Heber 1 Parasitic Solar Energy Project

Air Quality and Greenhouse Gas Technical Report

Imperial County, CA

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ENVIRONMENTAL SOLUTIONS

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SECTION 1 Introduction

Catalyst Environmental Solutions Corporation (Catalyst) has prepared this report to evaluate the potential for impacts related to air quality and greenhouse gas (GHG) resulting from implementation of the Heber Field Company, LLC (a subsidiary of Ormat Technologies, Inc. [Ormat]) proposed Heber 1 Parasitic Solar Energy Project (Project) in Imperial County, California. This report includes an evaluation of potential impacts associated with construction and operational air emissions and whether Project-induced emissions are in excess of standards established by the applicable local jurisdiction (i.e., Imperial County Air Pollution Control District). Site-specific construction and operations activity information used for air emissions models are based on information provided by ORMAT.

1.1 Project Overview

1.1.1 Project Location and Description

Heber Field Company, LLC is proposing to develop a new, approximately 20 megawatt (MW) solar energy facility and interconnecting cable line (gen-tie line) that will provide parasitic load to the existing Heber 1 Geothermal Complex in Imperial County, California. The Project site is located approximately 1.4 miles south of the town of Heber on privately-owned land inclusive of approximately 106 acres of Assessor's Parcel No. (APN) 059-020-001 (**Figure 1**). The site zone General Agricultural within the Heber geothermal unit and Imperial County renewable energy overlay zone (A-2-GU). Existing land-use includes a residence, geothermal pipeline corridor, storage/laydown area, and alfalfa cultivation. The solar photovoltaic field will provide behind-the-meter power used to offset the auxiliary load of the Heber 1 facility. The solar arrays will effectively allow for the more efficient generation of geothermal energy. The solar facility will not connect to or generate power that will enter the transmission grid; rather, the solar facility will be entirely behind-the-meter and would serve as an integrated part of the operation of the geothermal power plant. The total project area of disturbance from the proposed development is approximately 121.44 acres as summarized in **Table 1**.

Table 1. Heber 1 Parasitic Solar Energy Project Area of Disturbance Estimates

Facility	Disturbance (Acres)
Cable Route (Largest Area of Disturbance Associated with Cable Route 1, 2, or 3)	~15.25 acres
Solar Field	~106.19 acres
TOTAL	**121.44 acres**

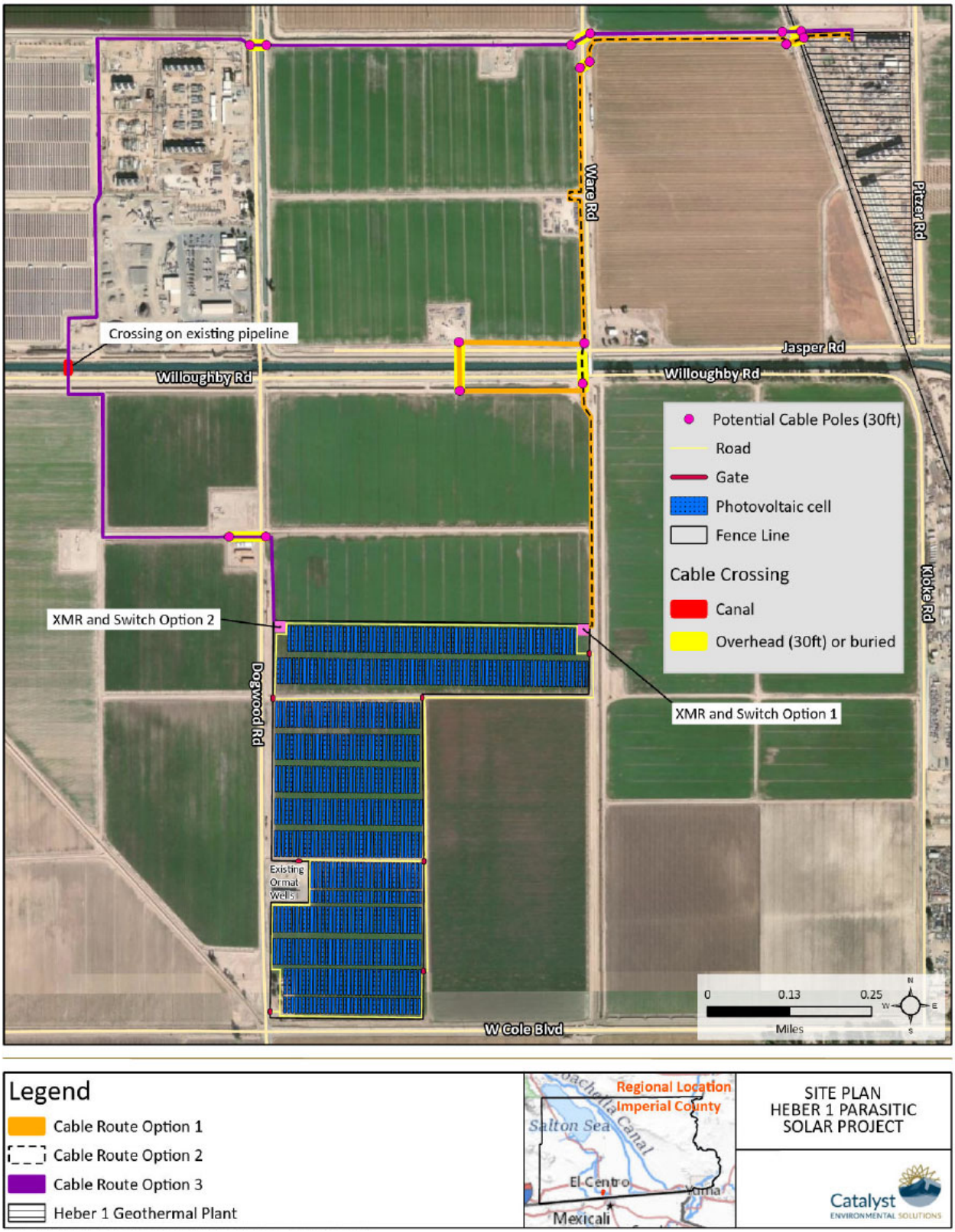

Figure 1. Project Site

1.1.2 Water Use and Source

Water required for facility construction activities, including grading and dust control, will be obtained from the applicant's existing contract with IID. Up to 5,000 gallons per day (gpd) of water will be required for the first 2-4 months of development of the facility. Approximately 2,000 gpd will be consumed during the remaining development schedule of approximately 12-19 months. Thus, approximately 1.1 million gallons of water (10.1 acre-feet) will be used on-site during construction. Once operating, up to approximately 325 gpd (0.36 acre-feet per year) of non-potable water will be required and provided by the applicant's existing IID contract/allocation. The Project will not require additional water from the Imperial Irrigation District (IID) for operations and will be covered under the existing contract.

1.2 Construction Activities

Construction of the proposed facilities is anticipated to occur over an approximate 16- to 19-month period, beginning in late 2025. Facility construction would include site preparation activities including demolition of the existing structures/buildings at the solar field site. **Table 2** below provides a breakdown of the proposed construction schedule by phase and duration. Some construction activities will occur concurrently as facilities are installed simultaneously, as noted by the Phase Duration column not summing Activity Durations perfectly.

Table 2. Project Construction Process/Phasing

Construction Phase	Construction Activity	Activity Duration	Phase Duration
Site Preparation	Construction Kick-off/Staging	1 week	2 months
	Demolition/Site Clearing	1 week	
	Site Preparation/Rough Grading	2 weeks	
	Fine/Pad Grading, Excavation for Underground Conduit/Utilities, Stormwater	1 month	
Project Construction	Parasitic Solar Construction	6 months	11 months
	Gen-tie distribution cable	4 months	
	Landscaping, Lighting, Architectural Finishes	1 month	
Switch Development & Interconnection	Switch Development	5 months	6 months
	Interconnection with grid	2 weeks	
	Testing	2 weeks	

The estimated construction equipment and vehicle and truck trip counts associated with construction activities are detailed **Table 3** and **Table 4**, respectively.

Table 3. Project Construction Equipment List by Project Activity

Construction Phase	Equipment	Quantity	Engine Horsepower	No. Days Used	No. Hours Operated Per Day
Site Preparation (Plant Site and Solar Fields) (2 Months)	Heavy Duty Trucks	3	402	30	5
	Excavator	1	97	30	8
	Roller	2	200	30	8
	Light-Duty Truck	8	350	30	4
Project Construction (11 Months)	Aerial Man Lifts	8	63	160	6
	Excavator	1	97	40	8
	Crane	2	231	160	6
	Forklift	1	89	40	8
	Forklift	6	89	245	8
	Generator Set	1	84	320	8
	Grader	1	187	30	8
	Heavy Duty Trucks	2	402	90	8
	Rubber Tired Loader	1	203	30	8
	Backhoe	1	97	30	8
	Welders	15	46	245	6
	Light Duty Truck	1	350	40	4
	Light Duty Truck	15	350	245	4
Switch Development and Interconnection (6 Months)	Crane	1	231	80	8
	Drill/Bore Rig	1	221	80	8
	Aerial Lift	2	63	80	8
	Heavy Duty Trucks (Delivery)	2	402	20	4
	Backhoe	1	97	14	8
	Forklift	1	89	80	8
	Ditch Digger	1	13	20	8
	Generator Set	2	84	80	8
	Light Duty Truck	5	350	80	4

Table 4. Construction Vehicle Trips

Construction Phase	Trip Type	Number of One-Way Trips per Day	One-Way Trip Length (miles)[2]
Site Preparation	Workers[1]	46	10.2
	Vendor	10	11.9
	Haul	8	20
Project Construction	Workers[1]	46	10.2
	Vendor	40	225
	Haul	2	20
Switch Development and Interconnection	Workers[1]	46	10.2
	Vendor	10	11.9
	Haul[3]	0	20

Notes:

[1] Trip generation rate is calculated at roughly 3 trips/worker (assumed 50 percent of 15 workers leave/return once during the day) for a total of 46 trips, and 2 trips/vehicle (in/out) for vendor and haul trips.

[2] Trip lengths consist of default CalEEMod values with exception of vendors for delivery of Project equipment during construction, with deliveries of solar panels, etc. assumed to originate at Port of Long Beach, approximately 225 miles from Project site.

[3] All truck trips are assigned to vendor deliveries.

1.3 Operation Activities

Once the proposed Project is complete, the proposed Project would generally be unstaffed but would require routine maintenance and unscheduled maintenance as needed. The parasitic solar facilities will be monitored remotely with visitation on an as-needed basis, and security personnel will perform periodic site visits. Any required planned maintenance activities would generally consist of equipment inspection and replacement and would be scheduled to avoid peak load periods. Any unplanned maintenance would be responded to as needed, depending on the event.

