,153.4827**	**5.4049**		**28,288.6048**

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
Vendor	1.3421	35.1872	8.3681	0.2226	7.4885	0.1750	7.6634	2.1530	0.1674	2.3204		23,472.2626	23,472.2626	0.4052		23,482.3935
Worker	8.0772	5.9218	78.1296	0.2207	22.7963	0.1360	22.9323	6.0437	0.1252	6.1689		21,983.7373	21,983.7373	0.6017		21,998.7799
Total	**9.4194**	**41.1090**	**86.4977**	**0.4433**	**30.2848**	**0.3109**	**30.5957**	**8.1967**	**0.2926**	**8.4893**		**45,456.0000**	**45,456.0000**	**1.0069**		**45,481.1734**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.0904	0.6945	2.0222	7.3800e-003	0.5718	6.4900e-003	0.5783	0.1530	6.1200e-003	0.1591		749.0706	749.0706	0.0289		749.7922
Unmitigated	0.0904	0.6945	2.0222	7.3800e-003	0.5718	6.4900e-003	0.5783	0.1530	6.1200e-003	0.1591		749.0706	749.0706	0.0289		749.7922

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	12.28	12.28	12.28	268,195	268,195
Total	12.28	12.28	12.28	268,195	268,195

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
Other Non-Asphalt Surfaces	60.00	60.00	60.00	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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

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					
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
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**

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					
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
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

	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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Unmitigated	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434

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	5.0945					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9400e-003	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Total	**14.5739**	**5.8000e-004**	**0.0631**	**0.0000**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**		**0.1344**	**0.1344**	**3.6000e-004**		**0.1434**

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	5.0945					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9400e-003	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Total	**14.5739**	**5.8000e-004**	**0.0631**	**0.0000**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**		**0.1344**	**0.1344**	**3.6000e-004**		**0.1434**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

High Desert Solar

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	614.00	Acre	614.00	26,745,840.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

High Desert Solar - San Bernardino-Mojave Desert County, Winter

Project Characteristics -

Land Use -

Construction Phase - Estimated 22 months of construction

Off-road Equipment - Equipment per Table 7 of Initial Study Project Description

Off-road Equipment - Equipment per Table 7 of the Initial Study Project Description

Trips and VMT - Worker commute trips, vendor trips and trip length per Initial Study Project Description. Haul trucks account for the movement of 354,335 cubic yards on-site

Grading -

Vehicle Trips - 5 permanent workers = 10 daily trips

Energy Use - Lighting specification derived from CalEEMod 'Parking Lot' land use default. Project calculations assume to employ 1/20 lighting as standard 614-acre parking lot

Water And Wastewater - Operations = 175,000 gallons/yr. Construction = 65,170,287 gallons over 14 months. Construction water consumption amortized over life of the project (35 years)

Construction Off-road Equipment Mitigation - Tier 4 engine mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

High Desert Solar - San Bernardino-Mojave Desert County, Winter

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10,850.00	337.00
tblConstructionPhase	NumDays	420.00	142.00
tblEnergyUse	LightingElect	0.00	0.01
tblGrading	MaterialExported	0.00	354,335.00
tblOffRoadEquipment	HorsePower	231.00	399.00
tblOffRoadEquipment	HorsePower	89.00	93.00
tblOffRoadEquipment	HorsePower	84.00	549.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	46.00	45.00
tblOffRoadEquipment	HorsePower	16.00	189.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	402.00	250.00
tblOffRoadEquipment	HorsePower	172.00	291.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	78.00	63.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	44,292.00	22,146.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripLength	6.60	270.00
tblTripsAndVMT	VendorTripNumber	0.00	30.00
tblTripsAndVMT	VendorTripNumber	4,384.00	30.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripLength	16.80	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	500.00
tblTripsAndVMT	WorkerTripNumber	11,233.00	500.00
tblVehicleTrips	CC_TL	6.60	60.00
tblVehicleTrips	CNW_TL	6.60	60.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TL	14.70	60.00
tblVehicleTrips	HO_TL	0.00	60.00
tblVehicleTrips	HS_TL	0.00	60.00
tblVehicleTrips	HW_TL	0.00	60.00
tblVehicleTrips	PR_TP	0.00	100.00

tblVehicleTrips	ST_TR	0.00	0.02
tblVehicleTrips	SU_TR	0.00	0.02
tblVehicleTrips	WD_TR	0.00	0.02
tblWater	OutdoorWaterUseRate	0.00	2,037,008.00

