4.3 AIR QUALITY

This section provides an overview of existing air quality within the study area and identifies applicable federal, state, and local policies related to air quality. The impact assessment provides an evaluation of potential adverse effects to air quality based on criteria derived from the California Environmental Quality Act (CEQA) Guidelines and the Imperial County Air Pollution Control District's (ICAPCD) Air Quality Handbook in conjunction with actions proposed in Chapter 3, Project Description. Scientific Resources Associated (SRA) prepared an Air Quality Technical Report in October 2011 for the projects, including Mt. Signal Solar Farm 1 (MSSF1), Calexico Solar Farm 1 Phase A (CSF1(A)), Calexico Solar Farm 1 Phase B (CSF1(B)), Calexico Solar Farm 2 Phase A (CSF2(A)), Calexico Solar Farm 2 Phase B (CSF2(B)), and the off-site transmission line facilities (OTF-Private and OTF BLM Lands). The report is included in Appendix D of this Environmental Impact Report (EIR).

4.3.1 Environmental Setting

Regional Setting

The project study area is located in the Salton Sea Air Basin (SSAB) under the jurisdiction of the ICAPCD. The SSAB, which contains part of Riverside County and all of Imperial County, is governed largely by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in winter when the high is weakest and farthest south. When the fringes of mid-latitude storms pass through the Imperial Valley in winter, the coastal mountains create a strong "rainshadow" effect that makes Imperial Valley the second driest location in the United States. The flat terrain near the Salton Sea, intense heat from the sun during the day, and strong radiational cooling at night create deep convective thermals during the daytime and equally strong surface-based temperature inversions at night. The temperature inversions and light nighttime winds trap any local air pollution emissions near the ground. The area is subject to frequent hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and the temperature warms.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees Fahrenheit (° F) down to a winter morning minimum of 38° F. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences significant rainfall an average of only four times per year (>0.10 inches in 24 hours). The local area usually has three days of rain in winter and one thunderstorm day in August. The annual rainfall in this region is less than three inches per year.

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

Major Air Pollutants

Criteria Pollutants

Air quality is defined by ambient air concentrations of specific pollutants determined by the United States Environmental Protection Agency (U.S. EPA) to be of concern with respect to the health and welfare of the general public. Seven major pollutants of concern, called criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). Table 4.3-1 describes the health effect of these criteria pollutants.

TABLE 4.3-1. HEALTH EFFECTS OF CRITERIA AIR POLLUTANTS

Air Pollutant	Health Effects
Carbon Monoxide (CO)	Reduces ability of blood to bring oxygen to body cells and tissues; cells and tissues need oxygen to work. CO may be particularly hazardous to people who have heart or circulatory (blood vessel) problems and people who have damaged lungs or breathing passages.
Sulfur Dioxide (SO_2)	Breathing problems; may cause permanent damage to lungs.
Nitrogen Dioxide (NO_2)	Lung damage, illnesses of breathing passages and lungs (respiratory system).
Ozone (O_3)	Breathing problems, reduced lung function, asthma, irritates eyes, stuffy nose, reduced resistance to colds or other infections, and may speed up aging of lung tissue.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Nose and throat irritation, lung damage, bronchitis, early death.
Lead (Pb)	Brain and other nervous system damage; children are at special risk. Some lead-containing chemicals cause cancer in animals. Lead causes digestive and other health problems.

Source: http://www.epa.gov/oaqps001/urbanair/

Toxic Air Contaminants

Toxic air contaminants (TACs) are substances that have the potential to be emitted into the ambient air that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources.

4.3.1.1 Regulatory Setting

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

Federal

Federal Clean Air Act

The Federal Clean Air Act (CAA) requires areas with unhealthy levels of criteria pollutants to develop State Implementation Plans (SIPs) that describe how and when they will attain the National Ambient Air Quality Standards (NAAQS). SIPs are a compilation of state and local regulations, such as new and previously submitted plans and programs, and district rules that a state uses to achieve healthy air quality under the CAA. State and local agencies must involve the public in the adoption process before SIP elements are submitted to the U.S. EPA for approval or disapproval. The U.S. EPA must provide an opportunity for public comment before taking action on each SIP submittal. If the SIP is not acceptable to the U.S. EPA, the U.S. EPA can take over enforcing the CAA in that state (U.S. EPA 2011).

The 1990 amendments to the Federal CAA set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the new national 8-hour O_3 standard and $PM_{2.5}$ standards in 1997 resulted in additional statewide air quality planning efforts. In response to new federal regulations, future SIPs will also address ways to improve visibility in national parks and wilderness areas.

The consistency of future projects with the SIP would be assessed through the land use and growth assumptions that are incorporated into the air quality planning document. If a project is consistent with the applicable General Plan of the jurisdiction where it is located, then the project presumably has been anticipated within the regional air quality planning process. Such consistency would ensure that the project would not have an adverse regional air quality impact.

National Ambient Air Quality

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The U.S. EPA establishes ambient air quality standards for criteria pollutants (NAAQS). The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million [ppm] by volume). Table 4.3-2 provides the federal and state ambient air quality standers.