The proposed switchgear includes new circuit breakers that would potentially be insulated with SF_6. Note that CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kB). In the case that SF_6 alternative technology is available and approved prior to construction, the proposed Project would not require SF_6 for project operations. For the purpose of this analysis, it is assumed that a maximum of three circuit breakers will be insulated with SF_6 with an estimated 25 pounds of SF_6 gas per circuit breaker resulting in a total of 75 pounds of SF_6 gas required at the site. Consistent with the International Electrotechnical Commission (IEC) standard for new equipment leakage, a 0.5% per year leakage rate is assumed (United States Environmental Protection Agency [USEPA] 2016). Accordingly, an estimated 0.375 pounds of SF_6 would be released annually.

SECTION 2 Existing Conditions

The Project is located in Imperial County within the Salton Sea Air Basin (SSAB). The Imperial County portion of the SSAB is under the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD). The SSAB encompasses the entirety of Imperial County and the southeast portion of Riverside County and is generally an arid desert region, with a significant land area located below sea level. The hot and dry conditions experienced in the region are a result of a large, semi-permanent high-pressure area that dominates the Imperial Valley and the presence of the coastal mountains to the west. The high pressure blocks most storms, except during the winter when the pressure is the weakest and tends to shift to the south.

The coastal mountains tend to block moist air from entering the valley resulting in hot temperatures during the summer and dry weather year-round. The SSAB contains relatively few major emissions sources, but may experience emissions transported from Mexicali, Mexico and from significant vehicular traffic, particularly near the two international ports of entry: Calexico West and Calexico East. Emissions sources within the SSAB consist of geothermal power generation, food processing, plaster and wallboard (gypsum) manufacturing, and other light industrial facilities.

The federal Clean Air Act (CAA), as amended, and the California Clean Air Act (CCAA) contain the primary provisions relating to air quality that apply to the Project. The EPA, CARB, and regional air districts have issued rules to implement the federal and state Clean Air Acts. The EPA uses “criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health and the environment may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. Under the CAA, the EPA has established NAAQS for seven criteria pollutants: ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), and sulfur dioxide (SO_2). California has established State Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide [H_2S]). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the California standards have no specific dates for attainment, unlike federal standards. Under California law, designations are made by pollutant, rather than by averaging time. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas.

2.1 Criteria Air Pollutants

A criteria air pollutant is any air pollutant for which ambient air quality standards (criteria) have been set by the USEPA (National Ambient Air Quality Standards [NAAQS]) or California Air Resources Board (CARB) (California Ambient Air Quality Standards [CAAQS]). The presence of these pollutants in ambient air is generally due to numerous diverse and widespread sources of emissions, and air quality standards have been established for these pollutants to protect public health. Criteria pollutants include ozone

(O_3), fine particulate matter ($PM_{2.5}$), respirable particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), sulfur dioxide (SO_2), visibility-reducing particles, sulfates, and hydrogen sulfide (H_2S).

Table 5 shows the state and federal ambient air quality standards while **Table 6** presents the attainment status of the SSAB for the state and federal standards. As shown, the Imperial County portion of the SSAB is currently designated as nonattainment for O_3 and PM_{10} under state standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O_3 and $PM_{2.5}$ and is in attainment for PM_{10}. The area is currently in attainment or unclassified status for CO, NO_2, and SO_2.

Table 5. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Period	California Standard	Federal Standard
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	Revoked
Ozone (O_3)	8 hour	0.070 ppm (137 µg/m^3)	0.07 ppm (137 µg/m^3)
Respirable Particulate Matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3
PM_{10}	Annual	20 µg/m^3	Revoked
Fine Particulate Matter ($PM_{2.5}$)	24 hour	none	35 µg/m^3
$PM_{2.5}$	Annual	12 µg/m^3	9 µg/m^3
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
CO	8 hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)
NO_2	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Lead (Pb)	30 Day Average	1.5 µg/m^3	--
Pb	Rolling three-month period, evaluated over a three-year period	--	0.15 µg/m^3
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)
SO_2	3 hour	--	0.5 ppm (1300 µg/m^3)
SO_2	24 hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)

Pollutant	Averaging Period	California Standard	Federal Standard
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m^3)	--
Sulfates	24 hour	25 µg/m^3	--
Vinyl Chloride	24 hour	0.010 ppm (26 µg/m^3)	--
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 percent)	--

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

Table 6. Attainment Status – Imperial Valley Portion of the SSAB

Pollutant	California Designation	Federal Designation
Ozone (O_3)	Nonattainment	Nonattainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment
Fine Particulate Matter ($PM_{2.5}$)	Attainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassified/Attainment
Lead (Pb)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO_2)	Attainment	Unclassified/Attainment
Hydrogen Sulfide (H_2S)	Unclassified	No Federal Standards
Sulfates	Attainment	No Federal Standards
Visibility Reducing Particles	Unclassified	No Federal Standards

Source: CARB 2023

2.1.1 Ozone

O_3 is formed in the atmosphere by a series of complex chemical reactions and transformations in the presence of sunlight. Oxides of nitrogen (NO_X) and reactive organic gases (ROGs) are the principal constituents in these reactions. O_3 is a pungent, colorless, toxic gas and is a primary component of smog.

O_3 is known as a secondary pollutant because it is formed in the atmosphere through a complex series of chemical reactions, rather than emitted directly into the air. The major sources of NO_X in California are motor vehicles and other combustion processes. The major sources of ROGs in California are motor vehicles and the evaporation of chemical solvents and fuels.

O_3 is a strong irritating gas that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen to the body. People most likely to be affected by O_3 include the elderly, the young, athletes, and those who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis.

2.1.2 PM_{10}

PM_{10}, or fugitive dust, consists of particulate matter (fine dusts and aerosols) that is ten microns or smaller in aerodynamic diameter. For reference, ten microns is about one-seventh the width of a human hair. When inhaled, particles larger than 10 microns are generally caught in the nose and throat and do not enter the lungs. PM_{10} gets into the large upper branches of the lungs just below the throat, where they are caught and removed (by coughing, spitting, or swallowing).

The primary sources of PM_{10} include dust, paved and unpaved roads, diesel exhaust, acidic aerosols, construction and demolition operations, soil and wind erosion, agricultural operations, residential wood combustion, and smoke. Secondary sources of PM_{10} include tailpipe emissions and industrial sources. These sources have different constituents and therefore, varying effects on health. Airborne particles absorb and adsorb toxic substances and can be inhaled and lodge in the lungs. Once in the lungs, the toxic substances can be absorbed into the bloodstream and carried throughout the body. PM_{10} concentrations tend to be lower during the winter months because meteorology greatly affects PM_{10} concentrations. During rainfall events, concentrations are relatively low, and on windy days, PM_{10} levels can be high. Photochemical aerosols, formed by chemical reactions with manmade emissions, may also influence PM_{10} concentrations.

Elevated ambient particulate levels are associated with premature death, an increased number of asthma attacks, reduced lung function, aggravation of bronchitis, respiratory disease, and cancer.

2.1.3 $PM_{2.5}$

$PM_{2.5}$ is a mixture of particulate matter (fine dusts and aerosols) that is 2.5 microns or smaller in aerodynamic diameter. For reference, 2.5 micrometers is approximately 1/30 the size of a human hair, so small that several thousand of these particles could fit on the period at the end of this sentence. $PM_{2.5}$ can travel into the deepest portions of the lungs where gas exchange occurs between the air and the bloodstream. These particles are very dangerous because the deepest portions of the lungs have no efficient mechanisms for removing them. If these particles are soluble in water, they pass directly into the bloodstream within minutes. If they are not soluble in water, they are retained deep in the lungs and can remain there permanently.

$PM_{2.5}$ particles are emitted from activities such as industrial and residential combustion processes, wood burning, and from diesel and gasoline-powered vehicles. They are also formed in the atmosphere from gases such as SO_2, NO_X, ammonia, and volatile organic compounds that are emitted from combustion

activities, and then become particles as a result of chemical transformations in the air (secondary particles).

Exposure to $PM_{2.5}$ increases the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death. Other effects include increased respiratory stress and disease, decreased lung function, alterations in lung tissue and structure, and alterations in respiratory tract defense mechanisms.

2.1.4 Carbon Monoxide

CO is a common colorless, odorless, highly toxic gas. It is produced by natural and anthropogenic combustion processes. The major source of CO in urban areas is incomplete combustion of carbon containing fuels (primarily gasoline, diesel fuel, and natural gas). However, it also results from combustion processes, including forest fires and agricultural burning. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. Ambient CO concentrations are generally higher in the winter, usually on cold, clear days and nights with little or no wind. Low wind speeds inhibit horizontal dispersion, and surface inversions inhibit vertical mixing. Traffic-congested intersections have the potential to result in localized high levels of CO. These localized areas of elevated CO concentrations are termed CO "hotspots". CO hotspots are defined as locations where ambient CO concentrations exceed the CAAQS (20 parts per million (ppm), 1-hour; 9 ppm, 8-hour).

When inhaled, CO does not directly harm the lungs; rather, it combines chemically with hemoglobin, the oxygen-transporting component of blood and diminishes the ability of blood to carry oxygen to the brain, heart, and other vital organs. Red blood cells have 220 times the attraction for CO than for oxygen. This affinity interferes with movement of oxygen to the body's tissues. Effects from CO exposure include headaches, nausea, and death. High levels of CO in a concentrated area can result in asphyxiation.

2.1.5 Nitrogen Dioxide

NO_2 is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish-brown gas with an odor similar to that of bleach. NO_2 participates in the photochemical reactions that result in O_3. The greatest source of NO, and subsequently NO_2, is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers. NO_2 and NO are referred to collectively as NO_X.

NO_2 can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Negative health effects are apparent after exposure to NO_2 levels as low as 0.11 ppm for a few minutes. This level of exposure may elicit or alter sensory responses. Higher concentrations (0.45 - 1.5 ppm) may cause impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons.

2.1.6 Lead

Lead is a bluish-gray metal that occurs naturally in small quantities. Pure lead is insoluble in water. However, some lead compounds are water soluble. Lead and lead compounds in the atmosphere often come from fuel combustion sources, such as the burning of solid waste, coal, and oils. Historically, the

largest source of lead in the atmosphere resulted from the combustion of leaded gasoline in motor vehicles. However, with the phase-out of leaded gasoline, concentrations of lead in the air have substantially decreased. Industrial sources of atmospheric lead include steel and iron factories, lead smelting and refining, and battery manufacturing. Atmospheric lead may also result from lead in entrained dust and dirt contaminated with lead.

Acute health effects of lead include gastrointestinal distress (such as colic), brain and kidney damage, and even death. Lead also has numerous chronic health effects, including anemia, central nervous system damage, reproductive dysfunction, as well as effects on blood pressure, kidney function, and vitamin D metabolism. The USEPA's Office of Air Quality Planning and Standards ranks lead as a "high concern" pollutant based on its severe chronic toxicity.

2.1.7 Sulfur Dioxide

SO_2 is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM_{10}. Most of the SO_2 emitted into the atmosphere is from the burning of sulfur-containing fossil fuels by mobile sources, such as marine vessels and farm equipment, and stationary fuel combustion.

SO_2 irritates the mucous membranes of the eyes and nose, and may also affect the mouth, trachea, and lungs, causing sore throat, coughing, and breathing difficulties.

2.2 Toxic Air Contaminants

Toxic air contaminants (TACs), also referred to as hazardous air pollutants, are air pollutants (excluding O_3, CO, SO_2, and NO_2) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunction, neurological disorders, heritable gene mutations, or other serious or irreversible acute or chronic health effects in humans. TACs are regulated under different federal and state regulatory processes than O_3 and the other criteria air pollutants. Health effects of TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TACs generally consist of four types: 1) organic chemicals such as benzene, dioxins, toluene, and perchloroethylene; 2) inorganic chemicals such as chlorine and arsenic; 3) fibers such as asbestos; and 4) metals such as mercury, cadmium, chromium, and nickel. These air contaminants are defined by the USEPA, the State of California, and other governmental agencies. Currently, more than 900 substances are regulated TACs under federal, state, and local regulations.

TACs are produced by a variety of sources, including industrial facilities such as refineries, chemical plants, chrome plating operations, and surface coating operations; commercial facilities such as dry cleaners and gasoline stations; motor vehicles, especially diesel-powered vehicles; and consumer products. TACs can be released as a result of normal industrial operations, as well as from accidental releases during process upset conditions.

Health effects from TACs vary with the type of pollutant, the concentration of the pollutant, the duration of exposure, and the exposure pathway. TACs usually get into the body through inhalation, though they can also be ingested or absorbed through the skin. Adverse effects on people tend to be either acute or chronic. Acute effects result from short-term, high levels of airborne toxic substances.

These effects may include nausea, skin irritation, cardiopulmonary distress, and even death. Chronic effects result from long-term, low-level exposure to airborne toxic substances. Effects can range from relatively minor to life-threatening. Less serious chronic effects include skin rashes, dry skin, coughing throat irritation, and headaches. More serious chronic effects include lung, liver, and kidney damage; nervous system damage; miscarriages; genetic and birth defects; and cancer. Many TACs can have both carcinogenic and non-carcinogenic health effects.

2.3 Other Issues of Concern

2.3.1 Odors

Odors are substances in the air that pose a nuisance to nearby land uses such as residences, schools, daycare centers, and hospitals. Odors are typically not a health concern but can interfere with the use and enjoyment of nearby property. Odors may be generated by a wide variety of sources. The odor associated with decomposing organic material (such as plants removed from ponds and left to decay) may also be considered to be objectionable. Objectionable odors created by a facility or operation may cause a nuisance or annoyance to adjacent populations.

2.3.2 Fugitive Dust

Fugitive dust refers to solid particulate matter that becomes airborne because of wind action and human activities. Fugitive dust particles are mainly soil minerals, but can also be sea salt, pollen, spores, tire particles. About half of fugitive dust particles (by weight) are larger than 10 microns and settle quickly. Fugitive dust particles 10 microns or smaller (i.e., PM_{10}) can remain airborne for weeks.

The primary sources of fugitive dust are grading and excavation operations associated with road and building construction, aggregate mining and processing operations, and sanitary landfill operations. Unpaved roadways are also a large source of fugitive dust. Other sources of fugitive dust include demolition activities, unpaved roadway shoulders, vacant lots, material stockpiles, abrasive blasting operations, and off-road vehicle use. The amount of fugitive dust created by such activities is dependent largely on the type of soil, type of operation taking place, size of the area, degree of soil disturbance, soil moisture content, and wind speed.

When fugitive dust particles are inhaled, they can travel easily to the deep parts of the lungs and may remain there, causing respiratory illness, lung damage, and even premature death in sensitive people. Fugitive dust may also be a nuisance to those living and working nearby. Dust blown across roadways can lead to traffic accidents by reducing visibility. Fugitive dust can soil and damage materials and property, such as fabrics, vehicles, and buildings. Particulates deposited on agricultural crops can lower crop quality and yield. Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever, a potential health hazard caused by a fungus that lives in certain soil types throughout California.

2.4 Greenhouse Gas

Recent significant changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near Earth's surface. Global warming has been attributed to the accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat

in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities appears to be closely associated with global warming.

The standard state definition of GHG includes six substances: carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF_6) (CARB 2014). Tropospheric O_3 (a short-lived, not-well-mixed gas) and black carbon are also important climate pollutants. CO_2 is the most abundant GHG, and collectively CO_2, CH_4, and N_2O amount to 80 percent of GHG effects.

For each GHG, a global warming potential (GWP) has been calculated to reflect how long emissions remain in the atmosphere and how strongly energy is absorbed on a per-kilogram basis relative to CO_2. GWP is a metric that indicates the relative climate forcing of a kilogram of emissions when averaged over the period of interest (both 20-year and 100-year horizons are used for the GWPs shown in **Table 7**). To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent of CO_2, denoted as CO_2e. CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect.

Table 7. Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide	100	1	1
Nitrous Oxide	121	264	265
Nitrogen Triflouride	500	12,800	16,100
Sulfur Hexafluoride	3,200	17,500	23,500
Perfluorocarbons	3,000-50,000	5,000-8,000	7,000-11,000
Black Carbon	days to weeks	270-6,200	100-1,700
Methane	12	84	28
Hydrofluorocarbons	Uncertain	100-11,000	100-12,000

Source: CARB 2014

The primary effect of rising global concentrations of atmospheric GHG is a rise in the average global temperature of approximately 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide, which would induce further changes in the global climate system during the current century.

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade. However, there remain significant scientific uncertainties. For example, uncertainties exist in predictions of local effects of climate change, occurrence of extreme weather

events, and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the climate system, the uncertainty surrounding the implications of climate change may never be eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or would cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it may not be possible to link specific development projects to future specific climate change impacts, though estimating project-specific impacts is possible.

2.5 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields.

There are numerous sensitive receptors in proximity to Project components including residences and Heber Elementary School. **Table 8** summarizes the sensitive receptors in the Project area and distance to the nearest Project components.

Table 8. Sensitive Receptors in Proximity to Project Components.

Sensitive Receptor	Nearest Project Component	Distance to Nearest Project Component
Residence (104 Jasper Rd.)	Cable Route Option 1	390
Residence (97 W. Cole Blvd.)	Heber 1 Parasitic Solar Field	2,695
Residential Area (E. Fawcett Rd.)	Cable Route Option 2	2,700
Residences (153, 185, 195 E. Cole Blvd.)	Heber 1 Parasitic Solar Field	2,735
Heber Elementary School	Cable Route Option 2	3,050

SECTION 3 Regulatory Framework

Federal, state, and local regulations and policies that may apply to the proposed Project emissions are described below.

3.1 Federal

3.1.1 Clean Air Act

The Federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, is the primary federal law that governs air quality. The Federal CAA delegates primary responsibility for clean air to the U.S. EPA. The U.S. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the U.S. EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone, CO, NO_2, SO_2, Pb, and PM (Including both PM_{10}, and $PM_{2.5}$) are the six criteria air pollutants. Ozone is a secondary pollutant, nitrogen oxides (NO_X) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. In addition, national standards exist for Pb. The NAAQS standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision.

The Federal CAA requires U.S. EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized above in **Table 5**.

3.1.2 Mandatory Reporting of Greenhouse Gases (Title 40, Part 98 of the Code of Federal Regulations)

Under Subpart DD, owners and operators of electric power system facilities with a total nameplate capacity that exceeds 17,820 lbs (7,838 kg) of sulfur hexafluoride (SF_6) and/or perfluorocarbons (PFCs) must report emissions of SF_6 and/or PFCs from the use of electrical transmission and distribution equipment. Owners and operators are required to collect emissions data, calculate GHG emissions, and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting per the requirements of 40 CFR Part 98 Subpart DD – Electric Transmission and Distribution Equipment Use.

3.2 State

3.2.1 California Clean Air Act

The California Clean Air Act (CCAA) was adopted by CARB in 1988. The CCAA is responsible for meeting the state requirements of the Federal CAA and for establishing the CAAQS. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The CCAA, as amended in 1992, requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous 3 calendar years. As shown in **Table 5**, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment.

3.2.2 California State Implementation Plan

The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. State law makes CARB the lead agency for all purposes related to the SIP.

Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP.

3.2.3 Toxic Air Contaminants Regulation

Toxic Air Contaminant (TAC) sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources (i.e., Diesel Particulate Matter [DPM]).

In August 1998, ARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles. The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.).

3.2.4 Executive Order S-3-05

On June 1, 2005, Executive Order S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. It calls for the Secretary of CalEPA to be responsible for coordination of state agencies and progress reporting.

3.2.5 Executive Order B-30-15

In April 2015, Governor Edmund Brown issued an Executive Order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's Executive Order S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In

addition, the Executive Order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

3.2.6 Assembly Bill 32 (AB 32)

In September 2006, the California Global Warming Solutions Act of 2006, also known as AB 32, was signed into law. AB 32 focuses on reducing GHG emissions in California and requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. CARB initially determined that the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit was 427 $MMTCO_2e$. The 2020 target reduction was estimated to be 174 $MMTCO_2e$.

To achieve the goal, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved.

3.2.7 Senate Bill 32 (SB 32)

Senate Bill (SB) 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires the state board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

3.2.8 Senate Bill 375 (SB 375)

Acknowledging the relationship between land use planning and transportation sector GHG emissions, Senate Bill (SB) 375 was passed by the State Assembly on August 25, 2008, and signed by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the GHG reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating employment opportunities close to transit.

Under SB 375, each Metropolitan Planning Organization (MPO) would be required to adopt a Sustainable Community Strategy (SCS) to encourage compact development that reduce passenger vehicle miles traveled (VMT) and trips so that the region will meet a target, created by CARB, for reducing GHG emissions. If the SCS is unable to achieve the regional GHG emissions reduction targets, then the MPO is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measure.

3.2.9 Southern California Association of Governments

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the *2020–2045 Regional Transportation Plan/Sustainable Communities Strategy* (2020–2045 RTP/SCS) on September 3 ,2020. The 2020–2045 RTP/SCS reaffirms the land use policies that were incorporated into the 2016–2040 RTP/SCS. The 2020-2045 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving a 19 percent reduction by 2035 compared

to the 2005 level on a per capita basis. Compliance with and implementation of 2020 RTP/SCS policies and strategies would have co-benefits of reducing per capita criteria air pollutant emissions associated with reduced per capita VMT.

3.2.10 Climate Change Scoping Plan

In 2008, CARB approved the original Climate Change Scoping Plan as required by AB 32. Subsequently, CARB approved updates to the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32. In December 2022, CARB approved the final version of California's 2022 Climate Change Scoping Plan (2022 Scoping Plan Update), which outlines the proposed framework of action for achieving California's new AB 1279 2045 GHG target: an 85 percent reduction in GHG emissions by 2045 relative to 1990 levels. The original Climate Change Scoping Plan proposed a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. The original Climate Change Scoping Plan identified a range of GHG reduction actions that included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. The 2022 Scoping Plan Update focuses on strategies for reducing California's dependency on petroleum to provide customers with clean energy options that address climate change and support clean sector jobs. SB 350 and other regulations are expected to decarbonize the electricity sector over time.

3.2.11 California Green Building Standards (CALGreen Code)

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2017. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The 2022 CALGreen code updates were effective as of January 1, 2023 with the 2025 CALGreen code going into effect January 1, 2026.

The California Energy Code (California Code of Regulations, Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. Compliance with Title 24 is enforced through the building permit process.

3.2.12 Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (Title 17, Sections 95350-95359 of the California Code of Regulations)

The California Air Resources Board (CARB) adopted this rule in 2011 to reduce SF_6 emissions from gas insulated switchgear (GIS) and circuit breakers that use SF_6 as an electrical insulating medium. In

response to emerging technologies using lower or zero GWP insulators, CARB amended the regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV; January 1, 2029 for voltage between 145 and 245 kV; and January 1, 2031 for voltage greater than 245 kV), coverage of other GHGs beyond sulfur hexafluoride used in gas-insulated equipment, and other changes that enhance accuracy of emissions accounting and reporting.

3.3 Regional

3.3.1 Imperial County Air Pollution Control District

The ICAPCD is the agency responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. 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 ICAPCD. ICAPCD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases. Monitoring of ambient air quality in Imperial County began in 1976. Since that time, monitoring has been performed by ICAPCD, CARB, and by private industry.

There are six monitoring sites in Imperial County from Niland to Calexico. The ICAPCD has developed the following plans to achieve attainment for air quality ambient standards:

- 2009 Imperial County Plan for PM_{10}
- 2013 Imperial County Plan for 2006 24-hour $PM_{2.5}$ for Moderate Nonattainment Area
- 2017 Imperial County Plan for 2008 8-hour Ozone Standard
- 2018 Imperial County Plan for PM_{10}
- 2018 Redesignation Request and Maintenance Plan for PM_{10}
- 2018 Imperial County Plan for $PM_{2.5}$

In addition to the above plans, the ICAPCD is working cooperatively with counterparts from Mexico to implement emissions reductions strategies and projects for air quality improvements at the border. The two countries strive to achieve these goals through local input from states, county governments, and citizens. Within the Mexicali and Imperial Valley area, the Air Quality Task Force has been organized to address those issues unique to the border region known as the Mexicali/Imperial air shed.

The Air Quality Task Force membership includes representatives from federal, state, and local governments from both sides of the border, as well as representatives from academia, environmental organizations, and the general public. This group was created to promote regional efforts to improve the air quality monitoring network, emissions inventories, and air pollution transport modeling development, as well as the creation of programs and strategies to improve air quality.

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the CEQA Guidelines to provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the

assessment and mitigation of GHG and climate change impacts. Formal CEQA thresholds for lead agencies must always be established through a public hearing process. Imperial County has not established formal quantitative or qualitative thresholds through a public rulemaking process, but CEQA permits the lead agency to establish a project-specific threshold of significance if backed by substantial evidence, until such time as a formal threshold is approved. The ICAPCD has not adopted thresholds of significance for projects' GHG emissions.

3.3.2 Imperial County Air Pollution Control District Rules and Regulations

ICAPCD has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions or 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 106 – Abatement. The Board may, after notice and a hearing, issue, or provide for the issuance by the Hearing Board, of an order for abatement whenever the District finds that any person is in violation of the rules and regulations limiting the discharge of air contaminants into the atmosphere.

Rule 107 – Land Use. The purpose of this rule is to provide ICAPCD the duty to review and advise the appropriate planning authorities within the District on all new construction or changes in land use which the Air Pollution Control Officer believes could become a source of air pollution problems.

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

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

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

Rule 310 – Operational Development Fee. The purpose of this rule is to provide 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 ICAPCD in attaining the state and federal ambient air quality standards for PM_{10} and O_3.

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

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

Rule 405 – Sulfur Compounds Emissions Standards, Limitations and Prohibitions. Rule 405 applies to the discharge of sulfur compounds into the atmosphere and limits emissions of sulfur compounds (calculated as sulfur dioxide SO_2) in excess of 0.2 percent by volume.

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.

Rule 801 – Construction and Earthmoving Activities. Rule 801 aims to reduce the amount of PM_{10} entrained in the ambient air as a result of emissions generated from construction and other earthmoving activities by requiring actions to prevent, reduce, or mitigate PM_{10} emissions. This rule applies to any construction and other earthmoving activities, including, but not limited to, land clearing, excavation related to construction, land leveling, grading, cut and fill grading, erection or demolition of any structure, cutting and filling, trenching, loading or unloading of bulk materials, demolishing, drilling, adding to or removing bulk of materials from open storage piles, weed abatement through disking, back filling, travel on-site and travel on access roads to and from the site.

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

Rule 903 – Potential to Emit. Rule 903 applies to any stationary source that would have the potential to emit hazardous air pollutants (HAPs). Rule 903 provides *de minimis* emission levels of 20,000 MTCO2e per year of GHG, 5 tons per year of a regulated air pollutant (excluding HAPs and GHG), 2 tons per year of a single HAP, and 5 tons per year of any combination of HAPs, where if a stationary source produces less emissions less than the *de minimis* emission levels, the source is exempt from Rule 903 recordkeeping and reporting requirements.

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
- Use of a track-out control device or wash down system at access points to paved roads.

Compliance with Regulation VIII is mandatory for 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 ICAPCD.

3.3.3 Southern California Association of Governments – 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

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.

On September 3, 2020, SCAG adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2020). The RTP/SCS or "Connect SoCal" includes a strong commitment to reduce emissions from transportation sources to comply with Senate Bill 375, improve public health, and meet the NAAQS as set forth by the federal CAA.

3.3.4 Imperial County Regional Climate Action Plan

Led by the Imperial County Transportation Commission (ICTC) through funding from SCAG, the Imperial Valley Regional Climate Action Plan (Regional CAP; 2021) was developed to address the impacts of climate change and reduce GHG emissions in the Imperial Valley region which includes the County of Imperial (County) and the cities of Brawley, Calexico, Calipatria, Holtville, El Centro, Imperial, and Westmorland. The Regional CAP is consistent with and complementary to statewide legislation and regulatory mandates, and establishes local strategies, measures, and actions aimed at reducing GHG emissions. Specifically, the Regional CAP is used as a regional guidance document for reducing GHG emissions and identifies:

- relevant state legislation requiring the documents preparation and target setting;
- actions that will be taken by the regional agencies to reduce emissions across all jurisdictions and support the funding of future emissions reducing activities; and
- measures and actions that will be taken by local governments to reduce GHG emission and meet local emissions gaps.

3.3.5 Imperial County General Plan

The Imperial County General Plan serves as the overall guiding policy for the County and contains goals, objectives, policies and/or programs to conserve the natural environment of Imperial County, including air quality and GHGs. The Imperial County General Plan does not contain any goals, objectives, policies or programs that directly pertain to GHGs at the project-level. 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 following summarizes the goals and policies with respect to air quality applicable to the proposed Project:

Goal 7: The County shall actively seek to improve the quality of air in the region.

Objective 7.1: Ensure that all project and facilities comply with current Federal, State, and local requirements for attainment of air quality objectives.

Objective 7.2: Develop management strategies to mitigate fugitive dust. Cooperate with all Federal, State and local agencies in the effort to attain air quality objectives.

Objective 7.3: Work cooperatively with the EPA and CARB in evaluating air quality monitoring in Imperial County.

Objective 7.4: Enforce and monitor environmental mitigation measures relating to air quality.

Objective 7.5: Coordinate efforts with Imperial County Transportation Commission (ICTC) and other appropriate agencies to reduce fugitive dust from unpaved streets.

Objective 7.6: Explore and assess strategies to reduce greenhouse gas emissions in the County.

SECTION 4 Environmental Impacts

4.1 Methodology

This impacts analysis evaluates the potential for the Project and its varying components (described in **Section 1.0**) to impact the air quality resource within the Project area and GHGs. The Final Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update was also consulted for project impact potential and appropriate mitigation measures approved by the County.

4.1.1 Construction

Construction of the Project was assumed to begin in late 2025 and was estimated to take up to 19 months to complete. The Project would result in both short-term and long-term emissions of air pollutants associated with construction and operations. Construction emissions would include exhaust from the operation of conventional construction equipment, on-road emissions from employee vehicle trips and haul truck trips, fugitive dust as a result of grading and vehicle travel on paved and unpaved surfaces.

Construction emissions were estimated using the latest version of California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model utilizes widely accepted federal and state models for emission estimates and default data from sources such as U.S. EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC). CalEEMod inputs for construction activities consist of the data provided for offroad equipment operations detailed in **Table 2** and vehicle miles traveled detailed in **Table 3** above. Default CalEEMod inputs were used for modeling where Project-specific details were not readily ascertainable (e.g., fleet mix and trip length).

4.1.2 Operations

Air emission sources associated with Project operations, the proposed XMR and Switch includes new circuit breakers that would potentially be insulated with SF_6. CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kB). In the case that SF_6 alternative technology is available and approved prior to construction, the proposed Project would not require SF_6 for project operations. Consistent with the International Electrotechnical Commission (IEC) standard for new equipment leakage, a 0.5% per year leakage rate is assumed (United States Environmental Protection Agency [USEPA] 2016).

As presented in **Section 1.3**, the solar facilities would be unstaffed but would require routine maintenance and unscheduled maintenance as needed. Accordingly, annual maintenance trips to the site are conservatively assumed to be up to two one-way trips daily during weekdays and during weekends. Such visits to the site include inspections, equipment servicing, site maintenance, and periodic washing of the photovoltaic modules at the solar plants. Indirect sources of emissions include those associated with energy consumption, water use, wastewater treatment, and solid waste disposal. However, operation of the solar facility would offset greenhouse gas emissions by replacing energy generated by fossil fuel power plants (i.e., the Project would generate up to 20 MW of energy that would offset the auxiliary load of the Heber 1 facility and be used in place of electricity generated by fossil fuel sources). Once operating, up to approximately 325 gallons per day (0.36 acre-feet per year) of non-potable water will be required and provided by the applicant's existing IID contract/allocation. Indirect emissions associated with operational water use are estimated using CalEEMod 2022.1 default energy intensity factors for the Colorado River Hydrologic Region. Geothermal facilities and solar farms are not known to generate substantial quantities of solid waste or wastewater. As such, Project operations solid waste and wastewater emissions would not represent a measurable increase in GHG emissions and are considered to be negligible.

4.2 Thresholds of Significance

The ICAPCD has established significance thresholds based on the state CEQA significance criteria. adopted guidelines for implementation of CEQA in its CEQA Air Quality Handbook (ICAPCD 2017). The ICAPCD recommended thresholds of significance are discussed below.

During operations, any development with a potential to emit criteria pollutants below significance levels defined by the ICAPCD is referred to as a "Tier I Project," and is considered to have less than significant potential adverse impacts on local air quality. For Tier I projects, the project proponent must implement a set of feasible "standard" mitigation measures (determined by the ICAPCD) to reduce the air quality impacts to an insignificant level. A "Tier II Project" is one whose emissions exceed any of the ICAPCD thresholds. Its impact is significant, and the project proponent must select and implement all feasible "discretionary" mitigation measures (as determined by the ICAPCD) in addition to the standard measures. Tier I and Tier II daily thresholds for operational emissions are shown in **Table 9**.

Table 9. ICAPCD Daily Operational Emission Thresholds

Pollutant	Tier I	Tier II
NO_X and Reactive Organic Gases (ROG)	Less than 137 lbs/day	Greater than 137 lbs/day
PM_{10} and SO_X	Less than 150 lbs/day	Greater than 150 lbs/day
CO and $PM_{2.5}$	Less than 550 lbs/day	Greater than 550 lbs/day

Source: ICAPCD 2017

The IPAPCD has also developed specific quantitative thresholds that apply to short-term construction activities as summarized in **Table 10**.

Table 10. ICAPCD Daily Construction Emission Thresholds

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

Source: ICAPCD 2017

The ICAPCD does not have numeric thresholds for greenhouse gas (GHG) emissions. However, Imperial County is a member of the Southern California Association of Governments which is composed of several different counties including Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Air districts responsible for managing air quality within the SCAG boundaries include the Antelope Valley Air Quality Management District, the Mojave Desert Air Pollution Control District, South Coast Air Pollution Control District, and the Ventura County Air Pollution Control District. Projects in Imperial County use the South Coast Air Quality Management District's (SCAQMD's) Interim Threshold of 10,000 $MTCO_2e$ screening level for industrial projects. In addition, based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over a period of 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project.

4.3 Project Impacts and Mitigation Measures

4.3.1 Air Quality

Impact a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The air quality attainment plan (AQAP) for the SSAB, through the implementation of the Air Quality Management Plan (AQMP; previously Air Quality Attainment Plan [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 Project must demonstrate compliance with all ICAPCD applicable rules and regulations, as well as local land use plans and population projections. As the Project does not contain a residential component, the Project would not result in an increase in the regional population. While the Project would contribute to energy supply, which is one factor of population growth, the proposed Project is a geothermal and solar energy project and would not significantly increase employment or growth within the region.

Moreover, development of the proposed Project would increase the amount of renewable energy and help California meet its Renewable Portfolio Standard (RPS). The proposed Project would be required to comply with all applicable ICAPCD rules and requirements during construction and operation to reduce air emissions. Overall, the proposed Project would improve air quality by reducing the amount of emissions that would be generated in association with electricity production from fossil fuel burning facilities.

Furthermore, the thresholds of significance adopted by the ICAPCD, determine compliance with the goals of the attainment plans in the region. As such, emissions below the ICAPCD thresholds presented in **Table 9** and **Table 10** would not conflict with or obstruct implementation of the applicable air quality plans. The following analysis is broken out by a discussion of potential impacts during construction of the Project followed by a discussion of potential impacts during operation of the Project.

Construction

The Project would emit criteria pollutants from the use of combustion sources such as diesel off-road equipment (e.g., tractors, cranes, generators, etc.), and on-road mobile sources associated with construction-related vehicle travel. Impacts to air quality would also occur during Project construction as a result of soil disturbance and fugitive dust emissions. 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.

Project construction is anticipated to occur over an approximate two-year period. Construction is anticipated to begin in late 2024. Project emissions were calculated in accordance with the ICAPCD's Air Quality Handbook (ICAPCD 2017). For the purposes of this analysis, short-term construction emissions were determined utilizing the latest version of the CalEEMod model (version 2022.1) based on the assumptions described in **Section 1.2** and utilizing CalEEMod defaults for calendar year average equipment emission factors as opposed to tier-specific rates (e.g., Tier 3) (refer to Attachment A for emission model results). The total unmitigated emissions generated within each year of project construction are shown in **Table 11**.

Table 11. Unmitigated Maximum Annual Construction-Generated Emissions

Pollutant	Project Construction-Related Emissions (lbs/day)[1]	ICAPCD Threshold (lbs/day)	Exceed Thresholds?
ROG	9.4	75	No
NO_X	91.5	100	No
CO	84.1	550	No
SO_2	0.4	--	No
PM_{10}	7,005.19	150	[Yes][2]
$PM_{2.5}$	702.21	--	--

Source: CalEEMod Results in Attachment A

Notes:

[1] Emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).

[2] Guidance provided in the ICAPDE CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analysis for construction particulate matter impacts should be qualitative as opposed to quantitative. As such, further analysis of construction-related fugitive particulate matter is provided below.

As shown in **Table 11**, the Project's daily unmitigated construction emissions would not exceed the ICAPCD thresholds for ROG, NO_X, CO, or SO_2. However, due to the assumption of 50% unpaved roads built into the Project CalEEMod model, construction activities are shown to exceed the ICAPCD threshold for PM_{10}. Specifically, CalEEMod results for the maximum daily emissions of PM_{10} attributed to fugitive dust is estimated at 7,002.46 lbs/day whereas the PM_{10} attributed to combustion engine emissions is 2.73 lbs/day (which is below the ICAPCD threshold for PM_{10}). However, guidance provided in the ICAPCD CEQA Air Quality Handbook (2017) specifies that the approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative. Further, the ICAPCD recommends the implementation of effective and comprehensive mitigation inclusive of standard mitigation measures for construction equipment and fugitive PM_{10} in accordance with ICAPCD Regulation VIII for the control of fugitive dust as detailed in **MM AQ-1**. Regulation VIII requires all unpaved roadways, on- and off-site, to be conditioned and maintained with soil stabilizers to reduce dust opacity to no more than 20 percent; all unpaved disturbed surfaces, on- and off-site, to be stabilized with a dust suppressant, watering, or soil stabilizers to reduce opacity to no greater than 20 percent. Compliance with Regulation VIII dust control measures as detailed in **MM AQ-1** would further minimize air quality impacts. In addition, the ICAPCD recommends implementation of additional discretionary mitigation measures for fugitive PM_{10} control as applicable. Accordingly, implementation of **MM AQ-2** would require additional dust suppression methods (such as water or chemical stabilization) on all unpaved roads associated with construction activities, **MM AQ-3** requires development and implementation of a dust suppression management plan prior to any earthmoving activity, and **MM AQ-4** limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. Accordingly, with implementation of **MM AQ-1**, **MM AQ-2**, **MM AQ-3**, and **MM AQ-4**, the Project would not exceed the ICAPCD's thresholds of significance during construction. As described above, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections and comparing assumed emissions in the AQMP to proposed emissions. Because the proposed Project complies with local land use plans and population projections and would not exceed ICAPCD's regional mass daily emissions thresholds, construction of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant with mitigation.

Operation

Implementation of the projects would result in long-term operational emissions of criteria air pollutants associated with vehicle trips required for routine and unplanned maintenance of the solar facility. Accordingly, long-term combined operational emissions attributable to the Project are summarized in **Table 12** and compared to the operational significance thresholds promulgated by the ICAPCD.

Table 12. Unmitigated Project Operational Emissions

Pollutant	Project Operations-Related Emissions (lbs/day)[1]	ICAPCD Threshold (lbs/day)	Exceed Thresholds?
ROG	0.01	137	No
NO_X	0.01	137	No
CO	0.09	550	No
SO_2	0.0002	150	No

Pollutant	Project Operations-Related Emissions (lbs/day)[1]	ICAPCD Threshold (lbs/day)	Exceed Thresholds?
PM_{10}	7.6	150	No
$PM_{2.5}$	0.76	150	No

Source: CalEEMod Results in Attachment A

Notes:

[1] Daily emissions are representative of the maximum daily output (i.e., maximum of summer or winter results).

As shown in **Table 12**, the Project's combined operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NO_X, PM_{10}, SO_2, and $PM_{2.5}$. Although no significant air quality impact would occur during operation, the Project would be required to comply with Regulation VIII that would further reduce fugitive dust emissions associated with the Project.

As described above, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections and comparing assumed emissions in the AQMP to proposed emissions. Because the proposed projects comply with local land use plans and population projections and would not exceed ICAPCD's regional mass daily emissions thresholds, operation of the Project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant.

Mitigation Measure(s)

MM AQ-1 (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. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process.

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 percent 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 offsite unpaved roads will be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.

- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- 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 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.

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

MM AQ-2 (Dust Suppression). The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. All unpaved roads associated with construction shall be effectively stabilized of dust emissions using stabilizers/suppressants before the commencement of all construction phases. This will be conducted monthly at a rate of 0.1 gallon/ square yard of chemical dust suppressant. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

MM AQ-3 (Dust Suppression Management Plan). Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

MM AQ-4 (Speed Limit). During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on unpaved roads to 15 miles per hour or less.

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

Construction

As shown in **Table 6**, the criteria pollutants for which the project area is in state nonattainment under applicable air quality standards are O_3 and PM_{10}. The ICAPCD's application of thresholds of significance for criteria air pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As discussed above and summarized in **Table 11**, the project's daily construction emissions would exceed the ICAPCD thresholds for PM_{10}. With implementation of **MM AQ-1**, **MM AQ-2**, **MM AQ-3**, and **MM AQ-4**,the Project's daily mitigated construction emissions would not exceed the ICAPCD thresholds (note that although the CalEEMod results for PM_{10} emissions are shown to exceed the ICAPCD threshold, the ICAPCD recommends analyzing construction particulate matter qualitatively rather than quantitatively as discussed in detail above). Therefore, the Project's potential to result in a cumulatively considerable net increase of any criteria pollutant during construction is considered less than significant with mitigation.

Operations

As discussed above and summarized in **Table 12**, the Project's daily operations emissions would not exceed the ICAPCD thresholds. In addition, the Project must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust which would further reduce impacts associated with fugitive dust emissions. Therefore, the Project's potential to result in a cumulatively considerable net increase of any criteria pollutant during operations is considered less than significant.

Mitigation Measure(s)

MM AQ-1 (Fugitive Dust Control)

MM AQ-2 (Dust Suppression)

MM AQ-3 (Dust Suppression Management Plan)

MM AQ-4 (Speed Limit)

Impact c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction

As summarized in **Table 8** above, the nearest sensitive land use to the Project area is a single-family residence located approximately 390 feet from the nearest Project component. Construction of the Project would result in temporary, short-term project-generated emissions of DPM, ROG, NO_X, CO, and PM_{10} from the exhaust of offroad, heavy-duty diesel equipment and construction-related truck traffic The portion of the SSAB which encompasses the project area is designated as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3 and PM_{10}. Thus, existing O_3 and PM_{10} levels in the SSAB are at unhealthy levels during certain periods. However, as shown in **Table 11**, the Project would not exceed the ICAPCD significance thresholds for construction emissions for ROG or NO_X. The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_X) in excess of the ICAPCD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to

transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve activities that would result in CO emissions in excess of the ICAPCD thresholds. Thus, the Project CO emissions during construction would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by CARB in 1998. For construction-type activity, DPM is the primary TAC of concern. PM_{10} exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As summarized above, with implementation of **MM AQ-1** through **MM AQ-4**, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the ICAPCD's thresholds, and thus are not expected to cause any increase in related health effects for these pollutants.

Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever (Valley Fever), a potential health hazard caused by a fungus that lives in certain soil types throughout California. The California Department of Public Health- Occupational Health Branch and the Division of Occupational Safety and Health of the Department of Industrial Relations (Cal/OSHA) provides recommendations to limit risk from Valley Fever. The measures required to comply with ICAPCD Regulation VIII as well as **MM AQ-1** through **MM AQ-4**, are consistent with those recommended to limit risk to Valley Fever. For example, Cal/OSHA recommends the adoption of site plans and work practices that reduce worker exposure. Cal/OSHA further provides that measures that may be implemented include, but are not limited to, the following: minimize the area of soil disturbed; use of water or other soil stabilizer to reduce airborne dust; stabilize all spoils piles by tarping or other methods; cleaning tools, equipment, and vehicles before transporting offsite. These measures and work practices will be implemented at the Project site pursuant to compliance with ICAPCD Regulation VIII. As such, with implementation of **MM AQ-1** through **MM AQ-4**, construction activities associated with the Project are not expected to cause any increase in Valley Fever to workers or sensitive receptors in the area.

In summary, with implementation of **MM AQ-1** through **MM AQ-4**, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant with mitigation.

Operation

Operation of the proposed Project would not result in the development of any substantial sources of air toxics. Further, operation of the Project would not attract additional mobile sources that spend long periods queuing and idling at the site. As such, onsite Project operations emissions would not result in significant concentrations of pollutants at nearby sensitive receptors as the predominant operational emissions associated with the proposed projects would be routine maintenance work. Therefore, the Project would not be a substantial source of TACs. The proposed Project would not result in a high carcinogenic or non-carcinogenic risk during operation.

CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration in the SSAB is designated as an attainment area. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively. The proposed Project is anticipated to result in no more than six daily traffic trips. Thus, the proposed Project would not generate traffic volumes at any intersection that would result in a likelihood of the Project traffic contributing to CO "hot spots".

In summary, Project operations would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

Mitigation Measure(s)

MM AQ-1 (Fugitive Dust Control)

MM AQ-2 (Dust Suppression)

MM AQ-3 (Dust Suppression Management Plan)

MM AQ-4 (Speed Limit)

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

Construction

Construction of the Project components would result in short-term diesel exhaust emissions from on-site heavy-duty equipment and from material deliveries and debris removal, which could result in the creation of objectionable odors. These activities would be temporary or periodic, and spatially dispersed, and any associated odors would dissipate quickly from the sources.

The closest sensitive receptor is a resident located off Jasper Road, approximately 390 feet from Cable Route Option 1. Therefore, given the temporary nature of construction activities and the lack of sensitive receptors in the immediate vicinity of Project components, odor nuisances that would be associated with the Project construction activities are expected to be negligible and impacts would be less than significant.

Operation

According to ICAPCD's Air Quality Handbook (2017), land uses associated with odor complaints include wastewater treatment plants, sanitary landfills, composting stations, feedlots, asphalt plants, painting/coating operations (auto body shops), and rendering plants. The proposed Project does not include any of these types of operations and would not be expected to be a source of odor impacts. As such, impacts during operations would be less than significant.

Mitigation Measure(s)

None Required

4.3.2 Greenhouse Gas

Impact a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

Construction of the proposed Project would generate GHG emissions over a period of up to 19 months. Exhaust emissions would result from construction equipment and machinery as well as from vehicular traffic generated by construction activities. Construction and operation GHG emissions were estimated using SCAQMD's CalEEMod 2022.1 model (refer to Attachment A) based on assumptions detailed in **Section 1.2**, including the Project's construction schedule and operation activities. Short-term construction emissions (e.g., off-road equipment and vehicle trips) and annual operation emissions associated with the proposed Project were evaluated. For all GHG emissions assumptions and calculations, see Attachment A. Based on the results of this modeling, construction emissions would result in a maximum of 4,582 $MTCO_2e$ per year. Total project GHG emissions for construction are shown in **Table 13**.

Table 13. Estimated Project Construction GHG Emissions

Construction Year	GHG ($MTCO_2e$/year)
2025	771
2026	4,582
2027	222
TOTAL	**5,575**

Source: CalEEMod Results in Attachment A

Operational and Maintenance Emissions

As presented in **Section 1.3**, the proposed Project would be unstaffed. Annual operation and maintenance trips to the Project site would be negligible, adding up to two trips per day. Additional sources of GHG emissions associated with operations include those related to landscape equipment use for routine maintenance work, and water use, as estimated using CalEEMod. These emissions are estimated to contribute approximately 2.9 $MTCO_2e$ per year.

The proposed XMR and Switch includes new circuit breakers that would potentially be insulated with SF_6. Note that CARB amended the *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* regulation in 2021 to further reduce GHG emissions from gas-insulated equipment. Key provisions of the amended regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment (January 1, 2025 for voltage less than 145 kV, January 1, 2029 for voltage between 145 and 245 kV, and January 1, 2031 for voltage greater than 245 kB). In the case that SF_6 alternative technology is available and approved prior to construction, the proposed Project would not require SF_6 for project operations. For the purpose of this analysis, it is assumed that up to three circuit breakers will be insulated with SF_6 with an estimated 25 pounds of SF_6 gas per circuit breaker resulting in a total of 75 pounds of SF_6 gas required at the site. Consistent with the IEC standard for new equipment leakage, a 0.5% per year leakage rate is assumed (USEPA 2016). Accordingly, an estimated 0.375 pounds of SF_6 would be released annually. Using the GWP for SF_6 of 23,300 as summarized in **Table 7 (above)**, annual emissions of 0.375

pounds of SF_6 gas would be equivalent to approximately 3.96 metric tons carbon dioxide equivalent ($MTCO_2e$).

Amortized Annual Emissions

As summarized in **Table 13** above, total GHG construction emissions would be approximately 5,575 $MTCO_2e$. In accordance with industry standard, the total GHG emissions from construction were amortized (i.e., averaged annually) over a 30-year timeframe, with a resulting annual emission of 185.8 $MTCO_2e$ per year. **Table 14** presents the total annual GHG emissions for the proposed project are estimated to be 192.66 $MTCO_2e$ per year for the duration of the Project.

Table 14. Proposed Project Amortized Annual GHG Emissions

Emission Source	GHG ($MTCO_2e$/year)
Construction (amortized over 30-year life of Project)	185.8
Operations (i.e., mobile, area, water)	2.9
Leaking SF_6	3.96
TOTAL	**192.66**

As summarized in **Section 4.2**, the ICAPCD does not have numeric thresholds for GHG emissions for CEQA. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "air quality attainment or maintenance plan and/or plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significance for GHG emissions if a project complies with regulatory programs to reduce GHG emissions.

In the absence of any adopted numeric threshold, the significance of the proposed project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the proposed project complies with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The *Imperial Valley Regional Climate Action Plan* (Regional CAP; Ascent Environmental 2021) addresses the impacts of climate change and reduce GHG emissions in the Imperial Valley region which includes the County of Imperial (County) and the cities of Brawley, Calexico, Calipatria, Holtville, El Centro, Imperial, and Westmorland. The Regional CAP is consistent with and complementary to statewide legislation and regulatory mandates, and establishes local strategies, measures, and actions aimed at reducing GHG emissions. Accordingly, the proposed Project is evaluated against the Regional CAP and the CARB Scoping Plan. Measures included in the Regional CAP and CARB Scoping Plan would indirectly address GHG emission levels associated with construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a low-carbon fuel standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity either directly or indirectly, are assumed to be implemented statewide and would affect the

Project should those policies be implemented before construction begins. Specifically, implementation of AB 32 control measures for reduced vehicle emissions would decrease GHG emissions from the Project. In addition, the Project is a renewable energy project which supports the Regional Plan GHG reduction measures to increase renewable and zero-carbon energy generation including installation of utility scale solar and geothermal energy as a particular focus of GHG Reduction Measures E-2.1 and -2.2.

Regarding management of proposed-project-related SF_6, the applicant would be required to comply with CARB Regulation for *Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (Title 17, Sections 95350-95359 of the California Code of Regulations). Compliance with this regulatory measure would ensure consistency with intent of Scoping Plan Measure H-6, *High Global Warming Potential Gas Reductions from Stationary Sources*. Inventories of SF_6 that would be associated with the proposed project would be documented and annually reported to USEPA and CARB. Accordingly, compliance with the Scoping Plan Measure H-6 requirements would ensure that the proposed Project would not conflict with AB 32 or SB 32.

Although not directly applicable to the proposed project, the proposed project would not conflict with population growth projections of the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), or its goals associated with GHG reductions. Specifically, the Project would not contribute to population growth outside of those projections. As such, the Project would be consistent with the current land use designation for the Project site and would not create housing or otherwise lead to substantial unplanned population growth in the vicinity and is considered consistent with the GHG reduction goals of the 2024-2050 RTP/SCS.

The plan consistency analysis demonstrates that the Project is consistent with plans, policies, regulations and GHG reduction actions/strategies outlined in the Regional CAP, CARB's Scoping Plan, SCAG's 2024-2050 RTP/SCS, and CARB Regulation for Reducing Sulfur Hexafluoride. As the proposed Project would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing emissions of GHGs, the proposed project's impacts related to GHG emissions would be less than significant. Further, based on the results of the quantitative analysis as described above, the Project would result in 192.66 $MTCO_2e$ emissions per year (with construction emissions amortized over 30 years). These emissions are significantly less than the screening threshold of 10,000 $MTCO_2e$ per year screening level for industrial projects often used for projects in Imperial County. Because the Project is consistent and does not conflict with the applicable plans, policies, and regulations, and because the Project's incremental increase in GHG emissions is below the 10,000 $MTCO_2e$ per year screening threshold for industrial projects, the Project's incremental increase in GHG emissions of 192.66 $MTCO_2e$ (construction emissions amortized over 30 years) would be less than significant.

Mitigation Measure(s)

None Required

Impact b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As described above, California has enacted several pieces of legislation that relate to GHG emissions and climate change, much of which sets aggressive goals for GHG reductions within the state. The first and most far-reaching is AB 32, now followed by SB 32 and AB 1279, in which CARB must ensure that

statewide GHG emissions are reduced to 85 percent below the 1990 level by 2045. While AB 32 establishes control measures that would apply to light, medium, and heavy-duty vehicles, and the proposed project would operate those types of vehicles, these measures are being implemented at the state level and the proposed project would not interfere with the implementation of the control measures. Implementation of AB 32 control measures for reduced vehicle emissions would decrease GHG emissions from the Project.

As also described above, CARB approved additional regulation to reduce SF_6 emissions from gas insulated switchgear, implementing Measure H-6 of the AB 32 Scoping Plan. The Project is required to comply with this regulation, thus reducing GHG emissions and being consistent with the AB 32 Scoping Plan, the Scoping Plan update, and the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (Title 17, Sections 95350-95359 of the California Code of Regulations). Accordingly, the proposed Project would be conducted in compliance with applicable plans, policies and regulations adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

Mitigation Measure(s)

None required.

SECTION 5 References

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Attachment A Air Emissions Calculations

Heber 1 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Heber 1
Construction Start Date	1/1/2025
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.4
Precipitation (days)	4.8
Location	32.71249474900917, -115.53631347521721
County	Imperial
City	Unincorporated
Air District	Imperial County APCD
Air Basin	Salton Sea
TAZ	5611
EDFZ	19
Electric Utility	Imperial Irrigation District
Gas Utility	Southern California Gas
App Version	2022.1.1.35

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	5,750	1000sqft	132	5,750,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11	9.2	83	84	0.41	2.5	7,002	7,005	2.3	700	702	—	47,718	47,718	1.1	3.8	70	48,943
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11	9.4	92	84	0.41	2.7	7,002	7,005	2.5	700	702	—	48,160	48,160	1.1	3.8	2.0	49,317
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.6	5.5	50	50	0.23	1.5	3,756	3,758	1.4	375	377	—	27,036	27,036	0.64	2.0	16	27,676
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.2	1.00	9.2	9.1	0.04	0.27	685	686	0.25	68	69	—	4,476	4,476	0.11	0.34	2.7	4,582

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11	9.2	83	84	0.41	2.5	7,002	7,005	2.3	700	702	—	47,718	47,718	1.1	3.8	70	48,943

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	11	9.4	92	84	0.40	2.7	7,002	7,005	2.5	700	702	—	48,160	48,160	1.1	3.8	2.0	49,317
2026	11	9.1	86	83	0.41	2.5	7,002	7,005	2.3	700	702	—	47,659	47,659	1.1	3.8	1.8	48,816
2027	3.9	3.2	24	30	0.09	0.73	433	434	0.67	43	44	—	9,056	9,056	0.36	0.13	0.05	9,104
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.3	1.1	9.1	8.8	0.04	0.29	546	547	0.27	55	55	—	4,562	4,562	0.12	0.29	2.6	4,655
2026	6.6	5.5	50	50	0.23	1.5	3,756	3,758	1.4	375	377	—	27,036	27,036	0.64	2.0	16	27,676
2027	0.57	0.48	3.6	4.4	0.01	0.11	63	63	0.10	6.3	6.4	—	1,333	1,333	0.05	0.02	0.12	1,340
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.23	0.19	1.7	1.6	0.01	0.05	100	100	0.05	10.0	10	—	755	755	0.02	0.05	0.42	771
2026	1.2	1.00	9.2	9.1	0.04	0.27	685	686	0.25	68	69	—	4,476	4,476	0.11	0.34	2.7	4,582
2027	0.10	0.09	0.65	0.80	< 0.005	0.02	11	11	0.02	1.1	1.2	—	221	221	0.01	< 0.005	0.02	222

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.01	0.09	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	0.00	19	19	< 0.005	< 0.005	0.07	19
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.01	0.06	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	0.00	17	17	< 0.005	< 0.005	< 0.005	17
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.01	0.07	< 0.005	< 0.005	7.5	7.5	< 0.005	0.75	0.75	0.00	17	17	< 0.005	< 0.005	0.03	18

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	1.4	1.4	< 0.005	0.14	0.14	0.00	2.9	2.9	< 0.005	< 0.005	< 0.005	2.9

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.09	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	—	18	18	< 0.005	< 0.005	0.07	19
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.01	0.01	0.01	0.09	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	0.00	19	19	< 0.005	< 0.005	0.07	19
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.06	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	—	16	16	< 0.005	< 0.005	< 0.005	16
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.01	0.01	0.01	0.06	< 0.005	< 0.005	7.6	7.6	< 0.005	0.76	0.76	0.00	17	17	< 0.005	< 0.005	< 0.005	17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.07	< 0.005	< 0.005	7.5	7.5	< 0.005	0.75	0.75	—	17	17	< 0.005	< 0.005	0.03	17

Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.01	0.01	0.01	0.07	< 0.005	< 0.005	7.5	7.5	< 0.005	0.75	0.75	0.00	17	17	< 0.005	< 0.005	0.03	18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	1.4	1.4	< 0.005	0.14	0.14	—	2.8	2.8	< 0.005	< 0.005	< 0.005	2.9
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	1.4	1.4	< 0.005	0.14	0.14	0.00	2.9	2.9	< 0.005	< 0.005	< 0.005	2.9

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.9	3.2	23	23	0.09	0.84	—	0.84	0.77	—	0.77	—	9,387	9,387	0.38	0.08	—	9,419

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.36	2.5	2.6	0.01	0.09	—	0.09	0.08	—	0.08	—	1,029	1,029	0.04	0.01	—	1,032
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.46	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	170	170	0.01	< 0.005	—	171
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.9	0.00	0.00	345	345	0.00	34	34	—	334	334	0.02	0.01	0.04	339

Vendor	0.02	0.01	0.43	0.18	< 0.005	0.01	88	88	0.01	8.8	8.8	—	365	365	< 0.005	0.05	0.03	380
Hauling	0.02	0.01	0.67	0.16	< 0.005	0.01	118	118	0.01	12	12	—	544	544	< 0.005	0.09	0.03	570
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.26	0.00	0.00	37	37	0.00	3.7	3.7	—	39	39	< 0.005	< 0.005	0.07	40
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	9.5	9.5	< 0.005	0.95	0.95	—	40	40	< 0.005	0.01	0.05	42
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	13	13	< 0.005	1.3	1.3	—	60	60	< 0.005	0.01	0.06	62
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	6.8	6.8	0.00	0.68	0.68	—	6.5	6.5	< 0.005	< 0.005	0.01	6.6
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	1.7	1.7	< 0.005	0.17	0.17	—	6.6	6.6	< 0.005	< 0.005	0.01	6.9
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	2.3	2.3	< 0.005	0.23	0.23	—	9.9	9.9	< 0.005	< 0.005	0.01	10

3.3. Project Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11	8.8	67	76	0.20	2.3	—	2.3	2.1	—	2.1	—	20,978	20,978	0.85	0.17	—	21,050
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.74	0.62	4.7	5.3	0.01	0.16	—	0.16	0.15	—	0.15	—	1,478	1,478	0.06	0.01	—	1,483
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.86	0.97	< 0.005	0.03	—	0.03	0.03	—	0.03	—	245	245	0.01	< 0.005	—	246
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.21	1.9	0.00	0.00	345	345	0.00	34	34	—	334	334	0.02	0.01	0.04	339
Vendor	0.63	0.42	24	6.4	0.20	0.40	6,628	6,628	0.40	662	663	—	26,712	26,712	0.20	3.6	2.0	27,786
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	29	29	< 0.005	2.9	2.9	—	136	136	< 0.005	0.02	0.01	143
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	24	24	0.00	2.4	2.4	—	25	25	< 0.005	< 0.005	0.04	26
Vendor	0.04	0.03	1.7	0.46	0.01	0.03	461	461	0.03	46	46	—	1,882	1,882	0.01	0.25	2.3	1,960
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	2.0	2.0	< 0.005	0.20	0.20	—	9.6	9.6	< 0.005	< 0.005	0.01	10
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	4.4	4.4	0.00	0.44	0.44	—	4.2	4.2	< 0.005	< 0.005	0.01	4.2
Vendor	0.01	0.01	0.31	0.08	< 0.005	0.01	84	84	0.01	8.4	8.4	—	312	312	< 0.005	0.04	0.39	324
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	1.6	1.6	< 0.005	< 0.005	< 0.005	1.7

3.5. Project Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	10	8.5	63	76	0.20	2.1	—	2.1	1.9	—	1.9	—	20,992	20,992	0.85	0.17	—	21,064
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	10	8.5	63	76	0.20	2.1	—	2.1	1.9	—	1.9	—	20,992	20,992	0.85	0.17	—	21,064
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.4	4.5	33	40	0.11	1.1	—	1.1	1.0	—	1.0	—	11,174	11,174	0.45	0.09	—	11,212
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	6.1	7.3	0.02	0.20	—	0.20	0.19	—	0.19	—	1,850	1,850	0.08	0.02	—	1,856

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.16	2.9	0.00	0.00	345	345	0.00	34	34	—	387	387	0.02	0.01	1.3	393
Vendor	0.64	0.43	20	5.5	0.20	0.40	6,628	6,628	0.40	662	663	—	26,206	26,206	0.20	3.6	68	27,346
Hauling	< 0.005	< 0.005	0.15	0.04	< 0.005	< 0.005	29	29	< 0.005	2.9	2.9	—	133	133	< 0.005	0.02	0.28	140
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.8	0.00	0.00	345	345	0.00	34	34	—	328	328	0.02	0.01	0.03	332
Vendor	0.63	0.42	23	5.4	0.20	0.40	6,628	6,628	0.40	662	663	—	26,207	26,207	0.20	3.6	1.8	27,280
Hauling	< 0.005	< 0.005	0.16	0.04	< 0.005	< 0.005	29	29	< 0.005	2.9	2.9	—	133	133	< 0.005	0.02	0.01	139
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.1	0.00	0.00	181	181	0.00	18	18	—	187	187	0.01	0.01	0.29	190
Vendor	0.34	0.23	12	2.9	0.11	0.21	3,481	3,482	0.21	348	348	—	13,949	13,949	0.11	1.9	16	14,536
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	15	15	< 0.005	1.5	1.5	—	71	71	< 0.005	0.01	0.06	74
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	33	33	0.00	3.3	3.3	—	31	31	< 0.005	< 0.005	0.05	31
Vendor	0.06	0.04	2.2	0.54	0.02	0.04	635	635	0.04	63	64	—	2,309	2,309	0.02	0.32	2.6	2,407
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	2.8	2.8	< 0.005	0.28	0.28	—	12	12	< 0.005	< 0.005	0.01	12

3.7. Substation Development and Interconnection (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.7	3.1	25	28	0.08	0.79	—	0.79	0.73	—	0.73	—	8,384	8,384	0.34	0.07	—	8,413
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.7	3.1	25	28	0.08	0.79	—	0.79	0.73	—	0.73	—	8,384	8,384	0.34	0.07	—	8,413
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.57	4.5	5.1	0.02	0.14	—	0.14	0.13	—	0.13	—	1,526	1,526	0.06	0.01	—	1,531
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.83	0.93	< 0.005	0.03	—	0.03	0.02	—	0.02	—	253	253	0.01	< 0.005	—	253
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.27	0.26	0.16	2.9	0.00	0.00	345	345	0.00	34	34	—	387	387	0.02	0.01	1.3	393
Vendor	0.02	0.01	0.37	0.16	< 0.005	0.01	88	88	0.01	8.8	8.8	—	358	358	< 0.005	0.05	0.90	374
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.18	1.8	0.00	0.00	345	345	0.00	34	34	—	328	328	0.02	0.01	0.03	332
Vendor	0.02	0.01	0.41	0.16	< 0.005	0.01	88	88	0.01	8.8	8.8	—	358	358	< 0.005	0.05	0.02	373
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	62	62	0.00	6.2	6.2	—	64	64	< 0.005	< 0.005	0.10	65
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	16	16	< 0.005	1.6	1.6	—	65	65	< 0.005	0.01	0.07	68
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	11	11	0.00	1.1	1.1	—	11	11	< 0.005	< 0.005	0.02	11
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	2.9	2.9	< 0.005	0.29	0.29	—	11	11	< 0.005	< 0.005	0.01	11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Substation Development and Interconnection (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	3.6	3.1	24	28	0.08	0.73	—	0.73	0.67	—	0.67	—	8,383	8,383	0.34	0.07	—	8,411
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	3.5	4.1	0.01	0.11	—	0.11	0.10	—	0.10	—	1,230	1,230	0.05	0.01	—	1,235
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.64	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	204	204	0.01	< 0.005	—	204
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.18	0.17	1.6	0.00	0.00	345	345	0.00	34	34	—	322	322	0.02	0.01	0.03	327
Vendor	0.01	0.01	0.39	0.15	< 0.005	0.01	88	88	0.01	8.8	8.8	—	351	351	< 0.005	0.05	0.02	366
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.29	0.00	0.00	50	50	0.00	5.0	5.0	—	51	51	< 0.005	< 0.005	0.07	51
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	13	13	< 0.005	1.3	1.3	—	52	52	< 0.005	0.01	0.05	54
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	9.1	9.1	0.00	0.91	0.91	—	8.4	8.4	< 0.005	< 0.005	0.01	8.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	2.3	2.3	< 0.005	0.23	0.23	—	8.5	8.5	< 0.005	< 0.005	0.01	8.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.37	0.37	< 0.005	< 0.005	—	0.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.06	0.06	< 0.005	< 0.005	—	0.06

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/1/2025	11/25/2025	5.0	40	Site Preparation
Project Construction	Building Construction	11/26/2025	9/29/2026	5.0	220	Project Construction
Substation Development and Interconnection	Building Construction	9/30/2026	3/16/2027	5.0	120	Substation Development & Interconnection

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Off-Highway Trucks	Diesel	Average	3.0	5.0	402	0.38
Site Preparation	Excavators	Diesel	Average	1.00	8.0	97	0.38
Site Preparation	Rollers	Diesel	Average	2.0	8.0	200	0.38
Site Preparation	Off-Highway Trucks	Diesel	Average	8.0	4.0	350	0.38
Project Construction	Aerial Lifts	Diesel	Average	8.0	6.0	63	0.31
Project Construction	Excavators	Diesel	Average	1.00	8.0	97	0.38
Project Construction	Cranes	Diesel	Average	2.0	6.0	231	0.29

Project Construction	Forklifts	Diesel	Average	7.0	8.0	89	0.20
Project Construction	Generator Sets	Diesel	Average	1.00	8.0	84	0.74
Project Construction	Graders	Diesel	Average	1.00	8.0	187	0.41
Project Construction	Off-Highway Trucks	Diesel	Average	2.0	8.0	402	0.38
Project Construction	Rubber Tired Loaders	Diesel	Average	1.00	8.0	203	0.36
Project Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.0	97	0.37
Project Construction	Welders	Diesel	Average	15	6.0	46	0.45
Project Construction	Off-Highway Trucks	Diesel	Average	16	4.0	350	0.38
Substation Development and Interconnection	Cranes	Diesel	Average	1.00	8.0	231	0.29
Substation Development and Interconnection	Bore/Drill Rigs	Diesel	Average	1.00	8.0	221	0.50
Substation Development and Interconnection	Off-Highway Trucks	Diesel	Average	2.0	4.0	402	0.38
Substation Development and Interconnection	Aerial Lifts	Diesel	Average	2.0	8.0	63	0.31
Substation Development and Interconnection	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.0	97	0.37
Substation Development and Interconnection	Forklifts	Diesel	Average	1.00	8.0	89	0.20
Substation Development and Interconnection	Trenchers	Diesel	Average	1.00	8.0	13	0.50
Substation Development and Interconnection	Generator Sets	Diesel	Average	2.0	8.0	84	0.74

Substation Development and Interconnection	Off-Highway Trucks	Diesel	Average	5.0	4.0	350	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	46	10	LDA,LDT1,LDT2
Site Preparation	Vendor	10.0	12	HHDT,MHDT
Site Preparation	Hauling	8.0	20	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Project Construction	Worker	46	10	LDA,LDT1,LDT2
Project Construction	Vendor	40	225	HHDT,MHDT
Project Construction	Hauling	2.0	20	HHDT
Project Construction	Onsite truck	—	—	HHDT
Substation Development and Interconnection	Worker	46	10	LDA,LDT1,LDT2
Substation Development and Interconnection	Vendor	10.0	12	HHDT,MHDT
Substation Development and Interconnection	Hauling	0.00	20	HHDT
Substation Development and Interconnection	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%

Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	457	0.03	< 0.005
2026	0.00	457	0.03	< 0.005
2027	0.00	457	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	2.0	2.0	2.0	730	20	20	20	7,446

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Heavy Industry	Wood Fireplaces	0	0
General Heavy Industry	Gas Fireplaces	0	0
General Heavy Industry	Propane Fireplaces	0	0
General Heavy Industry	Electric Fireplaces	0	0
General Heavy Industry	No Fireplaces	0	0
General Heavy Industry	Conventional Wood Stoves	0	0
General Heavy Industry	Catalytic Wood Stoves	0	0
General Heavy Industry	Non-Catalytic Wood Stoves	0	0
General Heavy Industry	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

—	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
undefined	0.00	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	0.00	457	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	0.00	118,625

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.00	4.0	4.0	18

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28	annual days of extreme heat
Extreme Precipitation	0.10	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	66
AQ-PM	49
AQ-DPM	30
Drinking Water	57

Lead Risk Housing	31
Pesticides	89
Toxic Releases	46
Traffic	8.8
Effect Indicators	—
CleanUp Sites	50
Groundwater	75
Haz Waste Facilities/Generators	87
Impaired Water Bodies	100
Solid Waste	95
Sensitive Population	—
Asthma	68
Cardio-vascular	89
Low Birth Weights	20
Socioeconomic Factor Indicators	—
Education	73
Housing	40
Linguistic	85
Poverty	72
Unemployment	66

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	24.4193507
Employed	22.93083537
Median HI	21.92993712

Education	—
Bachelor's or higher	23.23880405
High school enrollment	14.0639035
Preschool enrollment	58.10342615
Transportation	—
Auto Access	48.80020531
Active commuting	25.67688952
Social	—
2-parent households	77.12049275
Voting	20.99319902
Neighborhood	—
Alcohol availability	67.0986783
Park access	38.22661363
Retail density	7.955857821
Supermarket access	24.95829591
Tree canopy	1.424355191
Housing	—
Homeownership	51.98254844
Housing habitability	38.4832542
Low-inc homeowner severe housing cost burden	37.62350828
Low-inc renter severe housing cost burden	23.55960477
Uncrowded housing	28.33311947
Health Outcomes	—
Insured adults	30.39907609
Arthritis	0.0
Asthma ER Admissions	42.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0

Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	90.7
Cognitively Disabled	19.2
Physically Disabled	15.4
Heart Attack ER Admissions	7.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	39.5
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	33.8
Elderly	39.7
English Speaking	4.1
Foreign-born	93.6
Outdoor Workers	18.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	72.6

Traffic Density	16.8
Traffic Access	23.0
Other Indices	—
Hardship	80.6
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	84
Healthy Places Index Score for Project Location (b)	26
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification

Construction: Construction Phases	Project schedule per ORMAT Project Description, assume weekday only construction
Construction: Off-Road Equipment	Project equipment per ORMAT Project description
Construction: Trips and VMT	Vehicle trips per ORMAT Project Description. Delivery of materials for solar equipment assumed to be sourced from Port of Long Beach area.
Operations: Consumer Products	The Project does not include additional use of consumer products, is not a city park/golf course, and does not have any paved parking areas.
Operations: Architectural Coatings	Assume no architectural coating reapplication required for Project operations.
Operations: Energy Use	All electricity required for operations would be generated by solar plant. No energy from the grid would be required.
Operations: Water and Waste Water	Per Project description, 325 gpd of non-potable water is required for operations and sourced from existing IID allocation. Non-potable water from IID does not require treatment - assume 0 kWh/Mgal for Treat and Treatment. Wastewater to wastewater treatment system is assumed to be negligible.
Operations: Solid Waste	Assume Project operations solid waste generation is negligible.
Operations: Refrigerants	No refrigerants proposed as part of Project operations.