2.0 Emissions Summary

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					
2019	15.7028	113.5137	113.1828	0.4936	36.6975	2.5885	39.2860	10.9137	2.4114	13.3252	0.0000	50,597.1127	50,597.1127	2.6978	0.0000	50,664.5567
2020	25.1081	188.5100	169.9773	0.7005	36.8520	6.2526	39.0182	10.9517	5.8838	14.0806	0.0000	72,030.8614	72,030.8614	6.4393	0.0000	72,191.8448
2021	23.0155	162.7626	161.3338	0.6930	30.2848	5.1829	35.4676	8.1967	4.8705	13.0672	0.0000	71,290.4320	71,290.4320	6.3335	0.0000	71,448.7688
Maximum	**25.1081**	**188.5100**	**169.9773**	**0.7005**	**36.8520**	**6.2526**	**39.2860**	**10.9517**	**5.8838**	**14.0806**	**0.0000**	**72,030.8614**	**72,030.8614**	**6.4393**	**0.0000**	**72,191.8448**

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					
2019	15.2200	108.3417	113.2710	0.4936	36.6975	2.2645	38.9620	10.9137	2.1141	13.0279	0.0000	50,597.1127	50,597.1127	2.6978	0.0000	50,664.5567
2020	17.6794	123.8616	213.6691	0.7005	36.8520	3.4223	38.7288	10.9517	3.2979	12.6994	0.0000	72,030.8613	72,030.8613	6.4393	0.0000	72,191.8447
2021	16.4911	112.3082	206.3307	0.6930	30.2848	2.9362	33.2210	8.1967	2.8352	11.0320	0.0000	71,290.4319	71,290.4319	6.3335	0.0000	71,448.7688
Maximum	**17.6794**	**123.8616**	**213.6691**	**0.7005**	**36.8520**	**3.4223**	**38.9620**	**10.9517**	**3.2979**	**13.0279**	**0.0000**	**72,030.8613**	**72,030.8613**	**6.4393**	**0.0000**	**72,191.8447**

High Desert Solar - San Bernardino-Mojave Desert County, Winter

	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	**22.62**	**25.88**	**-19.97**	**0.00**	**0.00**	**38.51**	**2.51**	**0.00**	**37.36**	**9.18**	**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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
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	0.0831	0.7203	1.6685	6.8100e-003	0.5718	6.5000e-003	0.5783	0.1530	6.1300e-003	0.1592		693.4713	693.4713	0.0274		694.1565
Total	**14.6569**	**0.7209**	**1.7316**	**6.8100e-003**	**0.5718**	**6.7300e-003**	**0.5785**	**0.1530**	**6.3600e-003**	**0.1594**		**693.6057**	**693.6057**	**0.0278**	**0.0000**	**694.2999**

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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
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	0.0831	0.7203	1.6685	6.8100e-003	0.5718	6.5000e-003	0.5783	0.1530	6.1300e-003	0.1592		693.4713	693.4713	0.0274		694.1565
Total	**14.6569**	**0.7209**	**1.7316**	**6.8100e-003**	**0.5718**	**6.7300e-003**	**0.5785**	**0.1530**	**6.3600e-003**	**0.1594**		**693.6057**	**693.6057**	**0.0278**	**0.0000**	**694.2999**

	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 - Road Construction	Site Preparation	8/1/2019	2/15/2020	5	142	
2	Solar Facility Construction	Building Construction	2/16/2020	6/1/2021	5	337	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 614

