

A P P E N D I X C

AIR QUALITY AND GREENHOUSE GAS MODELING

Assumptions Worksheet

CalEEMod Inputs -Alameda Grant Line Solar 1 Project, Construction

Name: Alameda Grant Line Solar 1 Project
Project Number: SOLT-01.0
Project Location: The intersection of West Grant Line Road and Great Valley Parkway
County/Air Basin: Alameda
Climate Zone: 5
Land Use Setting: Urban
Operational Year: 2022
Utility Company: PG&E
Air Basin: San Francisco Bay Area Air Basin (SFBAAB)
Air District: BAAQMD

Project Site Acreage	23.07
Disturbed Site Acreage	14.13

Project Components			
New Construction	SQFT	Building Footprint	ACRES
Total Hardscape ¹	2,200	N/A	0.05
Staging area	20,000	N/A	0.46
Gravel road	2,348	N/A	0.05
Temporary pad	5,400	N/A	0.12
Solar arrays area	585,555	N/A	13.44
Total Landscaping	613,303	N/A	14.08
Total Other Non-asphalt Surfaces	615,503	N/A	14.13

Notes:

¹ Includes 500 squarefoot electrical pad.

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Parking	Other Non-asphalt Surfaces	615.50	1000 sqft	14.13	615,503
				14.13	

BAAQMD Construction BMPs

Replace Ground Cover	PM10:	5	% Reduction
	PM2.5:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
SCAQMD Rule 1186	Clean Paved Road	9	% PM Reduction

PG&E Carbon Intensity Factors

		lbs/MWH
	CO ₂ : ¹	203.98
	CH ₄ : ¹	0.033
	N ₂ O: ¹	0.004

Notes:¹ CalEEMod default values.

Global Warming Potentials (GWP)		
	AR4	AR5
CO ₂	1	1
CH ₄	25	28
N ₂ O	298	265
Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC).		

Construction Activities and Schedule Assumptions: Alameda Grant Line Solar 1 Project

*based on durations provided by the Applicant

Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Site Preparation	Site Preparation	7/4/2022	7/12/2022	7
Installation of Solar PV Equipment	Building Construction	7/13/2022	9/6/2022	40
Utility Trenching	Trenching	8/22/2022	8/26/2022	5

Overlapping Construction Schedule

Construction Activities	Start Date	End Date	CalEEMod Duration (Workday)
Site Preparation	7/4/2022	7/12/2022	7
Installation of Solar PV Equipment	7/13/2022	8/21/2022	28
Installation of Solar PV Equipment and Utility Trenching	8/22/2022	8/26/2022	5
Installation of Solar PV Equipment	8/27/2022	9/6/2022	7

**Based on equipment mix and horsepower provided by the Applicant*

[illegible]

Construction Trips Worksheet

Phase Name	Worker Trip Ends	Vendor Trip Ends	Haul Truck Trip Ends	Total Haul Truck	Start Date	End Date	Workdays
	Per Day	Per Day		Trip Ends			
Site Preparation	6	6	0	0	7/4/2022	7/12/2022	7
Installation of Solar PV Equipment	20	2	0	0	7/13/2022	9/6/2022	40
Utility Trenching	6	2	0	0	8/22/2022	8/26/2022	5

Construction Activity (Overlapping)	Worker Trip Ends	Vendor Trip Ends	Haul Truck Trip Ends	Total Trip Ends	Start Date	End Date	Workdays
	Per Day	Per Day	Per Day	Per Day			
Site Preparation	6	6	0	12	7/4/2022	7/12/2022	7
Installation of Solar PV Equipment	20	2	0	22	7/13/2022	8/21/2022	28
Installation of Solar PV Equipment and Utility Trenching	26	4	0	30	8/22/2022	8/26/2022	5
Installation of Solar PV Equipment	20	2	0	22	8/27/2022	9/6/2022	7
Maximum Daily Trips	26	6	0	30			

Emissions Worksheet

Construction Emissions - DPM

Input to Risk Tables

tons/year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total Unmitigated	0.01	0.05	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00

UNMITIGATED (Onsite)

[illegible]

FOR CONSTRUCTION RISK ASSESSMENT - Unmitigated Run

[illegible]

FOR CONSTRUCTION REGIONAL EMISSIONS - Unmitigated Run

[illegible]

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

3.3 Installation of Solar PV Equipment - 2022

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

3.4 Utility Trenching - 2022

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

Criteria Air Pollutant Emissions Summary - Construction Unmitigated

Annual emissions divided by total construction duration to obtain average daily emissions. Average construction emissions accounts for the duration of each construction phase and the time each piece of construction equipment is onsite.