State

California Clean Air Act

The California Clean Air Act (CCAA) was enacted on September 30, 1988, and became effective January 1, 1989. The purpose of the CCAA is to achieve the more stringent health-based state clean air standards at the earliest practicable date. The state standards are more stringent than the federal air quality standards. Similar to the federal Clean Air Act, the CCAA also classifies areas according to pollution levels. The California Air Resources Board (CARB) establishes the state ambient air quality standards (CAAQS). Table 4.3-2 above identifies the CAAQS. The CCAA requires attainment of the standards at the earliest practicable date. Further, district-wide air emissions must be reduced at least 5% per year (averaged over three years) for each non-attainment pollutant or its precursors. A district may achieve a smaller average reduction if the district can demonstrate that, despite inclusion of every feasible measure in its air quality plan, it is unable to achieve the 5% annual reduction in emissions. On June 20, 2002, the CARB approved revisions to the PM_{10} annual average standard, and established an annual average standard for $PM_{2.5}$.

Regional

Imperial County Air Pollution Control District

The ICAPCD is responsible for regulating stationary sources of air emissions in Imperial County. Stationary sources that have the potential to emit air pollutants into the ambient air are subject to the Rules and Regulations adopted by the ICAPCD. Monitoring of ambient air quality in Imperial County began in 1976. Since that time, monitoring has been performed by the ICAPCD, CARB, and by private industry. Ambient monitoring is typically performed either in locations representative of where people live and work or near industrial sources to document the air quality impacts of those facilities. As of March 1991, nine public agency and private sector monitoring stations were in active service in the county (Imperial County General Plan 1993).

Table 4.3-2. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards [2]		
		Concentration[3]	Method[4]	Primary[3], [5]	Secondary[3], [6]	Method[7]
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 hours	0.07 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 ug/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 ug/m³	Gravimetric or Beta Attenuation	15 ug/m³		
Carbon Monoxide (CO)	8 hours	9 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	—
Nitrogen Dioxide (NO_2)*	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	Gas Phase Chemiluminescence	53 ppb (100 µg/m³) (See footnote 8)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (339 µg/m³)		100 ppb (188 µg/m³) (See footnote 8)	None	
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 µg/m³)	Ultraviolet Fluorescence	—	—	Ultra Flourescence; Spectrophotometry (Parasaniline Method)[9]
	3 hour	—		—	0.5 ppm (1300 µg/m³) (See footnote 9)	
	1 hour	0.25 ppm (655 µg/m³)		75 ppb (196 µg/m³) (See footnote 9)	—	—
Lead (Pb) [10]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average[11]	—		0.15 µg/m³		

Pollutant	Averaging Time	California Standards[1]		Federal Standards [2]		
		Concentration[3]	Method[4]	Primary[3], [5]	Secondary[3], [6]	Method[7]
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer–visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24-hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the EPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.30 ppm, effective August 23, 2010. The secondary SO_2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary national standard to the California standard the units can be converted to ppm. To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. National lead standard, rolling 3-month average: final rule signed October 15, 2008.

Source: California Air Resources Board (09/08/10) (http://www.arb.ca.gov/html/fslist.htm)

mg/m^3= milligrams per cubic meter
ppm = parts per million
µg/m^3 = micrograms per cubic meter
ppb = parts per billion

Ozone Air Quality Management Plan. Due to Imperial County's "moderate" nonattainment status for 1997 federal 8-hour ozone standards, the ICAPCD was required to develop an 8-hour Attainment Plan for Ozone. On December 3, 2009, the U.S. EPA made a final determination that the Imperial County attained the 1997 8-Hour NAAQS for ozone. As long as Imperial County continues to attain the 1997 8-hour ozone standard, the state does not have to submit an attainment demonstration, a reasonable further progress plan, contingency measure and other planning requirements. Because this determination does not constitute a re-designation to attainment under the CAA Section 107(d)(3), the designation status will remain "moderate" nonattainment for the 1997 8-hour ozone standard. However, the ICAPCD is required to submit a Modified Air Quality Management Plan (AQMP) to the U.S. EPA for approval. The final "Modified" 2009 8-hour Ozone Air Quality Management Plan was adopted by ICAPCD on July 13, 2010. On November 18, 2010, the CARB approved the Imperial County 8-Hour Ozone Air Quality Management Plan.

Particulate Matter State Implementation Plan. Imperial Valley is classified as nonattainment for federal and state PM_{10} standards. As a result, the ICAPCD was required to develop a PM_{10} Attainment Plan. The final plan was adopted by ICAPCD on August 11, 2009.

ICAPCD Rules and Regulations

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

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

Regulation VIII – Fugitive Dust Rules. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. The regulation requires implementation of fugitive dust control measures to reduce emissions from earthmoving, unpaved roads, handling of bulk materials, and control of track-out/carry-out dust from active construction sites. Best Available Control Measures to reduce fugitive dust during construction and earthmoving activities include but are not limited to:

- Phasing of work in order to minimize disturbed surface area;
- Application of water or chemical stabilizers to disturbed soils;
- Construction and maintenance of wind barriers; and
- Use of a track-out control device or wash down system at access points to paved roads.

Compliance with Regulation VIII is mandatory on all construction sites, regardless of size. However, compliance with Regulation VIII does not constitute mitigation under the reductions attributed to environmental impacts. In addition, compliance for a project includes: (1) the development of a dust control plan for the construction and operational phase; and (2) notification to the Air District is required 10 days prior to the commencement of any construction activity. Furthermore, any use of engine(s) and/or generator(s) of 50 horsepower or greater may require a permit through the ICAPCD.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the designated metropolitan planning organization for Los Angeles, Ventura, Orange, San Bernardino, Riverside and Imperial counties. CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse", collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects,

plans, and programs every month. Projects and plans that are regionally significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies. The applicable SCAG goal for this analysis is the Regional Transportation (RTP) Goal 5: Protect the environment, improve air quality and promote energy efficiency.