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 - Road Construction	Dumpers/Tenders	3	8.00	189	0.38
Site Preparation - Road Construction	Graders	1	6.00	174	0.41
Site Preparation - Road Construction	Rollers	1	8.00	95	0.38
Site Preparation - Road Construction	Rubber Tired Dozers	1	6.00	357	0.40
Site Preparation - Road Construction	Scrapers	1	8.00	313	0.48
Site Preparation - Road Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Cranes	1	8.00	399	0.29
Solar Facility Construction	Excavators	4	8.00	168	0.38
Solar Facility Construction	Forklifts	4	8.00	93	0.20
Solar Facility Construction	Generator Sets	3	8.00	549	0.74
Solar Facility Construction	Graders	1	6.00	174	0.41
Solar Facility Construction	Off-Highway Trucks	8	8.00	250	0.38
Solar Facility Construction	Other Construction Equipment	4	8.00	291	0.42
Solar Facility Construction	Plate Compactors	2	8.00	8	0.43
Solar Facility Construction	Rollers	1	8.00	95	0.38
Solar Facility Construction	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Solar Facility Construction	Trenchers	1	8.00	63	0.50
Solar Facility Construction	Welders	2	8.00	45	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 - Road Construction	8	500.00	30.00	22,146.00	60.00	270.00	0.50	LD_Mix	HDT_Mix	HHDT
Solar Facility Construction	32	500.00	30.00	0.00	60.00	270.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - Road Construction - 2019

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	3.0919	33.5563	24.1132	0.0335		1.6320	1.6320		1.5014	1.5014		3,317.7127	3,317.7127	1.0497		3,343.9549
Total	**3.0919**	**33.5563**	**24.1132**	**0.0335**	**6.3254**	**1.6320**	**7.9574**	**2.6932**	**1.5014**	**4.1946**		**3,317.7127**	**3,317.7127**	**1.0497**		**3,343.9549**

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	0.4305	17.9826	2.7745	0.0241	0.0871	0.0140	0.1011	0.0237	0.0134	0.0371		2,550.5533	2,550.5533	0.5385		2,564.0145
Vendor	2.1943	54.1689	11.7781	0.2252	7.4887	0.7995	8.2882	2.1531	0.7649	2.9180		23,727.1460	23,727.1460	0.4600		23,738.6453
Worker	9.9861	7.8060	74.5170	0.2108	22.7963	0.1429	22.9392	6.0437	0.1317	6.1754		21,001.7007	21,001.7007	0.6497		21,017.9420
Total	**12.6109**	**79.9575**	**89.0696**	**0.4601**	**30.3721**	**0.9565**	**31.3286**	**8.2205**	**0.9100**	**9.1305**		**47,279.4000**	**47,279.4000**	**1.6481**		**47,320.6018**

3.2 Site Preparation - Road Construction - 2019

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.6091	28.3842	24.2014	0.0335		1.3080	1.3080		1.2041	1.2041	0.0000	3,317.7127	3,317.7127	1.0497		3,343.9549
Total	**2.6091**	**28.3842**	**24.2014**	**0.0335**	**6.3254**	**1.3080**	**7.6334**	**2.6932**	**1.2041**	**3.8973**	**0.0000**	**3,317.7127**	**3,317.7127**	**1.0497**		**3,343.9549**

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	0.4305	17.9826	2.7745	0.0241	0.0871	0.0140	0.1011	0.0237	0.0134	0.0371		2,550.5533	2,550.5533	0.5385		2,564.0145
Vendor	2.1943	54.1689	11.7781	0.2252	7.4887	0.7995	8.2882	2.1531	0.7649	2.9180		23,727.1460	23,727.1460	0.4600		23,738.6453
Worker	9.9861	7.8060	74.5170	0.2108	22.7963	0.1429	22.9392	6.0437	0.1317	6.1754		21,001.7007	21,001.7007	0.6497		21,017.9420
Total	**12.6109**	**79.9575**	**89.0696**	**0.4601**	**30.3721**	**0.9565**	**31.3286**	**8.2205**	**0.9100**	**9.1305**		**47,279.4000**	**47,279.4000**	**1.6481**		**47,320.6018**

3.2 Site Preparation - Road Construction - 2020

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.8725	30.7122	22.8975	0.0335		1.4773	1.4773		1.3591	1.3591		3,245.0735	3,245.0735	1.0495		3,271.3116
Total	**2.8725**	**30.7122**	**22.8975**	**0.0335**	**6.3254**	**1.4773**	**7.8027**	**2.6932**	**1.3591**	**4.0523**		**3,245.0735**	**3,245.0735**	**1.0495**		**3,271.3116**

