

4.3 AIR QUALITY

This section provides an overview of existing air quality within the project 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. OB-1 Air Analyses prepared an Air Quality/Greenhouse Gas Report in April 2014 for the Iris Cluster Solar Project, which includes the FSF, RSF, ISF, and LSF. The report is included in Appendix D of this EIR.

4.3.1 Environmental Setting

Regional Setting

The project 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 ($^{\circ}$ F) down to a winter morning minimum of 38 $^{\circ}$ 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 emissions that emanate from the Mexicali, Mexico area due to the limited air pollution controls on those emission sources. Imperial County is predominately agricultural land. This is a factor in the cumulative air quality of the SSAB. The agricultural production generates dust and small particulate matter through the use of agricultural equipment on unpaved roads, land preparation, and harvest practices. The Imperial County experiences unhealthy 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 (SO₂), nitrogen dioxide (NO₂), ozone (O₃), suspended particulate matter less than or

equal to 10 microns in diameter (PM₁₀), 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. There are almost 200 compounds that have been designated as TACs in California. The ten TACs posing the greatest known health risk in California, based primarily on ambient air quality data, are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, formaldehyde, methylene chloride, para-dichlorobenzene, perchloroethylene, and diesel particulate matter (DPM).

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 O₃ 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 standards.

TABLE 4.3-2. AMBIENT AIR QUALITY STANDARDS

Air Pollutant	Averaging Time	California Standard	National Standard
Ozone (O3)	1 hour	0.09 ppm	--
	8 hour	0.070 ppm	0.075 ppm
Respirable Particulate Matter (PM10)	24 hour	50 µg/m3	150 µg/m3
	Mean	20 µg/m3	--
Fine Particulate Matter (PM2.5)	24 hour	--	35 µg/m3
	Mean	12 µg/m3	12.0 µg/m3
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO2)	1 hour	0.18 ppm	100 ppb
	Mean	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO2)	1 hour	0.25 ppm	75 ppb
	24 hour	0.04 ppm	--
Lead	30-day	1.5 µg/m3	--
	Rolling 3-month	--	0.15 µg/m3
Sulfates	24 hour	25 µg/m3	No Federal Standard
Hydrogen sulfide	1 hour	0.03 ppm	
Vinyl chloride	24 hour	0.01 ppm	
Visibility-reducing particles	8 hour	Extinction coefficient of 0.23 per kilometer, visibility of ten miles or more due to particles when relative humidity is less than 70%.	

Source: California Air Resources Board. Ambient Air Quality Standards (6/4/13). <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

Notes: ppm = parts per million
ppb = parts per billion
µg/m³ = micrograms per cubic meter
30-day = 30-day average
mean = annual arithmetic mean

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 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 five percent 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 PM₁₀ 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. There are six monitoring sites in Imperial County from Niland to Calexico.

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 PM₁₀ standards. As a result, the ICAPCD was required to develop a PM₁₀ Attainment Plan. The final plan was adopted by ICAPCD on August 11, 2009.

ICAPCD Rules and Regulations

The ICAPCD has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions of hazardous air pollutants, and New Source Review. The ICAPCD Rules and Regulations are part of the SIP and are separately enforceable by the EPA.

Rule 310 – Operational Development Fee. The purpose of this rule is to provide the ICAPCD with a sound method for mitigating the emissions produced from the operation of new commercial and residential development projects throughout the County of Imperial and incorporated cities. All project proponents have the option to either provide: off-site mitigation, pay the operational development fee, or do a combination of both. This rule will assist the ICAPCD in attaining the State and federal ambient air quality standards for PM₁₀ and O₃.

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 Plan (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, PM₁₀, and PM_{2.5}. Imperial County is classified as a "serious" non-attainment area for PM₁₀ 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 stations to the project sites are the Calexico-Ethyl station located within the City of Calexico (1029 Belcher Street, Calexico, CA 92231) and the El Centro-9th station within the City of El Centro (150 9th Street, El Centro, CA 92243). Both monitoring stations measure PM₁₀, PM_{2.5}, CO, and NO₂. The Calexico monitoring station also monitors SO₂. Tables 4.3-3 and 4.3-4 provide a summary of background air quality data representative of the area from 2007 to 2012. As shown, the area has experienced days measured at levels exceeding state and federal standards for O₃, PM₁₀, and PM_{2.5}, and NO₂ (federal standard only). Existing sources of air pollution, e.g., dust, in the project study areas include agricultural operations and traffic.

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

Air Pollutant	Year					
	2007	2008	2009	2010	2011	2012
Ozone (O₃)⁽¹⁾						
Max 1-hour value (ppm)	0.112	0.128	0.104	0.102	0.097	0.114
Days above state standard (0.09 ppm)	10	8	5	4	2	11
Max 8-hour value (ppm)	0.094	0.093	0.083	0.082	0.076	0.095
Days above federal standard (0.075 ppm) ^(1,3)	9	7	4	2	3	12
Days above state standard (0.070 ppm)	20	17	9	6	5	26
Particulate matter less than or equal to 10 microns in diameter (PM₁₀)						
Max Daily California Measurement (µg/m ³)	282.0	109.7	265.8	117.3	83.9	387.3
Days above federal standard (150 µg/m ³)	1	0	3	0	0	2
Days above state standard (50 µg/m ³)	36	31	34	9	16	36
Particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5})⁽²⁾						
Max Daily National Measurement (µg/m ³)	66.7	37.1	45.0	50.9	80.3	119.3
Days above federal standard (35 µg/m ³)	3	1	4	2	2	4
Carbon Monoxide (CO)						
Max 8-hour value (ppm)	7.53	6.34	7.46	4.46	6.06	4.47
Days above federal standard (9 ppm)	0	0	0	0	0	0
Days above state standard (9 ppm)	0	0	0	0	0	0
Nitrogen Dioxide (NO₂)⁽⁴⁾						
Max Hourly value (ppb)	107	146	102	80	130	91
Days above federal standard (100 ppb)	1	3	1	0	2	0
Days above state standard (0.18 ppm)	0	0	0	0	0	0
Sulfur Dioxide (SO₂)						
Max 24-hour value (ppm)	0.004	0.007	0.004	0.004	N/A	N/A
Days above state standard (0.04 ppm)	0	0	0	0		

Source: <http://www.arb.ca.gov/adam/welcome.html>

Notes: > = exceed
 ppm = parts per million
 ppb = parts per billion
 µg/m³ = micrograms per cubic meter
 N/A = not available

TABLE 4.3-4. AIR QUALITY MONITORING DATA – EL CENTRO-9TH MONITORING STATION

Air Pollutant	Year					
	2007	2008	2009	2010	2011	2012
Ozone (O₃)⁽¹⁾						
Max 1-hour value (ppm)	0.118	0.135	0.111	0.122	0.103	0.111
Days above state standard (0.09 ppm)	8	4	9	3	5	9
Max 8-hour value (ppm)	0.094	0.084	0.085	0.082	0.084	0.091
Days above federal standard (0.075 ppm) ^(1,3)	8	2	11	10	12	14
Days above state standard (0.070 ppm)	23	9	30	29	21	26
Particulate matter less than or equal to 10 microns in diameter (PM₁₀)						
Max Daily California Measurement (µg/m ³)	196.0	88.7	233.7	70.2	80.3	72.1
Days above federal standard (150 µg/m ³)	1	0	2	0	0	0
Days above state standard (50 µg/m ³)	22	4	17	5	9	6
Particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5})⁽²⁾						
Max Daily National Measurement (µg/m ³)	30.5	26.7	37.7	19.9	54.4	26.4
Days above federal standard (35 µg/m ³)	0	0	1	0	2	0
Carbon Monoxide (CO)						
Max 8-hour value (ppm)	1.67	1.71	3.20	5.61	9.01	3.64
Days above federal standard (9 ppm)	0	0	0	0	0	0
Days above state standard (9 ppm)	0	0	0	0	0	0
Nitrogen Dioxide (NO₂)⁽⁴⁾						
Max Hourly (ppb)	71.0	81.0	121.6	140.5	117.4	72.0
Days above federal standard (100 ppb)	0	0	1	1	1	0
Days above state standard (0.18 ppm)	0	0	0	0	0	0

Source: <http://www.arb.ca.gov/adam/welcome.html>

Notes: > = exceed
 ppm = parts per million
 ppb = parts per billion
 µg/m³ = micrograms per cubic meter

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. Sensitive residential uses within and adjacent to the project study areas (within approximately 200 feet) are shown on Figure 4.3-1, Residence Locations, and include the following:

- **Ferrell Solar Farm (1 on-site and 2 off-site)** - The Corda residence and farm shop is located within the FSF project site off Corda Road. The Kubler residence, farm shop and yard are located adjacent to the FSF project site (southwest corner of Kubler and Ferrell Roads) and another residence is located on the northeast corner of Kubler and Ferrell Roads.
- **Rockwood Solar Farm (5 off-site)** - One residence is located along the northern boundary of the RSF project site, two residences are located on the north side of Kubler Road (one at the intersection of George and Kubler Roads), and three residences are located at the intersection of Corda Road (two located south of SR-98).

Figure 4.3-1. Residence Locations



- **Iris Solar Farm (2 on-site)** - Two residences are located within the ISF project site, along Ferrell Road. An old farm worker labor camp is located within the ISF project site along Weed Road, which is now used for a farming equipment staging area. No additional residences border the project site.
- **Lyons Solar Farm. (2 off-site)** - Two residences are located outside of the LSF project site (one at the intersection of Kubler Road and Rockwood Road, and another across the Greeson Wash).

Some of the off site residences identified above are located within the site boundaries of previously approved solar projects including the Mount Signal and Calexico Solar Farm Projects; and the environmental effects on the off site residences have been previously evaluated in the respective EIR(s).

4.3.2 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to air quality, the methodology employed for the evaluation, an impact evaluation, and mitigation requirements, if necessary.

4.3.2.1 Thresholds of Significance

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

- 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; or
- Create objectionable odors affecting a substantial number of people.

Imperial County Air Pollution Control District

The ICAPCD amended the *Air Quality Handbook: Guidelines for the Implementation of CEQA* in November 2007. 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 4.3-5 presents the emission thresholds that are identified by the ICAPCD.

TABLE 4.3-5. 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

Source: ICAPCD 2007.

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 PM₁₀ 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 (µg/m³) 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 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 prepared by OB-1 Air Analyses in April 2014 (Appendix D). This report was used in the evaluation of construction and operational air quality impacts.

The 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 *Conflict with or Obstruct Implementation of the Applicable Air Quality Plan.*
 4.3-1 *The projects would not obstruct implementation of applicable air quality plans.*

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

The Air Quality Attainment Plan (AQAP) for the SSAB, through the implementation of the AQMP (previously AQAP) and SIP for PM₁₀, 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 areas 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. As discussed in the Impact 4.3-2 discussion below, with implementation of mitigation and compliance with all ICAPCD applicable rules and regulations, the projects' operational contribution to PM₁₀ would be below a level of significance. The projects would therefore not interfere with the SIP for PM₁₀. A **less than significant** impact is identified.

Mitigation Measure(s)

No mitigation measures are required.

IMPACT *Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air*
 4.3-2 *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 followed by a discussion of potential impacts during operation of the projects.

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, PM₁₀ 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 are proposed to start in mid-2014. Construction for the Iris Cluster is expected to conservatively last 12 months and each separate site would be divided into five potentially overlapping broad phase activities: (1) Grading/Earthwork; (2) Solar Panel Installation; (3) O&M Building Construction; (4) Offsite Transmission Facilities; and (5) Paving. No single project is projected to take the entire 12 months. The proposed phase activity distribution per project is presented in Figure 3.0-10. Please refer to Chapter 3.0, Project Description for a discussion of construction equipment and construction workforce.

Emissions from off-road construction equipment used in construction of the projects were estimated based on the underlying emission and load factors of URBEMIS and CalEEMod computer models. Emissions from vehicular activity related to construction employees and vendors were estimated using CARB's EMFAC2011 Web Based Data Access. Grading fugitive dust was estimated using methodology described in Section 11.9, Western Surface Coal Mining, of the EPA AP-42 and as presented in the CalEEMod User's Guide.

Emissions are presented below for each of the four individual solar projects and the combined Iris Cluster. Since the thresholds for criteria pollutants are in pounds per day, emissions estimated from each activity phase for each project are combined with other activities where they overlap to generate the maximum emissions per day. There is some overlap of activity phases for each separate project, as well as some overlap between projects in the overall scheduling of the entire Iris Cluster. Emissions presented below are considered unregulated, which is to mean hypothetical emissions from construction activity, which does not apply equipment or activity restrictions or controls, even those required by ICAPCD regulations.

FSF

The FSF project is estimated to be completed within six months from project start. Table 4.3-6 presents the daily maximum hypothetical unregulated and regulated emissions for each month of construction for the FSF project, including the construction of transmission facilities (Phase 4). As shown in Table 4.3-6, the FSF project would exceed the PM₁₀ ICAPCD significance threshold if unregulated. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. 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 a **significant impact**. Implementation of mitigation measures listed below and compliance with ICAPCD Regulation VIII would reduce impacts to **less than significant**.

RSF

The RSF project is estimated to be completed within seven months from project start. Table 4.3-7 presents the daily maximum hypothetical unregulated and regulated emissions for each month of construction for the RSF project, including the construction of transmission facilities (Phase 4). As shown in Table 4.3-7, the RSF project would exceed the PM₁₀ ICAPCD significance threshold if unregulated. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. 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 a **significant impact**. Implementation of mitigation measures listed below and compliance with ICAPCD Regulation VIII would reduce impacts to **less than significant**.

TABLE 4.3-6. ESTIMATED CONSTRUCTION EMISSIONS FOR FSF

Month/Activity	Criteria Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Unregulated Construction Emissions					
1st Month – Phases 1 & 2	6.6	53.6	51.6	197.4	23.7
2nd Month – Phase 2	3.3	30.3	27.3	125.9	14.8
3rd Month – Phases 2 & 3	4.7	37.2	38.9	141.4	16.9
4th Month – Phases 2, 3 & 5	5.3	40.8	43.8	148.0	17.9
5th Month – Phase 2	3.3	30.3	27.3	125.9	14.8
6th Month – Phase 4	1.5	7.3	8.5	12.9	1.9
FSF Maximum Daily	6.6	53.6	51.6	197.4	23.7
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	Yes	
Regulated and Mitigated Construction Emissions					
1st Month – Phases 1 & 2	2.8	53.6	40.5	86.2	10.8
2nd Month – Phase 2	1.6	30.3	22.3	54.6	6.7
3rd Month – Phases 2 & 3	2.1	37.2	30.4	61.3	7.6
4th Month – Phases 2, 3 & 5	2.3	40.8	34.2	64.2	8.1
5th Month – Phase 2	1.6	30.3	22.3	54.6	6.7
6th Month – Phase 4	0.9	7.3	6.9	5.7	1.0
FSF Maximum Daily	2.8	53.6	40.5	86.2	10.8
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	No	

Source: OB-1 Air Analyses 2014.

TABLE 4.3-7. ESTIMATED CONSTRUCTION EMISSIONS FOR RSF

Month/Activity	Criteria Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Unregulated Construction Emissions					
1st Month – Phase 1	3.4	24.5	24.4	78.2	9.7
2nd Month – Phases 2 & 3	4.8	39.7	39.2	156.6	18.6
3rd Month – Phases 2 & 3	4.8	39.7	39.2	156.6	18.6
4th Month – Phases 2 & 5	4.0	36.3	32.6	146.7	17.3
5th Month – Phase 2	3.4	32.6	27.6	139.5	16.2
6th Month – Phase 2	3.4	32.6	27.6	139.5	16.2
7th Month – Phase 4	1.5	7.5	8.6	14.3	2.1
RSF Maximum Daily	4.8	39.7	39.2	156.6	18.6
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	Yes	
Regulated and Mitigated Construction Emissions					
1st Month – Phase 1	1.3	24.5	18.4	34.8	4.5
2nd Month – Phases 2 & 3	2.2	39.7	30.7	67.9	8.4
3rd Month – Phases 2 & 3	2.2	39.7	30.7	67.9	8.4
4th Month – Phases 2 & 5	1.9	36.3	26.4	63.6	7.8
5th Month – Phase 2	1.7	32.6	22.6	60.4	7.3
6th Month – Phase 2	1.7	32.6	22.6	60.4	7.3
7th Month – Phase 4	0.9	7.5	6.9	6.3	1.1
RSF Maximum Daily	2.2	39.7	30.7	67.9	8.4
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	No	

Source: OB-1 Air Analyses 2014.

ISF

The ISF project is estimated to be completed within seven months from project start. Table 4.3-8 presents the daily maximum hypothetical unregulated and regulated emissions for each month of construction for the ISF project, including the construction of transmission facilities (Phase 4). As shown in Table 4.3-8, the ISF project would exceed the PM₁₀ ICAPCD significance threshold if unregulated. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. 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 a **significant impact**. Implementation of mitigation measures listed below and compliance with ICAPCD Regulation VIII would reduce impacts to **less than significant**.

TABLE 4.3-8. ESTIMATED CONSTRUCTION EMISSIONS FOR ISF

Month/Activity	Criteria Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Unregulated Construction Emissions					
1st Month – Phase 1	3.5	28.3	24.9	100.8	12.1
2nd Month – Phase 2	3.7	39.4	28.5	180.3	20.7
3rd Month – Phase 2	3.7	39.4	28.5	180.3	20.7
4th Month – Phase 2	3.7	39.4	28.5	180.3	20.7
5th Month – Phases 2, 3 & 5	5.7	51.3	45.2	211.6	24.8
6th Month – Phases 2 & 3	5.1	47.3	40.2	202.3	23.5
7th Month – Phases 2 & 4	5.2	47.6	37.1	198.7	23.2
ISF Maximum Daily	5.7	51.3	45.2	211.6	24.8
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	Yes	
Regulated and Mitigated Construction Emissions					
1st Month – Phase 1	1.4	28.3	18.9	44.7	5.6
2nd Month – Phase 2	2.0	39.4	23.5	78.14	9.2
3rd Month – Phase 2	2.0	39.4	23.5	78.1	9.2
4th Month – Phase 2	2.0	39.4	23.5	78.1	9.2
5th Month – Phases 2, 3 & 5	2.7	51.3	35.6	91.7	11.1
6th Month – Phases 2 & 3	2.5	47.3	31.7	87.6	10.5
7th Month – Phases 2 & 4	2.9	47.6	30.5	86.2	10.5
ISF Maximum Daily	2.9	51.3	35.6	91.7	11.1
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	No	

Source: OB-1 Air Analyses 2014.

LSF

The LSF project is estimated to be completed within five months from project start. Table 4.3-9 presents the daily maximum hypothetical unregulated and regulated emissions for each month of construction for the LSF project, including the construction of transmission facilities (Phase 4). As shown in Table 4.3-9, the LSF project would not exceed the ICAPCD significance threshold for any criteria pollutant. Although the LSF project would not result in a significant impact, the LSF project must still 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. A **less than significant** impact is identified.

TABLE 4.3-9. ESTIMATED CONSTRUCTION EMISSIONS FOR LSF

Month/Activity	Criteria Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Unregulated Construction Emissions					
1st Month – Phases 1, 2 & 3	7.2	41.4	60.7	97.5	13.3
2nd Month – Phases 2 & 3	4.2	24.4	37.2	64.7	8.6
3rd Month – Phases 2 & 5	3.4	21.9	30.8	60.3	7.9
4th Month – Phase 2	2.8	18.9	25.9	57.2	7.3
5th Month – Phase 4	1.4	6.1	8.4	6.0	1.2
LSF Maximum Daily	7.2	41.4	60.7	97.5	13.3
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	No	
Regulated and Mitigated Construction Emissions					
1st Month – Phases 1, 2 & 3	2.5	41.4	46.2	43.1	6.3
2nd Month – Phases 2 & 3	1.5	34.4	28.8	28.2	4.0
3rd Month – Phases 2 & 5	1.3	21.9	24.6	26.4	3.7
4th Month – Phase 2	1.1	18.9	20.8	24.9	3.4
5th Month – Phase 4	0.8	6.1	6.8	2.8	0.7
LSF Maximum Daily	2.5	41.4	46.2	43.1	6.3
ICAPCD Thresholds	75	550	100	150	N/A
Exceed Thresholds?	No	No	No	No	

Source: OB-1 Air Analyses 2014.

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

Table 4.3-10 shows the hypothetical unregulated combined emissions from the construction of all four solar projects, including the construction of transmission facilities within a 12-month period using the Phase Activity Distributions. A staggering of phase activity can distribute the air quality emissions from the entire Iris Cluster, reducing potential impacts locally and regionally. As shown in Table 4.3-10, the unregulated emissions from the construction of the entire Iris Cluster within a 12 month period would exceed the ICAPCD significance thresholds for PM₁₀ and NO_x. Since construction is temporary in nature, these impacts would be short-term impacts and cease after construction is completed. 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 a **significant impact**. However, as shown in Table 4.3-11, with implementation of mitigation measures and compliance with ICAPCD Regulation VIII, PM₁₀ and NO_x emissions would not exceed ICAPCD's significance thresholds.

Implementation of mitigation measures listed below and compliance with ICAPCD Regulation VIII would reduce impacts to **less than significant**.

TABLE 4.3-10. UNREGULATED CRITERIA TEMPORAL SUMMARY FOR THE IRIS CLUSTER

Month #	Solar Farm	Criteria Emissions (lbs/day)				
		ROG	CO	NO _x	PM ₁₀	PM _{2.5}
1	FSF	6.63	53.62	51.60	197.38	23.69
	LSF	7.24	41.40	60.72	97.87	13.33
	Month 1 Totals	13.9	95.0	112.3	295.2	37.0
2	FSF	3.31	30.33	27.32	125.86	14.76
	LSF	4.17	24.42	31.25	64.73	8.57
	Month 2 Totals	7.5	54.8	64.6	190.6	23.3
3	FSF	4.7	37.19	38.88	141.44	16.91
	LSF	3.43	21.90	30.76	60.32	7.88
	Month 3 Totals	8.1	59.1	69.6	201.8	24.8
4	RSF	3.37	24.53	24.43	78.94	9.74
	FSF	5.31	40.76	43.84	148.01	17.87
	LSF	2.84	18.90	25.87	57.18	7.30
	Month 4 Totals	11.5	84.2	94.1	284.1	34.9
5	RSF	4.80	39.72	39.20	156.65	18.56
	FSF	3.31	30.33	27.32	125.86	14.76
	LSF	1.44	6.12	8.40	6.04	1.17
	Month 5 Totals	9.6	76.2	74.9	288.6	34.5
6	ISF	3.53	28.28	24.91	101.66	12.21
	RSF	4.80	39.72	39.20	156.65	18.56
	FSF	1.49	7.27	8.55	12.92	1.92
	Month 6 Totals	9.8	75.3	72.7	271.2	32.7
7	ISF	3.69	39.40	28.48	180.34	20.69
	RSF	4.02	36.28	32.60	146.74	17.27
	Month 7 Totals	7.7	75.7	61.1	327.1	38.0
8	ISF	3.69	39.40	28.48	180.34	20.69
	RSF	3.41	32.60	27.61	139.48	16.24
	Month 8 Totals	7.1	72.0	56.1	319.8	36.9
9	ISF	3.69	39.40	28.48	180.34	20.69
	RSF	3.41	32.60	27.61	139.48	16.24
	Month 9 Totals	7.1	72.0	56.1	319.8	36.9
10	ISF	5.74	51.34	45.19	211.58	24.78
	RSF	1.50	7.49	8.58	14.29	2.06
	Month 10 Totals	7.2	58.8	53.8	225.9	26.8
11	ISF	5.12	47.32	40.17	202.28	23.53
	Month 11 Totals	5.1	47.3	40.2	202.3	23.5
12	ISF	5.22	47.58	34.14	198.71	23.19
	Month 12 Totals	5.2	47.6	37.1	198.7	23.2
Iris Cluster Maximum Daily		13.9	95.0	112.3	327.1	38.0
ICAPCD Threshold		75	550	100	150	N/A
Exceed Thresholds?		No	No	Yes	Yes	

Source: OB-1 Air Analyses 2014.

TABLE 4.3-11. REGULATED AND MITIGATED CRITERIA TEMPORAL SUMMARY FOR THE IRIS CLUSTER

Month #	Solar Farm	Criteria Emissions (lbs/day)				
		ROG	CO	NO _x	PM ₁₀	PM _{2.5}
1	FSF	2.85	53.62	40.54	86.24	10.62
	LSF	3.45	41.40	49.66	47.30	6.99
	Month 1 Totals	6.3	95.0	90.2	133.5	17.8
2	FSF	1.61	30.33	22.31	54.57	6.66
	LSF	2.47	24.42	32.23	32.49	4.69
	Month 2 Totals	4.1	54.8	54.5	87.1	11.4
3	FSF	2.06	37.19	30.41	61.34	7.64
	LSF	1.33	21.90	24.57	26.36	3.73
	Month 3 Totals	3.4	59.1	55.0	87.7	11.4
4	RSF	1.29	24.53	18.39	34.83	4.50
	FSF	2.27	40.76	34.20	64.24	8.12
	LSF	1.14	18.90	20.85	24.94	3.41
	Month 4 Totals	4.7	84.2	73.4	124.0	16.0
5	RSF	2.16	39.72	30.74	67.90	8.36
	FSF	1.61	30.33	22.31	54.57	6.66
	LSF	0.83	6.12	6.77	2.77	0.67
	Month 5 Totals	4.6	76.2	59.8	125.2	15.7
6	ISF	1.44	28.28	18.87	44.75	5.59
	RSF	0.45	7.12	8.14	7.46	1.05
	FSF	0.88	7.27	6.92	5.74	0.99
	Month 6 Totals	2.8	42.7	33.9	57.9	7.6
7	ISF	1.99	39.40	23.46	78.06	9.24
	RSF	1.92	36.28	26.40	63.64	7.82
	Month 7 Totals	3.9	75.7	49.9	141.7	17.1
8	ISF	1.99	39.40	23.46	78.06	9.24
	RSF	1.71	32.60	22.60	60.44	7.31
	Month 8 Totals	3.7	72.0	46.1	138.5	16.5
9	ISF	1.99	39.40	23.46	78.06	9.24
	RSF	1.71	32.60	22.60	60.44	7.31
	Month 9 Totals	3.7	72.0	46.1	138.5	16.5
10	ISF	2.70	51.34	35.55	91.66	11.13
	RSF	0.89	7.49	6.95	6.33	1.06
	Month 10 Totals	3.6	58.8	42.5	98.0	12.2
11	ISF	2.47	47.32	31.71	87.58	10.52
	Month 11 Totals	2.5	47.3	31.7	87.6	10.6
12	ISF	2.90	47.58	30.50	86.16	10.49
	Month 12 Totals	2.9	47.6	30.5	86.2	10.5
Iris Cluster Maximum Daily		6.3	95.0	90.2	141.7	17.8
ICAPCD Threshold		75	550	100	150	N/A
Exceed Thresholds?		No	No	No	No	

Source: OB-1 Air Analyses 2014.

Operation

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

Operational emissions would include inspection and maintenance activities. The projects would be staffed with 24 full-time employees (6 for each project site) to maintain the project facilities seven days a week during normal daylight hours. Typically, up to 12 staff would work during the day shift (sunrise to

sunset), and the remainder during the night shifts and weekend. To ensure optimal PV (or CPV) output, the solar panels would be maintained 24 hours a day/7 days a week. Each of the individual site components 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. The entire Iris Cluster would require 40 vehicle trips per day during operations (distributed between the four sites). 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. Table 4.3-12 summarizes each project site's total project-related annual operational air emissions. As shown in Table 4.3-12, operational emissions would be below ICAPCD's Tier 1 Regional thresholds for operational emissions. Furthermore, the project applicant is required to submit a Dust Suppression Management Plan for both construction and operations to reduce fugitive dust emissions. The impact is considered **less than significant**.

TABLE 4.3-12. ESTIMATED OPERATIONAL CRITERIA EMISSIONS – IRIS CLUSTER

Solar Farm	Activity Type	Criteria Emissions (lbs/day)				
		ROG	CO	NO _x	PM ₁₀	PM _{2.5}
FSF	Onsite Activity	0.005	0.163	0.022	0.003	0.001
	Offsite Activity	0.059	1.936	0.256	0.031	0.013
	FSF Total	0.06	2.10	0.28	0.03	0.01
RSF	Onsite Activity	0.005	0.163	0.022	0.003	0.001
	Offsite Activity	0.064	2.108	0.278	0.034	0.014
	RSF Total	0.07	2.27	0.30	0.04	0.02
ISF	Onsite Activity	0.005	0.163	0.022	0.003	0.001
	Offsite Activity	0.080	2.626	0.347	0.043	0.018
	ISF Total	0.08	2.79	0.37	0.05	0.02
LSF	Onsite Activity	0.005	0.163	0.022	0.003	0.001
	Offsite Activity	0.033	1.072	0.142	0.017	0.007
	LSF Total	0.04	1.24	0.16	0.02	0.01
Maximum Daily for Iris Cluster		0.3	8.4	1.1	0.1	0.1
ICAPCD Regional Thresholds		55	550	55	150	N/A
Exceed Thresholds?		No	No	No	No	

Source: OB-1 Air Analyses 2014.

Mitigation Measure(s)

The following mitigation measures are required for the FSF, RSF, ISF and LSF, and transmission line.

Fugitive Dust

4.3-2a Construction Equipment. 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 Fugitive Dust Control. 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 as part of the grading permit review/approval process.

ICAPCD Standard Measures for Fugitive Dust (PM₁₀) 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 (PM₁₀) 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 PM₁₀ emissions by 85%.

4.3-2c Vehicular Emissions. Pursuant to ICAPCD Policy Number 5, prior to construction activities, the project applicant shall pay an in-lieu impact fee as determined by ICAPCD using the formula provided in ICAPCD Policy Number 5 to reduce PM₁₀ 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.

4.3-2d Dust Suppression. The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, operations and maintenance building, and Fire Department access/emergency entry/exit points as approved by Fire/OES Department).

- 4.3-2e Dust Suppression Management Plan.** Prior to the issuance of building permits, the project applicant shall submit for the ICAPCD and Imperial County Planning and Development Services Department review and approval an operational “Dust Suppression Management Plan” for both construction and operations. The project applicant shall pay an “Operational Fee” to the ICAPCD for the square footage of the operations and maintenance building and substation pursuant to Rule 310.

Significance After Mitigation

Mitigation Measure 4.3-2a would reduce ROG, NO_x, and CO emissions to a less than significant level. With implementation of fugitive dust control measures (Mitigation Measure 4.3-2b), emissions of PM₁₀ would be below the ICAPCD’s significance threshold during all construction phases for each individual project and for the Iris Cluster. Emissions of NO_x would exceed the ICAPCD’s significance threshold for construction of the Iris Cluster. 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. Implementation of Mitigation Measures 4.3-2d and 4.3-2e would ensure that fugitive dust emissions would be reduced during operations. 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 PM₁₀, 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 followed by a discussion of potential impacts during operation of the projects.

Construction

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

Imperial County is classified as a "serious" non-attainment area for PM₁₀ 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 CO, ROG, and NO_x (ozone precursors). The projects’ 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 level **less than significant**.

Operation

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

The operational impacts associated with the projects were less than significant. However, the proposed projects, in conjunction with cumulative projects could result in a cumulatively considerable impact related to PM₁₀ before implementation of mitigation. With mitigation, a **less than significant** impact is identified. Please refer to Section 6.0 Cumulative Impacts.

Mitigation Measure(s)

No mitigation measures are required.

IMPACT *Expose Sensitive Receptors to Substantial Pollutant Concentrations?*

4.3-4

The projects would result in a temporary increase of PM₁₀, CO, ROG, and NO_x during construction activities, in addition to diesel particulate matter.

Iris Cluster (FSF, RSF, ISF, and LSF)

As shown in Figure 4.3-1, there are residential uses within and adjacent to the project study areas (within approximately 200 feet) some of which have been included in prior environmental analyses for previously approved solar projects in the vicinity of the project study areas. 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. Heavy construction would not 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.

Mitigation Measure(s)

No mitigation measures are required.

IMPACT *Create Objectionable Odors Affecting a Substantial Number of People.*

4.3-5

The projects would not result in objectionable odors during construction and operation.

Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

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. The construction and operation of a solar farm is not an odor producer and the project sites are not located near an odor producer.

No major sources of odors were identified in the vicinity of the project sites that could potentially affect proposed on-site land uses. Development of the projects could generate trace amounts (less than 1 µg/m³) 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. 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 Decommissioning/ Restoration and Residual Impacts

Decommissioning/Restoration

Similar to construction activities, decommissioning and restoration of the project sites would result in certain criteria air emissions above allowable thresholds. A summary of the daily construction emissions for each of the projects is provided in Tables 4.3-5 through 4.3-9. A similar scenario would be expected to 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.

Mitigation Measures 4.3a through 4.3-2c would reduce these impacts to a level **less than significant**.

Residual

The projects 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, PM₁₀, and CO emissions to a less than significant level. Operation of the projects, subject to the approval of a CUP, would be consistent with applicable federal, state, regional, and local plans and policies. Implementation of Mitigation Measures 4.3-2d and 4.3-2e would ensure that fugitive dust emissions would be reduced during operations. The projects would not result in any residual operational significant and unavoidable impacts with regards to air quality.

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