Total Construction					Calendar						
Days		2022		Days							
47		47		65							
Unmitigated Run - with Best Control Measures for Fugitive Dust											
average lbs/day		ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total		0	2	3	0	0.17	0.08	0	0.08	0.07	0
BAAQMD Threshold		54	54	NA	NA	BMP	82	54	BMP	54	NA
Exceeds Threshold		No	No	NA	NA	NA	No	No	NA	No	NA

Average Daily Emissions and Emission Rates

Onsite Construction PM10 Exhaust Emissions ¹				Onsite Construction PM2.5 Exhaust Emissions ²		
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
Year						
2022	0.08	9.79E-03	1.23E-03	0.07	8.94E-03	1.13E-03

Offsite Construction PM10 Exhaust Emissions ¹					Offsite Construction PM2.5 Exhaust Emissions ²			
	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) ³	Emission Rate (lbs/hr)	Emission Rate (g/s)	Average Daily Emissions (lbs/day)	Hauling Emissions w/in 1,000ft (lbs/day) ³	Emission Rate (lbs/hr)	Emission Rate (g/s)
Year								
2022	2.13E-03	4.10E-05	5.12E-06	6.45E-07	2.13E-03	4.10E-05	5.12E-06	6.45E-07

Note: Emissions evenly distributed over 48 modeled volume sources.

			Construction		
			Year	Workdays	Duration ⁵
Hauling Length (miles)			2022	47	0.18
Haul Length within 1,000 ft of Site (mile) ³					
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) ⁴					

¹ DPM emissions taken as PM₁₀ exhaust emissions from CalEEMod average daily emissions.

² PM_{2.5} emissions taken as PM_{2.5} exhaust emissions from CalEEMod average daily emissions.

³ Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.39-mile route within 1,000 of the project site.

⁴ Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

⁵ Construction duration for 2022 determined to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

Phase Name	Start Date	End Date	CalEEMod Days	Total Days
Site Preparation	7/4/2022	7/12/2022	7	8
Installation of Solar PV Equipment	7/13/2022	9/6/2022	40	55
Utility Trenching	8/22/2022	8/26/2022	5	4

Number of Construction Days Per Year				Total Construction Days Per Year		
2022	7/4/2022	9/6/2022	47	1/1/2022	12/31/2022	260
	CONSTRUCTION DAYS		47	TOTAL DAYS		260

GHG Emissions Inventory

Construction		MTCO ₂ e Total Project*	
	2022	15	
	Total Construction	15	
	30-Yr Amortized Construction Emissions	1	
	BAAQMD Bright-Line Screening Threshold	660	MTCO ₂ e/Year
	Exceed Threshold?	No	
	*CalEEMod, Version 2020.4		

CalEEMod Construction Model

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**Alameda Grant Line Solar 1 Project
Alameda County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	615.50	1000sqft	14.13	615,503.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - See assumptions file

Construction Phase - Based on applicant info., see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Trips and VMT - Assume 2 vt/day/water truck, added gravel trucks as HHDT vendor trips to site preparation phase, see assumptions file

Grading -

Construction Off-road Equipment Mitigation - BAAQMD Construction BMPs

Table Name	Column Name	Default Value	New Value
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Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	40.00
tblConstructionPhase	NumDays	10.00	7.00
tblLandUse	LandUseSquareFeet	615,500.00	615,503.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.20
tblOffRoadEquipment	UsageHours	8.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	101.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	6.00
tblTripsAndVMT	WorkerTripNumber	259.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**2.1 Overall Construction****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	5.7700e-003	0.0538	0.0751	1.7000e-004	3.8700e-003	1.8900e-003	5.7700e-003	1.0400e-003	1.7400e-003	2.7800e-003	0.0000	15.0847	15.0847	3.6400e-003	3.0000e-004	15.2642
Maximum	5.7700e-003	0.0538	0.0751	1.7000e-004	3.8700e-003	1.8900e-003	5.7700e-003	1.0400e-003	1.7400e-003	2.7800e-003	0.0000	15.0847	15.0847	3.6400e-003	3.0000e-004	15.2642

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	5.7700e-003	0.0538	0.0751	1.7000e-004	3.5800e-003	1.8900e-003	5.4700e-003	9.7000e-004	1.7400e-003	2.7100e-003	0.0000	15.0847	15.0847	3.6400e-003	3.0000e-004	15.2642
Maximum	5.7700e-003	0.0538	0.0751	1.7000e-004	3.5800e-003	1.8900e-003	5.4700e-003	9.7000e-004	1.7400e-003	2.7100e-003	0.0000	15.0847	15.0847	3.6400e-003	3.0000e-004	15.2642

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	7.49	0.00	5.20	6.73	0.00	2.52	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-4-2022	9-30-2022	0.0550	0.0550
		Highest	0.0550	0.0550

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/4/2022	7/12/2022	5	7	a
2	Installation of Solar PV Equipment	Building Construction	7/13/2022	9/6/2022	5	40	b
3	Utility Trenching	Trenching	8/22/2022	8/26/2022	5	5	c

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 14.13****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Aerial Lifts	1	4.00	63	0.31
Site Preparation	Excavators	1	6.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	6.00	203	0.36
Site Preparation	Skid Steer Loaders	1	4.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Installation of Solar PV Equipment	Aerial Lifts	1	4.00	63	0.31
Installation of Solar PV Equipment	Bore/Drill Rigs	1	0.90	221	0.50
Installation of Solar PV Equipment	Concrete/Industrial Saws	0		81	0.73
Installation of Solar PV Equipment	Cranes	0	7.00	231	0.29
Installation of Solar PV Equipment	Excavators	1	0.20	158	0.38
Installation of Solar PV Equipment	Forklifts	0	8.00	89	0.20

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Installation of Solar PV Equipment	Generator Sets	0	8.00	84	0.74
Installation of Solar PV Equipment	Rubber Tired Dozers	0		247	0.40
Installation of Solar PV Equipment	Rubber Tired Dozers	0		247	0.40
Installation of Solar PV Equipment	Rubber Tired Dozers	0		247	0.40
Installation of Solar PV Equipment	Skid Steer Loaders	1	4.00	65	0.37
Installation of Solar PV Equipment	Tractors/Loaders/Backhoes	1	0.20	97	0.37
Installation of Solar PV Equipment	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Installation of Solar PV Equipment	Welders	0	8.00	46	0.45
Utility Trenching	Excavators	1	3.00	158	0.38
Utility Trenching	Graders	0		187	0.41
Utility Trenching	Rollers	1	1.20	80	0.38
Utility Trenching	Rubber Tired Dozers	0		247	0.40
Utility Trenching	Rubber Tired Loaders	1	3.00	203	0.36
Utility Trenching	Scrapers	0		367	0.48
Utility Trenching	Skid Steer Loaders	1	3.00	65	0.37
Utility Trenching	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	6.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HHDT	HHDT
Installation of Solar PV Equipment	5	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utility Trenching	5	6.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9100e-003	0.0196	0.0228	4.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004	0.0000	3.9267	3.9267	1.2700e-003	0.0000	3.9584
Total	1.9100e-003	0.0196	0.0228	4.0000e-005	0.0000	8.1000e-004	8.1000e-004	0.0000	7.4000e-004	7.4000e-004	0.0000	3.9267	3.9267	1.2700e-003	0.0000	3.9584

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.5300e-003	4.5000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5038	0.5038	1.0000e-005	8.0000e-005	0.5278
Worker	6.0000e-005	4.0000e-005	5.0000e-004	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1335	0.1335	0.0000	0.0000	0.1347
Total	1.1000e-004	1.5700e-003	9.5000e-004	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	8.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.6373	0.6373	1.0000e-005	8.0000e-005	0.6625

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9100e-003	0.0196	0.0228	4.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004	0.0000	3.9267	3.9267	1.2700e-003	0.0000	3.9584
Total	1.9100e-003	0.0196	0.0228	4.0000e-005	0.0000	8.1000e-004	8.1000e-004	0.0000	7.4000e-004	7.4000e-004	0.0000	3.9267	3.9267	1.2700e-003	0.0000	3.9584

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.5300e-003	4.5000e-004	1.0000e-005	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5038	0.5038	1.0000e-005	8.0000e-005	0.5278
Worker	6.0000e-005	4.0000e-005	5.0000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1335	0.1335	0.0000	0.0000	0.1347
Total	1.1000e-004	1.5700e-003	9.5000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	7.0000e-005	1.0000e-005	9.0000e-005	0.0000	0.6373	0.6373	1.0000e-005	8.0000e-005	0.6625

3.3 Installation of Solar PV Equipment - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7400e-003	0.0217	0.0322	6.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	5.5214	5.5214	1.7900e-003	0.0000	5.5660
Total	1.7400e-003	0.0217	0.0322	6.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	5.5214	5.5214	1.7900e-003	0.0000	5.5660

Alameda Grant Line Solar 1 Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.1900e-003	6.1000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.9000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.8076	0.8076	1.0000e-005	1.2000e-004	0.8440
Worker	1.1200e-003	8.1000e-004	9.6100e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.5421	2.5421	8.0000e-005	7.0000e-005	2.5663
Total	1.2000e-003	3.0000e-003	0.0102	4.0000e-005	3.4200e-003	4.0000e-005	3.4700e-003	9.2000e-004	4.0000e-005	9.6000e-004	0.0000	3.3497	3.3497	9.0000e-005	1.9000e-004	3.4103

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7400e-003	0.0217	0.0322	6.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	5.5214	5.5214	1.7900e-003	0.0000	5.5660
Total	1.7400e-003	0.0217	0.0322	6.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	5.5214	5.5214	1.7900e-003	0.0000	5.5660

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	2.1900e-003	6.1000e-004	1.0000e-005	2.5000e-004	2.0000e-005	2.7000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8076	0.8076	1.0000e-005	1.2000e-004	0.8440
Worker	1.1200e-003	8.1000e-004	9.6100e-003	3.0000e-005	2.9200e-003	2.0000e-005	2.9300e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5421	2.5421	8.0000e-005	7.0000e-005	2.5663
Total	1.2000e-003	3.0000e-003	0.0102	4.0000e-005	3.1700e-003	4.0000e-005	3.2000e-003	8.5000e-004	4.0000e-005	8.9000e-004	0.0000	3.3497	3.3497	9.0000e-005	1.9000e-004	3.4103

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.4 Utility Trenching - 2022****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4000e-004	7.5900e-003	8.5800e-003	2.0000e-005		3.3000e-004	3.3000e-004		3.0000e-004	3.0000e-004	0.0000	1.4534	1.4534	4.7000e-004	0.0000	1.4652
Total	7.4000e-004	7.5900e-003	8.5800e-003	2.0000e-005		3.3000e-004	3.3000e-004		3.0000e-004	3.0000e-004	0.0000	1.4534	1.4534	4.7000e-004	0.0000	1.4652

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1010	0.1010	0.0000	2.0000e-005	0.1055
Worker	4.0000e-005	3.0000e-005	3.6000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0953	0.0953	0.0000	0.0000	0.0962
Total	5.0000e-005	3.0000e-004	4.4000e-004	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1963	0.1963	0.0000	2.0000e-005	0.2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4000e-004	7.5900e-003	8.5800e-003	2.0000e-005		3.3000e-004	3.3000e-004		3.0000e-004	3.0000e-004	0.0000	1.4534	1.4534	4.7000e-004	0.0000	1.4652
Total	7.4000e-004	7.5900e-003	8.5800e-003	2.0000e-005		3.3000e-004	3.3000e-004		3.0000e-004	3.0000e-004	0.0000	1.4534	1.4534	4.7000e-004	0.0000	1.4652

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1010	0.1010	0.0000	2.0000e-005	0.1055
Worker	4.0000e-005	3.0000e-005	3.6000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0953	0.0953	0.0000	0.0000	0.0962
Total	5.0000e-005	3.0000e-004	4.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1963	0.1963	0.0000	2.0000e-005	0.2017