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	0.3941	17.3480	2.5566	0.0240	0.2417	9.9800e-003	0.2517	0.0617	9.5500e-003	0.0712		2,538.7124	2,538.7124	0.5182		2,551.6669
Vendor	1.7443	45.0482	9.9858	0.2232	7.4886	0.5396	8.0282	2.1531	0.5162	2.6693		23,532.6922	23,532.6922	0.4329		23,543.5157
Worker	9.2402	6.9362	67.1833	0.2042	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		20,345.6820	20,345.6820	0.5732		20,360.0119
Total	**11.3786**	**69.3324**	**79.7257**	**0.4514**	**30.5266**	**0.6889**	**31.2155**	**8.2584**	**0.6541**	**8.9125**		**46,417.0867**	**46,417.0867**	**1.5243**		**46,455.1946**

3.2 Site Preparation - Road Construction - 2020

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					6.3254	0.0000	6.3254	2.6932	0.0000	2.6932			0.0000			0.0000
Off-Road	2.4334	25.9922	23.0231	0.0335		1.1880	1.1880		1.0937	1.0937	0.0000	3,245.0735	3,245.0735	1.0495		3,271.3116
Total	**2.4334**	**25.9922**	**23.0231**	**0.0335**	**6.3254**	**1.1880**	**7.5133**	**2.6932**	**1.0937**	**3.7869**	**0.0000**	**3,245.0735**	**3,245.0735**	**1.0495**		**3,271.3116**

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	0.3941	17.3480	2.5566	0.0240	0.2417	9.9800e-003	0.2517	0.0617	9.5500e-003	0.0712		2,538.7124	2,538.7124	0.5182		2,551.6669
Vendor	1.7443	45.0482	9.9858	0.2232	7.4886	0.5396	8.0282	2.1531	0.5162	2.6693		23,532.6922	23,532.6922	0.4329		23,543.5157
Worker	9.2402	6.9362	67.1833	0.2042	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		20,345.6820	20,345.6820	0.5732		20,360.0119
Total	**11.3786**	**69.3324**	**79.7257**	**0.4514**	**30.5266**	**0.6889**	**31.2155**	**8.2584**	**0.6541**	**8.9125**		**46,417.0867**	**46,417.0867**	**1.5243**		**46,455.1946**

3.3 Solar Facility Construction - 2020

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	14.1236	136.5256	92.8083	0.2731		5.5737	5.5737		5.2393	5.2393		28,152.4871	28,152.4871	5.4332		28,288.3171
Total	**14.1236**	**136.5256**	**92.8083**	**0.2731**		**5.5737**	**5.5737**		**5.2393**	**5.2393**		**28,152.4871**	**28,152.4871**	**5.4332**		**28,288.3171**

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
Vendor	1.7443	45.0482	9.9858	0.2232	7.4886	0.5396	8.0282	2.1531	0.5162	2.6693		23,532.6922	23,532.6922	0.4329		23,543.5157
Worker	9.2402	6.9362	67.1833	0.2042	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		20,345.6820	20,345.6820	0.5732		20,360.0119
Total	**10.9845**	**51.9844**	**77.1691**	**0.4274**	**30.2849**	**0.6789**	**30.9638**	**8.1968**	**0.6445**	**8.8413**		**43,878.3743**	**43,878.3743**	**1.0061**		**43,903.5276**

3.3 Solar Facility Construction - 2020

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	6.6949	71.8772	136.5001	0.2731		2.7434	2.7434		2.6534	2.6534	0.0000	28,152.4871	28,152.4871	5.4332		28,288.3171
Total	**6.6949**	**71.8772**	**136.5001**	**0.2731**		**2.7434**	**2.7434**		**2.6534**	**2.6534**	**0.0000**	**28,152.4871**	**28,152.4871**	**5.4332**		**28,288.3171**