Imperial County General Plan

The Imperial County General Plan serves as the overall guiding policy for the county. The Conservation and Open Space Element includes objectives for helping the County achieve the goal of improving and maintaining the quality of air in the region. The Imperial County Board of Supervisors ultimately determines consistency with the General Plan. The following objectives are applicable to the projects:

- ***Objective 9.1:*** Ensure that all facilities shall comply with current federal and state requirements for attainment of air quality objectives.
- ***Objective 9.2*****:** Cooperate with all federal and state agencies in the effort to attain air quality objectives.

As discussed in greater detail below, the proposed projects comply with these objectives through implementation of mitigation measures to reduce emissions of criteria pollutants to below a level of significance.

4.3.1.2 Existing Conditions

Currently, the SSAB is either in attainment or unclassified for all federal and state air pollutant standards with the exception of 8-Hour ozone, PM_{10}; and $PM_{2.5}$. Imperial County is classified as a "serious" non-attainment area for PM_{10} and a “moderate” non-attainment area for 8-hour ozone for the NAAQS and non-attainment for $PM_{2.5}$ for the urban areas of Imperial County. Air pollutants transported into the SSAB from the adjacent South Coast Air Basin (Los Angeles, San Bernardino County, Orange County, and Riverside County) and from Mexicali, Mexico substantially contribute to the non-attainment conditions in the SSAB. The closest air quality monitoring station to the project study area is the Calexico monitoring station located within the City of Calexico (1029 Belcher Street, Calexico, CA 92231, ARB Station ID 13698). The Calexico monitoring station measures O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2. Table 4.3-3 provides a summary of background air quality data representative of the area from 2006 to 2010. As shown, the area has experienced days measured at levels exceeding state and federal standards for O_3, PM_{10}, and $PM_{2.5}$, Existing sources of air pollution, e.g., dust, in the project study area include agricultural operations and traffic.

Sensitive Receptors

High concentrations of air pollutants pose health hazards for the general population, but particularly for the young, the elderly, and the sick. Typical health problems attributed to smog include respiratory ailments, eye and throat irritations, headaches, coughing, and chest discomfort. Certain land uses are considered to be more sensitive to the effects of air pollution. Schools, hospitals, residences, and other facilities where people congregate, especially children, the elderly and infirm, are considered particularly sensitive to air pollutants. The project study area is surrounded by agricultural lands to the north and east and federal lands under the jurisdiction of the BLM to the west. There are approximately 23 residences scattered throughout the project study area and vicinity. Two residences are located within the MSSF1 site and the other 21 residences are outside the project study area boundaries. Figure 4.3-1 illustrates the locations of the residences.

TABLE 4.3-3. AIR QUALITY MONITORING DATA – CALEXICO MONITORING STATION

Air Quality Indicator	Year				
	2006	2007	2008	2009	2010
Ozone (O_3)[1]					
Peak 1-hour value (ppm)	0.111	0.112	0.128	0.104	0.102
Days above state standard (0.09 ppm)	2	10	8	5	4
Peak 8-hour value (ppm)	0.087	0.094	0.093	0.083	0.082
Days above state standard (0.070 ppm)	3	20	17	9	6
Days above federal standard (0.075 ppm)[1,3]	2	9	7	4	2
Particulate matter less than or equal to 10 microns in diameter (PM_{10})					
Peak 24-hour value ($\mu g/m^3$)	164	282	110.5	358	77
Days above state standard (50 $\mu g/m^3$)	24	36	31	4	2
Days above federal standard (150 $\mu g/m^3$)	1	1	0	3	0
Annual Average value (ppm)	56.1	65.5	54.1	65.8	38.4
Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$)[2]					
Peak 24-hour value ($\mu g/m^3$)	68.8	66.7	37.1	45.0	50.9
Days above federal standard (35 $\mu g/m^3$)	5	3	1	4	2
Annual Average value (ppm)	12.4	12.9	*	18.7	12.7
Carbon Monoxide (CO)					
Peak 8-hour value ($\mu g/m^3$)	9.76	7.53	6.34	7.46	4.46
Days above federal standard (9 ppm)	1	0	0	0	0
Nitrogen Dioxide (NO_2) [4]					
Peak 1-hour value (ppm)	0.101	0.107	0.146	0.102	0.080
Days above state standard (0.18 ppm)	0	0	0	0	0
Annual Average value (ppm)	0.014	0.014	0.014	0.014	0.014
Sulfur Dioxide (SO_2)					
Peak 24-hour value (ppm)	0.041	0.004	0.007	0.004	0.004
Days above state standard (0.04 ppm)	0	0	0	0	0
Days above federal standard (0.14 ppm)	0	0	0	0	0
Annual Average value (ppm)	0.001	0.000	0.000	0.000	0.000

Source: http://www.arb.ca.gov/adam/php_files/aqdphp/topfourdisplay.php

Notes: (1) The federal O_3 standard was revised downward in 2008 to 0.075 ppm.

(2) The federal $PM_{2.5}$ standard was revised downward in 2007 to 35 $\mu g/m^3$.

(3) The federal 8-hour ozone standard was previously defined as 0.08 ppm (1 significant digit). Measurements were rounded up or down to determine compliance with the standard; therefore a measurement of 0.084 ppm is rounded to 0.08 ppm. The 8-hour ozone ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to the standard.

(4) The federal 1-hour NO_2 standard was adopted in 2010. Prior years were not evaluated based on the new standard.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; * = not available

Mount Signal Solar Farm 1 - MSSF1 (1431 Acres)
Calexico Solar Farm 1 Phase A - CSF1(A) (719 Acres)
Calexico Solar Farm 1 Phase B - CSF1(B) (613 Acres)
Calexico Solar Farm 2 Phase A - CSF2(A) (940 Acres)
Calexico Solar Farm 2 Phase B - CSF2(B) (525 Acres)
Proposed Off-site Transmission Facilities (OTF) - Private Land (120 ft ROW)
Residence
National Border

Central Main Canal
George Rd
La Brucherie Rd
Willoughby Rd
Eady Rd
Rockwood Rd
Corda Rd
Kubler Rd
Weed Rd
New River
Cole Rd
Brockman Rd
Ceeson Wash
Ferrell
Weed Rd
Clark Rd
98
Hammers Rd
Anza Rd
Westside Main Canal
Pullliam Rd
All American Canal
UNITED STATES OF AMERICA
MEXICO
Cook Rd
Mandrapa Rd

0 0.25 0.5 1 Miles
N W E S

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HDR ONE COMPANY | *Many Solutions*™

Residence Locations

Figure 4.3-1

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

4.3.2 Impacts and Mitigation Measures

4.3.2.1 Thresholds of Significance

Based on Appendix G of the CEQA Guidelines and the professional judgment of County staff and consultants, the County concludes that the projects would result in a significant impact on the environment if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and
- Create objectionable odors affecting a substantial number of people.

Imperial County Air Pollution Control District

The ICAPCD adopted the *Air Quality Handbook: Guidelines for the Implementation of CEQA* in November 2001. The ICAPCD established significance thresholds based on the state CEQA thresholds. The handbook was used to determine the proper level of analysis for the projects. The ICAPCD identifies two tiers of emission thresholds to evaluate whether operational impacts from a project have the potential for a significant air quality impact, and to address whether a project must implement additional feasible mitigation measures to reduce emissions to the extent possible. Table 4.3-4 presents the emission thresholds that are identified by the ICAPCD.

TABLE 4.3-4. ICAPCD SIGNIFICANCE THRESHOLDS FOR OPERATION

Criteria Pollutant	Tier 1	Tier 2
NO_x and ROG	Less than 55 lbs/day	55 lbs/day and greater
PM_{10} and SO_x	Less than 150 lbs/day	150 lbs/day and greater
CO	Less than 550 lbs/day	550 lbs/day and greater
Level of Significance	Less than Significant	Significant Impact
Level of Analysis	Initial Study	Comprehensive AQ Report
Environmental Document	Negative Declaration	Mitigated Negative Declaration or EIR

Source: ICAPCD 2001.

Projects with emissions below Tier 1 would not have a significant impact to air quality. Projects with emissions above Tier 1 but below Tier 2 would be required to implement all applicable standard mitigation measures. Projects with emissions above Tier 2 would be required to implement all applicable standard mitigation measures, plus all feasible discretionary mitigation measures as listed in the ICAPCD's guidance. These thresholds apply to operational emissions.

For construction projects, the Air Quality Handbook indicates that the significance threshold for NO_x is 100 lbs/day and for ROG is 75 lbs/day. As discussed in the ICAPCD's handbook, the approach to evaluating construction emissions should be qualitative rather than quantitative. In any case, regardless of the size of the project, the standard mitigation measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. The implementation of discretionary mitigation measures, as listed in Section 7.1 of the ICAPCD's Air Quality Handbook, apply to those construction sites which are five acres or more for non-residential developments or 10 acres or more in size for residential

developments. The mitigation measures found in Section 7.1 of the ICAPCD's handbook are intended as a guide of feasible mitigation measures and are not intended to be an all inclusive comprehensive list of all mitigation measures.

Diesel Toxic Risk Thresholds

There are inherent uncertainties in risk assessment with regard to the identification of compounds as causing cancer or other health effects in humans, the cancer potencies and Reference Exposure Levels (RELs) of compounds, and the exposure that individuals receive. It is common practice to use conservative (health protective) assumptions with respect to uncertain parameters. The uncertainties and conservative assumptions must be considered when evaluating the results of risk assessments.

There is debate as to the appropriate levels of risk assigned to diesel particulates. The U.S. EPA has not yet declared diesel particulates as a toxic air contaminant. Using the CARB threshold, a risk concentration of one in one million (1:1,000,000) per micrograms per cubic meter ($\mu g/m^3$) of continuous 70-year exposure is considered less than significant.

4.3.2.2 Methodology

The analysis criteria for air quality impacts are based on the approach and methods discussed in the ICAPCD's Air Quality Handbook. The handbook establishes aggregate emission calculations for determining the potential significance of a project. In the event that the emissions exceed the established thresholds, air dispersion modeling may be conducted to assess whether the projects result in an exceedance of an air quality standard. The Imperial County has adopted this methodology.

The criteria used to evaluate air emissions associated with the projects is based primarily on the combustion emissions generated by motor vehicles and area source emissions (paved and unpaved roads, construction projects, open areas, etc.). An air quality technical report was performed by SRA in October 2011 (Appendix D). The SRA report was used in the evaluation of construction and operational air quality impacts.

The project's air quality impacts are mainly attributable to the construction of the projects, including mobilization; clearing, grading, and trenching; construction of the framework foundations and frameworks; installation of the panels and system wiring; installation of the inverters and transformers; and cabling and connection to the switching station. Operational impacts include inspection and maintenance operations, which includes washing of the solar panels.

4.3.2.3 Impact Analysis

IMPACT 4.3-1	Conflict with or obstruct implementation of the applicable air quality plan. The projects would not obstruct implementation of applicable air quality plans.

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private, and OTF-BLM Lands

The Air Quality Attainment Plan (AQAP) for the SSAB, through the implementation of the AQMP (previously AQAP) and SIP for PM_{10}, sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections, meeting the land use designation set forth in the local General Plan, and comparing assumed emissions in the AQMP to proposed emissions.

The projects must demonstrate compliance with all ICAPCD applicable rules and regulations, as well as local land use plans and population projections.

The projects do not contain a residential component; therefore, the projects would not result in an increase in regional population that exceeds the forecasts in the AQMP. Furthermore, the projects are consistent with future build-out plans for the project study area under the General Plan as well as with the State's definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California Public Resources Code. The projects will not exceed future population forecasts for future AQMPs. The projects' operational contribution to PM_{10} is below a level of significance as illustrated in the Impact 4.3-2 discussion below. The projects would therefore not interfere with the SIP for PM_{10}. A **less than significant impact** is identified.

Mitigation Measure(s)

No mitigation measures are required.

IMPACT 4.3-2	**Violate any air quality standard or contribute substantially to an existing or projected air quality violation.** The projects would result in a temporary increase of emissions during construction and operation activities.

The following analysis is broken out by a discussion of potential impacts during construction of the projects and OT followed by a discussion of potential impacts during operation of the projects and OTF.

Construction

Air emissions are generated during construction through activities such as grading, clearing, hauling, underground utility construction, paving, and building assembly. Diesel exhaust emissions are generated through the use of heavy equipment such as dozers, loaders, scrapers, and vehicles such as dump/haul trucks. During site clearing and grading, PM_{10} is released as a result of soil disturbance. Construction emissions vary from day-to-day depending on the number of workers, number and types of active heavy-duty vehicles and equipment, level of activity, the prevailing meteorological conditions, and the length over which these activities occur.

Construction activities for all of the projects are proposed to start in mid-2012 and last for up to three years. For purposes of this analysis, it is assumed that construction activities associated within one or more facility site components, including off-site transmission infrastructure, could occur simultaneously with the most intense construction activities occurring during mid to late 2012 into 2013. Final construction scheduling would be completed during engineering and contractor bidding, which may result in variations to the planned construction schedule. Typical construction activities involved in the construction of the projects include:

- Materials transport
- Site preparation (vegetation removal, and structure demolition, if necessary)
- Earthwork (grading, excavation, backfill)
- Concrete foundations (forming, rebar placement, and concrete delivery and placement) and paving
- Structural steel work (assembly and welding)
- Electrical/instrumentation work
- Architectural and landscaping
- Start up and testing

To characterize and analyze potential construction impacts, maximum crew size, truck trips, and worker trips have been estimated, based on the expected construction activities and evaluating similar projects to construct solar facilities and transmission lines. To support these activities, the main pieces of equipment that may be used at any one time during construction may include the following:

- Rough-terrain forklifts
- Track-type dozers
- Drum-type compactors
- Backhoes
- Racking post ramming machines
- Rough-terrain cranes
- Generators
- Pickup trucks
- ATVs
- Water trucks
- Fuel trucks

The typical crew size for each construction phase would be 10 to 20 people, plus inspectors. In assuming that multiple construction activities could occur simultaneously at multiple project facility sites, up to 150 construction personnel could be present during the most intense construction periods. In addition, daily haul truck trips could average up to 15 daily trips at the height of construction. Work hours would be governed by permits issued by regulatory agencies. Roadways that would be used by construction traffic would be contingent on the location of actual construction at any given time. To the extent feasible, construction activities would occur in the dry months to minimize damage to unpaved roadways used by heavy equipment.

Approximately 10 acres within the project study area would be required to allow for proper PV panel offloading and steel frame assembly. Although an area has not been designated specifically for the lay down yard, it is assumed that it would be located in proximity to an O&M building for each project site.

To calculate emissions associated with construction of the projects, the following assumptions were made:

Construction of MSSF1

- MSSF1 Project will be constructed first. As discussed in the Traffic Impact Analysis – Mount Signal Solar Farm ((Traffic Impact Analysis 2011), it was assumed that the construction of the MSSF1 would commence in the second quarter of 2012 and be complete by the end of year 2012.
- Construction daily trip generation would be estimated at 462 passenger vehicles (Traffic Impact Analysis 2011).
- Construction trucks would generate 30 average daily trips (Traffic Impact Analysis 2011).
- Heavy equipment requirements were assumed to be the same as similar solar projects.

Construction of CSF1(A) and CSF1(B)

- CSF1(A) and CSF1(B) Projects will be constructed second. It was assumed that Phase A and Phase B would be constructed simultaneously. As discussed in the Traffic Impact Analysis – Calexico Solar Farm 1 (Traffic Impact Analysis 2011), it was assumed that the construction of the CSF1 would commence in 2013 and would be complete by 2014.
- Construction daily trip generation would be estimated at 462 passenger vehicles (Traffic Impact Analysis 2011).

- Construction trucks would generate 30 average daily trips (Traffic Impact Analysis 2011).
- Heavy equipment requirements were assumed to be the same as similar solar projects.

Construction of CSF2(A) and CSF2(B)

- CSF2(A) and CSF2(B) Projects will be constructed third. It was assumed that Phase A and Phase B would be constructed simultaneously. As discussed in the Traffic Impact Analysis – Calexico Solar Farm (Traffic Impact Analysis 2011), it was assumed that the construction of the CSF2 would commence in 2014 and would be complete by the end of 2014.
- Construction daily trip generation would be estimated at 462 passenger vehicles (Traffic Impact Analysis 2011).
- Construction trucks would generate 30 average daily trips (Traffic Impact Analysis 2011).
- Heavy equipment requirements were assumed to be the same as similar solar projects.

Construction of Auxiliary Facilities

Emissions associated with construction of auxiliary facilities discussed in Chapter 3.0, Project Description were assumed to occur within the construction timeframe and activity estimated for each individual solar farm. No separate calculations were conducted.

Construction of the Off-site Transmission Lines

Emissions associated with construction of the transmission lines (private and BLM Lands) were calculated based on the assumption that the activity and heavy equipment requirements would be similar to other transmission line projects. It was assumed that construction of the transmission lines would occur simultaneously with construction of the MSSF1, in the year 2012.

A summary of the daily construction emissions for each of the projects is provided below. A similar scenario would occur during the decommissioning and site restoration stage for each of the projects. Air quality emissions would be similar to or less than the emissions presented for construction. The mitigation measures stated below would apply to the decommissioning stage of the projects as well and would reduce impacts to below a level of significance.

MSSF1

Emissions from heavy equipment used in construction of the projects were estimated based on emission factors for the SCAB from the ARB's OFFROAD2007 Model. Emissions from worker travel and truck traffic were calculated using the ARB's EMFAC2007 Model for on-road vehicles. Emissions of fugitive dust were estimated based on SCAQMD and USEPA emission factors. Table 4.3-5 shows the daily construction emissions data for MSSF1.

TABLE 4.3-5. ESTIMATED CONSTRUCTION EMISSIONS – MSSF1

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Construction Emissions, lbs/day						
Heavy Construction Equipment	367.15	732.21	442.42	34.77	25.83	22.99
On-Road Vehicles	69.16	378.48	595.76	1.07	16.40	16.23
Fugitive Dust	-	-	-	-	29.68	7.41
TOTAL	460.31	1110.70	1038.18	35.84	71.91	46.63
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*

Source: SRA 2011.

As shown in Table 4.3-5, ROG, NO_x, and CO construction emissions for MSSF1 would be above ICAPCD's construction significance thresholds. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. As mentioned previously, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The impact is considered **significant.** Implementation of the mitigation measures listed below would reduce impacts to less than significant.

CSF1(A) and CSF1(B)

For the purpose of this analysis, a conservative construction schedule was assumed that Phase A and Phase B would be constructed simultaneously. Table 4.3-6 shows the daily construction emissions data for CSF1(A) and CSF1(B).

TABLE 4.3-6. ESTIMATED CONSTRUCTION EMISSIONS – CSF1(A) AND CSF1(B)

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Construction Emissions, lbs/day						
Heavy Construction Equipment	355.29	732.21	442.42	31.41	25.83	22.99
On-Road Vehicles	66.36	339.99	567.15	1.01	15.18	15.03
Fugitive Dust	-	-	-	-	29.68	7.41
TOTAL	421.65	1072.20	1009.57	32.42	70.69	45.43
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*

Source: SRA 2011.

As shown in Table 4.3-6, ROG, NO_x, and CO construction emissions for CSF1(A) and CSF1(B) would be above ICAPCD's construction significance thresholds. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. As mentioned previously, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The impact is considered **significant.** If Phase A and Phase B were constructed consecutively emissions would be reduced however; ROG, NO_x, and CO emissions would still be above ICAPCD's significance thresholds. Implementation of the mitigation measures listed below would reduce impacts to less than significant.

CSF2(A) and CSF2(B)

For the purpose of this analysis, a conservative construction schedule assumed that Phase A and Phase B would be constructed simultaneously. Table 4.3-7 shows the daily construction emissions data for CSF2(A) and CSF2(B).

TABLE 4.3-7. ESTIMATED CONSTRUCTION EMISSIONS – CSF2(A) AND CSF2(B)

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Construction Emissions, lbs/day						
Heavy Construction Equipment	345.49	732.21	442.42	28.26	25.83	22.99
On-Road Vehicles	63.18	304.85	539.30	0.96	13.85	13.71
Fugitive Dust	-	-	-	-	29.68	7.41
TOTAL	408.66	1037.07	981.71	29.23	69.35	44.10
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*

Source: SRA 2011.

As shown in Table 4.3-7, ROG, NO_x, and CO construction emissions for CSF2(A) and CSF2(B) would be above ICAPCD's operational significance thresholds. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. As mentioned previously, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The impact is considered **significant.** If Phase A and Phase B were constructed consecutively, not simultaneously, emissions would be reduced however; ROG, NO_x, and CO emissions would still be above ICAPCD's significance thresholds. Implementation of the mitigation measures listed below would reduce impacts to less than significant.

OTF

Table 4.3-8 shows the daily construction emissions data for the OTF. As shown in Table 4.3-8, ROG, NO_x, and CO construction emissions for the OTF would be above ICAPCD's operational significance thresholds. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. As mentioned previously, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The impact is considered **significant.** Implementation of the mitigation measures listed below would reduce impacts to less than significant.

TABLE 4.3-8. ESTIMATED CONSTRUCTION EMISSIONS – OTF

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Construction Emissions, lbs/day						
Heavy Construction Equipment	109.51	391.06	212.25	11.17	12.33	10.98
On-Road Vehicles	60.27	266.72	525.96	0.89	12.38	12.25
Helicopters	9.67	39.65	39.65	9.34	14.85	14.70
Fugitive Dust	-	-	-	-	40.70	8.42
TOTAL	179.46	697.43	777.86	21.40	80.26	46.35
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*

Source: SRA 2011.

OTF and MSSF1

As discussed above, it was assumed that both the MSSF1 and the OTF-Private and OTF-BLM Lands could be constructed in 2012. If so, emissions of ROG, NO_x, CO, and PM_{10} would be above the ICAPCD's significance thresholds as shown in Table 4.3-9 below.

TABLE 4.3-9. MAXIMUM SIMULTANEOUS CONSTRUCTION EMISSIONS – MSSF1 AND OTF-PRIVATE AND OTF-BLM LANDS

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Construction Emissions, lbs/day						
MSSF1	436.31	1110.70	1038.18	35.84	42.23[1]	39.22[1]
OTF-Private and OTF- BLM Lands	179.46	697.43	777.86	21.40	80.26	46.35
TOTAL	615.77	1808.13	1816.04	57.24	122.49	85.57
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*

Source: SRA 2011.
Note: [1] Assumes heavy equipment use only; maximum fugitive dust emissions from dust-generating activities for transmission line.

Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. As mentioned previously, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The impact is considered **significant.** Implementation of the mitigation measures listed below would reduce impacts to less than significant.

Operation

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF- Private, and OTF-BLM Lands

Operational emissions would include inspection and maintenance activities. The projects would be staffed with up to 30 full-time employees (up to 6 for each project site) to maintain the project facilities seven days a week during normal daylight hours. Typically, up to 15 staff would work during the day shift (sunrise to sunset), and the remainder during the night shifts and weekend. To ensure optimal PV output, the solar panels would be maintained 24 hours a day/seven days a week. Each of the projects would be staffed by up to four employees during the day. Equipment and supply deliveries would typically occur during the week and, on average, could entail up to two daily truck trips. According to the traffic analyses that were prepared for the projects, it is anticipated that each project would generate operational trips as follows:

- MSSF1 would generate a maximum of 40 average daily traffic (ADT)
- CSF1(A) and CSF1(B) would generate a maximum of 80 ADT
- CSF2(A) and CSF2(B) would generate a maximum of 80 ADT

The total operational daily trip generation rate is therefore estimated at 200 ADT. Emissions would include travel on unpaved roads for solar panel washing and maintenance, as well as commuting emissions from workers. Emissions were calculated in the same manner as for construction emissions for vehicles and fugitive dust. Estimated operational emissions for the combined projects and OTF-private and OTF-BLM land-are presented in Table 4.3-10.

TABLE 4.3-10. OPERATIONAL EMISSIONS RESULTS – MMSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-PRIVATE LANDS, AND OTF-BLM LANDS

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Operational Emissions, lbs/day						
Vehicles	12.97	19.40	137.85	0.14	1.31	1.30
Fugitive Dust	-	-	-	-	4.93	1.56
TOTAL	12.97	19.40	137.85	0.14	6.25	2.86
Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*150*
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: SRA 2011.

As shown in Table 4.3-10, operational emissions would be below the ICAPCD's thresholds for operational emissions. The impact is considered **less than significant**. No mitigation is required.

Mitigation Measure(s)

The following mitigation measures are required for , MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private, and OTF-BLM Lands.

Fugitive Dust

4.3-2a Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment and the associated EPA Tier shall be submitted to the County Planning and Development Services Department prior to the issuance of a grading permit to verify implementation of this measure.

4.3-2b Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII-Fugitive Dust Control Measures. These mitigation measures listed below shall be implemented prior to and during construction. The County Department of Public Works will verify implementation and compliance with these measures.

ICAPCD Standard Measures for Fugitive Dust (PM_{10}) Control

- All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.
- All on-site and off-site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- All unpaved traffic areas one acre or more with 75 or more average vehicle trips per day shall be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- The transport of bulk materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks shall be cleaned and/or washed at delivery site after removal of bulk material.
- All Track-Out or Carry-Out shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

ICAPCD Standard Measures for Construction Combustion Equipment

- Use alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use.

- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).
- Construction equipment operating on-site should be equipped with two to four degree engine timing retard or precombustion chamber engines.
- Construction equipment used for the projects should utilize EPA Tier 2 or better engine technology.
- Keep vehicles well maintained to prevent leaks and minimize emissions, and encourage employees to do the same.

ICAPCD "Discretionary" Measures for Fugitive Dust (PM_{10}) Control

- Water exposed soil with adequate frequency for continued moist soil, including a minimum of three wettings per day during grading activities.
- Replace ground cover in disturbed areas as quickly as possible.
- Install automatic sprinkler system on all soil piles.
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site.
- Implement the trip reduction plan to achieve a 1.5 average vehicle ridership (AVR) for construction employees.
- Implement a shuttle service to and from retail services and food establishments during lunch hours.

Standard Mitigation Measures for Construction Combustion Equipment

- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

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

Enhanced Mitigation Measures for Construction Equipment

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

Implementation of the above-listed fugitive dust control measures was assumed to control PM_{10} emissions by 85%.

4.3-2c Pursuant to ICAPCD Policy Number 5, prior to construction activities, the applicant shall pay an in-lieu impact fee as determined by ICAPCD using the formula provided in ICAPCD Policy Number 5 to reduce PM_{10} and NO_x emissions. The applicable fee in Policy Number 5 is derived from utilizing the last three year Carl Moyer grant program average cost effectiveness for Imperial County multiplied by the amount of tons needed to be offset. Detailed emission calculations shall be provided to the ICAPCD upon selection of the construction contractor, such that an accurate estimate of fees to be paid can be made prior to commencement of construction.

Significance After Mitigation

Implementation of the proposed projects would not result in impacts during operation. With implementation of fugitive dust control measures (Mitigation Measure 4.3-2b), emissions of PM_{10} would be below the ICAPCD's significance threshold during all construction phases. Emissions of NO_x would exceed the ICAPCD's significance threshold for construction of the MSSF1, simultaneous construction of the MSSF1 and the OTF, construction of the CSF1, and construction of the CSF2. The exceedance is anticipated to occur for 180 days for construction of each of the solar farms. However, implementation of Mitigation Measure 4.3-2c, which requires the payment of an in-lieu impact fee would reduce this impact to a less than significant level. As stated, detailed emission calculations shall be provided to the ICAPCD upon selection of the construction contractor, such that an accurate estimate of fees to be paid can be made prior to commencement of construction. Therefore, with mitigation all air quality impacts during construction would be reduced to **less than significant.**

IMPACT 4.3-3	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. The projects would result in a temporary increase of $PM_{10,}$ CO, ROG, and NO_x (ozone precursors) during construction activities.

The following analysis is broken out by a discussion of potential impacts during construction of the projects and OT followed by a discussion of potential impacts during operation of the projects and OTF.

Construction

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private and OTF-BLM Lands

Imperial County is classified as a "serious" non-attainment area for PM_{10} and a "moderate" non-attainment area for 8-hour ozone for the NAAQS and non-attainment for $PM_{2.5}$ for the urban areas of Imperial County. As identified above in Impact 4.3-1, the projects would result in a significant increase in $PM_{10,}$ CO, ROG, and NO_x (ozone precursors). The project's emissions of ozone precursors and particulate matter are mainly attributable to temporary construction activities. These activities would cease after approximately three years, and would therefore result in a temporary cumulative impact. Implementation of Mitigation Measures 4.3-2a through 4.3-2c would reduce the emissions to **a less than significant level.**

Operation

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private, and OTF-BLM Lands

The operational impacts associated with the project were less than significant. Therefore, the project would not result in a cumulatively considerable net increase of PM_{10} or ozone precursors. A **less than significant** impact is identified.

Mitigation Measure(s)

No mitigation measures are required.

IMPACT 4.3-4	Expose sensitive receptors to substantial pollutant concentrations? The project would result in a temporary increase of $PM_{10,}$ CO, ROG, and NO_x) during construction activities, in addition to diesel particulate matter.

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private, and OTF-BLM Lands

As shown in Figure 4.3-1, there are approximately 23 residences scattered within the project study area and vicinity. Construction activities would result in emissions of diesel particulate matter from heavy construction equipment used on site and truck traffic to and from the site, as well as minor amounts of TAC emissions from motor vehicles (such as benzene, 1,3-butadiene, toluene, and xylenes). Health effects attributable to exposure to diesel particulate matter are long-term effects based on chronic (i.e., long-term) exposure to emissions. Health effects are generally evaluated based on a lifetime (70 years) of exposure. Due to the short-term nature of construction at the site, no adverse health effects would be anticipated from short-term diesel particulate emissions. In addition, motor vehicle emissions would not be concentrated in any one area but would be dispersed along travel routes and would not be anticipated to pose a significant health risk to receptors. It is unlikely that heavy construction will occur immediately adjacent to any residence. The hours of construction will occur during the day when most people are at work. A **less than significant** impact is identified.

IMPACT 4.3-5	Create objectionable odors affecting a substantial number of people. The project would not result in objectionable odors during construction and operation.

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF- Private, and OTF-BLM Lands

An odor impact depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Among physical harms that are possible are inhalation of volatile organic compounds (VOCs) that cause smell sensations in humans. These odors can affect human health in four primary ways:

- The VOCs can produce toxicological effects;
- The odorant compounds can cause irritations in the eye, nose, and throat;
- The VOCs can stimulate sensory nerves that can cause potentially harmful health effects; and
- The exposure to perceived unpleasant odors can stimulate negative cognitive and emotional responses based on previous experiences with such odors.

Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and concentrated agricultural feeding operations and dairies.

No major sources of odors were identified in the vicinity of the project site that could potentially affect proposed on-site land uses. Development of the project could generate trace amounts (less than 1 $\mu g/m^3$) of substances such as ammonia, carbon dioxide, hydrogen sulfide, methane, dust, organic dust, and endotoxins (i.e., bacteria are present in the dust). Additionally, proposed on-site uses could generate such substances as volatile organic acids, alcohols, aldehydes, amines, fixed gases, carbonyls, esters,

sulfides, disulfides, mercaptans, and nitrogen heterocycles. Any odor generation would be intermittent and would terminate upon completion of the construction activities. Additionally, the project study area is not surrounded by a substantial number of people. There are approximately 23 residences scattered throughout the area (Figure 4.3-1). It is unlikely that heavy construction that could result in the emission of objectionable odors will occur immediately adjacent to any residence. A **less than significant impact** is identified.

Mitigation Measure(s)

No mitigation measures are required.

4.3.3 Residual Impacts

The project will result in short-term significant air quality impacts during construction. Implementation of Mitigation Measures 4.3-2a through 4.3-2c would reduce ROG, NO_x, PM_{10}, and CO emissions to a less than significant level. Operation of the projects, subject to the provision of a CUP, would be consistent with applicable federal, state, regional, and local plans and policies. The project would not result in any residual operational significant and unavoidable impacts with regards to air quality.

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