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
Vendor	1.7443	45.0482	9.9858	0.2232	7.4886	0.5396	8.0282	2.1531	0.5162	2.6693		23,532.6922	23,532.6922	0.4329		23,543.5157
Worker	9.2402	6.9362	67.1833	0.2042	22.7963	0.1393	22.9356	6.0437	0.1283	6.1720		20,345.6820	20,345.6820	0.5732		20,360.0119
Total	**10.9845**	**51.9844**	**77.1691**	**0.4274**	**30.2849**	**0.6789**	**30.9638**	**8.1968**	**0.6445**	**8.8413**		**43,878.3743**	**43,878.3743**	**1.0061**		**43,903.5276**

3.3 Solar Facility Construction - 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					
Off-Road	13.0116	119.8760	91.0589	0.2732		4.8718	4.8718		4.5777	4.5777		28,153.4827	28,153.4827	5.4049		28,288.6049
Total	**13.0116**	**119.8760**	**91.0589**	**0.2732**		**4.8718**	**4.8718**		**4.5777**	**4.5777**		**28,153.4827**	**28,153.4827**	**5.4049**		**28,288.6049**

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
Vendor	1.3565	36.6612	8.3966	0.2223	7.4885	0.1751	7.6636	2.1530	0.1675	2.3205		23,439.1001	23,439.1001	0.4103		23,449.3564
Worker	8.6473	6.2254	61.8784	0.1976	22.7963	0.1360	22.9323	6.0437	0.1252	6.1689		19,697.8492	19,697.8492	0.5183		19,710.8076
Total	**10.0039**	**42.8866**	**70.2750**	**0.4199**	**30.2848**	**0.3111**	**30.5958**	**8.1967**	**0.2927**	**8.4894**		**43,136.9492**	**43,136.9492**	**0.9286**		**43,160.1640**

3.3 Solar Facility Construction - 2021

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	6.4872	69.4216	136.0557	0.2732		2.6251	2.6251		2.5425	2.5425	0.0000	28,153.4827	28,153.4827	5.4049		28,288.6048
Total	**6.4872**	**69.4216**	**136.0557**	**0.2732**		**2.6251**	**2.6251**		**2.5425**	**2.5425**	**0.0000**	**28,153.4827**	**28,153.4827**	**5.4049**		**28,288.6048**

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
Vendor	1.3565	36.6612	8.3966	0.2223	7.4885	0.1751	7.6636	2.1530	0.1675	2.3205		23,439.1001	23,439.1001	0.4103		23,449.3564
Worker	8.6473	6.2254	61.8784	0.1976	22.7963	0.1360	22.9323	6.0437	0.1252	6.1689		19,697.8492	19,697.8492	0.5183		19,710.8076
Total	**10.0039**	**42.8866**	**70.2750**	**0.4199**	**30.2848**	**0.3111**	**30.5958**	**8.1967**	**0.2927**	**8.4894**		**43,136.9492**	**43,136.9492**	**0.9286**		**43,160.1640**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.0831	0.7203	1.6685	6.8100e-003	0.5718	6.5000e-003	0.5783	0.1530	6.1300e-003	0.1592		693.4713	693.4713	0.0274		694.1565
Unmitigated	0.0831	0.7203	1.6685	6.8100e-003	0.5718	6.5000e-003	0.5783	0.1530	6.1300e-003	0.1592		693.4713	693.4713	0.0274		694.1565

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	12.28	12.28	12.28	268,195	268,195
Total	12.28	12.28	12.28	268,195	268,195

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
Other Non-Asphalt Surfaces	60.00	60.00	60.00	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546179	0.037976	0.179086	0.122965	0.018430	0.005460	0.017497	0.061396	0.001337	0.001657	0.006117	0.000817	0.001082

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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

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					
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
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**

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					
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
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

	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	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Unmitigated	14.5738	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434

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	5.0945					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9400e-003	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Total	**14.5739**	**5.8000e-004**	**0.0631**	**0.0000**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**		**0.1344**	**0.1344**	**3.6000e-004**		**0.1434**

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	5.0945					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.4734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9400e-003	5.8000e-004	0.0631	0.0000		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		0.1344	0.1344	3.6000e-004		0.1434
Total	**14.5739**	**5.8000e-004**	**0.0631**	**0.0000**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**		**0.1344**	**0.1344**	**3.6000e-004**		**0.1434**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation