Appendix F

Energy Worksheets

Construction Energy Consumption

Gasoline (workers)

Year	CO2 (MT)	CO2 (km)	fuel	BTU	million BTU
2025	24.84	24840	**2,829**	340105109	340.105109
2026	54.4	54400	**6,196**	744835665.5	744.8356655
2027	53.45	53450	**6,088**	731828425	731.828425
2028	14.58	14580	**1,661**	199626911.8	199.6269118
2029	13.22	13220	**1,506**	181006020.2	181.0060202
2030	10.9	10900	**1,241**	149240969.7	149.2409697
2031	10.7	10700	**1,219**	146502603.3	146.5026033
2032	12.4	12400	**1,412**	169778717.9	169.7787179
2033	19.1	19100	**2,175**	261513992.8	261.5139928
2034	17.61	17610	**2,006**	241113163	241.113163
2035	5	5000	**569**	68459160.43	68.45916043
2036	4.21	4210	**479**	57642613.08	57.64261308
2037	4.15	4150	**473**	56821103.16	56.82110316
2038	4.12	4120	**469**	56410348.19	56.41034819
2039	7.11	7110	**810**	97348926.13	97.34892613
2040	25.1	25100	**2,859**	343664985.4	343.6649854
2041	27.5	27500	**3,132**	376525382.4	376.5253824
2042	21.02	21020	**2,394**	287802310.4	287.8023104
	171	**171,390**	**19,521**		

Total

Year	CO2 (MT)	CO2 (km)	fuel	BTU	million BTU
2025	976	976,290	96,017	13,142,368,296	13,142
2026	857	856,640	84,770	11,539,399,352	11,539
2027	851	850,910	84,193	11,462,074,682	11,462
2028	428	428,070	42,159	5,763,353,650	5,763
2029	406	406,220	39,997	5,469,028,967	5,469
2030	367	366,800	36,099	4,938,063,786	4,938
2031	366	366,000	36,018	4,927,252,102	4,927
2032	240	239,790	23,684	3,229,431,486	3,229
2033	401	401,100	39,590	5,401,526,119	5,402
2034	314	314,440	31,078	4,235,117,874	4,235
2035	198	197,580	19,431	2,659,724,960	2,660
2036	195	195,450	19,210	2,630,878,003	2,631
2037	195	195,220	19,187	2,627,769,053	2,628
2038	195	195,030	19,168	2,625,205,414	2,625
2039	144	143,780	14,196	1,936,316,092	1,936
2040	445	445,100	43,995	5,994,987,218	5,995
2041	398	398,300	39,449	5,365,835,582	5,366
2042	290	290,050	28,744	3,907,743,311	3,908
Total	**7,267**	**7,266,770**	**716,985**	**97,856,075,948**	**97,856**

Diesel (offroad eq, hauling, vendors)

Year	CO2 (MT)	CO2 (km)	fuel	BTU	million BTU
2025	951	951450	**93,188**	12802263187	12802.26319
2026	802	802240	**78,574**	10794563686	10794.56369
2027	797	797460	**78,106**	10730246257	10730.24626
2028	413	413490	**40,499**	5563726738	5563.726738
2029	393	393000	**38,492**	5288022947	5288.022947
2030	356	355900	**34,858**	4788822816	4788.822816
2031	355	355300	**34,799**	4780749499	4780.749499
2032	227	227390	**22,271**	3059652768	3059.652768
2033	382	382000	**37,414**	5140012126	5140.012126
2034	297	296830	**29,072**	3994004711	3994.004711
2035	193	192580	**18,862**	2591265799	2591.265799
2036	191	191240	**18,731**	2573235390	2573.23539
2037	191	191070	**18,714**	2570947950	2570.94795
2038	191	190910	**18,698**	2568795066	2568.795066
2039	137	136670	**13,386**	1838967166	1838.967166
2040	420	420000	**41,136**	5651322233	5651.322233
2041	371	370800	**36,317**	4989310200	4989.3102
2042	269	269030	**26,350**	3619941001	3619.941001
	6,937	**6,937,360**	**679,467**		

				motor gas	distallate	
MT to km	1000					
CO2 to Gal gasoline	8.78	Climate Registry 2022				
gasoline gal/btu	120,214	EIA 2023	btu per barrel	5,049,000	5,770,000	EIA
CO2 to gas diesel	10.21	Climate Registry 2022	gallons per barrel	42	42	EIA
diesel gas/btu	137,381	EIA 2023	btu per gallon	120,214	137,381	conversion

https://theclimateregistry.org/wp-content/uploads/2022/11/2022-Default-Emission-Factors-Final.pdf

EIA 2023. Table A3: Approximate Heat Content of Petroleum Consumption and Fuel Ethanol. Avaialble: https://www.eia.gov/totalenergy/data/monthly/pdf/sec12_4.pdf

Operational Energy Calcs (Full Buildout)

Unmitigated fuel consumption

Sector	CO2 (MT/year)	CO2 (km)	fuel	BTU	million BTU
Mobile	3126	3126000	**356036.446**	42800667101	42800.7
Area	3	2820	**321.18451**	38610966.48	38.6
Energy	99	98500	**11218.6788**	1348645460	1348.6
Water	29	29000	**3302.96128**	397063130.5	397.1
Waste	288	288000	**32801.8223**	3943247641	3943.2
Refrig.	14	14400	**1640.09112**	197162382	197.2
Total	3559	3558720	405321.185	48725396681	48725.4

Mitigated fuel consumption

Sector	CO2 (MT)	CO2 (km)	fuel	BTU	million BTU
Mobile	3126	3126000	**356036.4**	42800667101	42800.7
Area	2.82	2820	**321.1845**	38610966.48	38.6
Energy	39.5	39500	**4498.861**	540827367.4	540.8
Water	29	29000	**3302.961**	397063130.5	397.1
Waste	288	288000	**32801.82**	3943247641	3943.2
Refrig.	14.4	14400	**1640.091**	197162382	197.2
Total	3499.72	3499720	398601.4	47917578588	47917.6

MT to km	1000					
CO2 to Gal gasoline	8.78	Climate Registry 2022		motor gas	distallate	
gasoline gal/btu	120,214	EIA 2023	btu per barrel	5,049,000	5,770,000	EIA
CO2 to gas diesel	10.21	Climate Registry 2022	gallons per barı	42	42	EIA
diesel gas/btu	137,381	EIA 2023	btu per gallon	120,214	137,381	conversion

Scenario	TOG (tons/year)	ROG (tons/yr)	Nox (tons/yr)	CO (tons/yr)	SO_2 (tons/yr)	PM10E (to	PM10D (tc	PM10T (to	PM2.5E (tons/yr)	PM2.5D (ton	PM2.5T (ton	BCO_2 (MT/	$NBCO_2$ (MT/yr	CO_2T (MT/yr)	CH_4 (MT/y	N_2O (MT/y	R (MT/yr)	CO_2e (MT/
Unmit.	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3190	3287	8.41	0.16	14.9	3558
Mit.	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3132	3229	8.39	0.15	14.9	3499
% Reduced	0	0	0	0	0	0	0	0	0	0	0	0	1.8	1.75	0.29	2.08	0	1.66

~~Unmitigated~~	~~CO2e (MT/yr)~~
~~Mobile~~	~~3126.0~~
~~Area~~	~~2.8~~
~~Energy~~	~~98.5~~
~~Water~~	~~29.0~~
~~Waste~~	~~288.0~~
~~Refrig.~~	~~14.4~~
~~Total~~	~~3558.0~~

Mitigated	CO2e (MT/yr)
Mobile	3126.0
Area	2.8
Energy	39.5
Water	29.0
Waste	288.0
Refrig.	14.4
Total	3499.0

GHG reduction from solar
59.0

Max lbs/day	ROG	NOx	CO	SO_2	PM10T	PM2.5T
Mobile	5.98	5.42	72.7	0.2	21.3	5.46
Area	18.9	0.03	4.12	0	0.01	0.01
Energy	0	0	0	0	0	0
Water	0	0	0	0	0	0
Waste	0	0	0	0	0	0
Refrig.	0	0	0	0	0	0
Total	24.88	5.45	76.82	0.2	21.31	5.47

Non transport
373.7

CA Energy Consumption

Sector	Trillion BTU	Percentage
Residential	1473.2	20.02%
Commercial	1396.7	18.98%
Industrial	1704.4	23.16%
Transporation	2785.1	37.84%
Total	7359.4	100.00%

Source: https://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_1.pdf

Measure	% reductio	Reduction	2394
Bike Reduc	4.4%	137.5	105.336
mmA	0.0%	0.0	0
mmB	26.0%	812.8	622.44
mmC	0.0%	0.0	0
mmD	11.9%	372.0	284.886
Total	0.4	1322.3	1012.7

Mobile afte	1803.7
Total GHGs	2177.4

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Na	EGI Operations
Operations	2043
Lead Agency	
Land Use S	Project/site
Analysis Le	County
Windspeed	3
Precipitatic	36.6
Location	38.37783480117008, -121.38807759275002
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	712
EDFZ	13
Electric Uti	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Versio	2022.1.1.19

1.2. Land Use Types

Land Use S	Size	Unit	Lot Acreag	Building Ar	Landscape	Special Lan	Population	Description
General Of	182	1000sqft	0	0	0			
Free-Stand	26.6	1000sqft	0.61	26600	0			
Day-Care C	12.7	1000sqft	0.29	12700	0			
Fast Food F	53.5	1000sqft	1.23	53450	0			
City Park	15	Acre	15	0	654005	654005		
Hotel	10	Room	0.33	2000	0			
Other Aspt	8.6	1000sqft	0.2	0	0			
Parking Lot	1200	Space	10.8	0	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-10-B	Establish Onsite Renewable Energy Systems: Solar Power

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	7.3	24.9	4.57	76.8	0.2	0.08	21.2	21.3	0.07	5.39	5.46	586	20724	21310	50.8	0.91	93.8	22944
Mit.	7.3	24.9	4.57	76.8	0.2	0.08	21.2	21.3	0.07	5.39	5.46	586	20377	20963	50.6	0.89	93.8	22588
% Reduced													1.67	1.63	0.29	2.16		1.55
Daily, Winter (Max)																		
Unmit.	6.16	23.8	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46	586	18864	19450	50.8	0.97	87	21098
Mit.	6.16	23.8	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46	586	18517	19104	50.7	0.95	87	20742
% Reduced													1.84	1.78	0.29	2.02		1.69
Average Daily (Max)																		
Unmit.	6.91	24.5	5.06	62.8	0.18	0.08	20.7	20.8	0.07	5.26	5.34	586	19265	19852	50.8	0.94	89.9	21492
Mit.	6.91	24.5	5.06	62.8	0.18	0.08	20.7	20.8	0.07	5.26	5.34	586	18919	19505	50.7	0.92	89.9	21136
% Reduced													1.8	1.75	0.29	2.08		1.66
Annual (Max)																		
Unmit.	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3190	3287	8.41	0.16	14.9	3558
Mit.	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3132	3229	8.39	0.15	14.9	3499
% Reduced													1.8	1.75	0.29	2.08		1.66

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	6.57	5.98	4.54	72.7	0.2	0.07	21.2	21.3	0.07	5.39	5.46		20108	20108	0.53	0.68	6.99	20331
Area	0.73	18.9	0.03	4.12	< 0.005	0.01		0.01	0.01		0.01		16.9	16.9	< 0.005	< 0.005		17
Energy	0	0	0	0	0	0		0	0		0		579	579	0.25	0.03		595
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	7.3	24.9	4.57	76.8	0.2	0.08	21.2	21.3	0.07	5.39	5.46	586	20724	21310	50.8	0.91	93.8	22944
Daily, Winter (Max)																		
Mobile	6.16	5.58	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46		18265	18265	0.57	0.74	0.18	18502
Area		18.2																
Energy	0	0	0	0	0	0		0	0		0		579	579	0.25	0.03		595
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	6.16	23.8	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46	586	18864	19450	50.8	0.97	87	21098
Average Daily																		
Mobile	6.18	5.59	5.02	58.7	0.18	0.07	20.7	20.8	0.07	5.26	5.33		18650	18650	0.55	0.71	3.02	18879
Area	0.73	18.9	0.03	4.12	< 0.005	0.01		0.01	0.01		0.01		16.9	16.9	< 0.005	< 0.005		17
Energy	0	0	0	0	0	0		0	0		0		579	579	0.25	0.03		595
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	6.91	24.5	5.06	62.8	0.18	0.08	20.7	20.8	0.07	5.26	5.34	586	19265	19852	50.8	0.94	89.9	21492
Annual																		
Mobile	1.13	1.02	0.92	10.7	0.03	0.01	3.78	3.8	0.01	0.96	0.97		3088	3088	0.09	0.12	0.5	3126
Area	0.13	3.45	0.01	0.75	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		2.81	2.81	< 0.005	< 0.005		2.82
Energy	0	0	0	0	0	0		0	0		0		95.9	95.9	0.04	0.01		98.5
Water												14.8	3.25	18	0.05	0.03		29
Waste												82.3	0	82.3	8.23	0		288
Refrig.																	14.4	14.4
Total	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3190	3287	8.41	0.16	14.9	3558

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	6.57	5.98	4.54	72.7	0.2	0.07	21.2	21.3	0.07	5.39	5.46		20108	20108	0.53	0.68	6.99	20331
Area	0.73	18.9	0.03	4.12	< 0.005	0.01		0.01	0.01		0.01		16.9	16.9	< 0.005	< 0.005		17
Energy	0	0	0	0	0	0		0	0		0		232	232	0.1	0.01		239
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	7.3	24.9	4.57	76.8	0.2	0.08	21.2	21.3	0.07	5.39	5.46	586	20377	20963	50.6	0.89	93.8	22588
Daily, Winter (Max)																		
Mobile	6.16	5.58	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46		18265	18265	0.57	0.74	0.18	18502
Area		18.2																
Energy	0	0	0	0	0	0		0	0		0		232	232	0.1	0.01		239
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	6.16	23.8	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46	586	18517	19104	50.7	0.95	87	20742
Average Daily																		
Mobile	6.18	5.59	5.02	58.7	0.18	0.07	20.7	20.8	0.07	5.26	5.33		18650	18650	0.55	0.71	3.02	18879
Area	0.73	18.9	0.03	4.12	< 0.005	0.01		0.01	0.01		0.01		16.9	16.9	< 0.005	< 0.005		17
Energy	0	0	0	0	0	0		0	0		0		232	232	0.1	0.01		239
Water												89.3	19.7	109	0.32	0.2		175
Waste												497	0	497	49.7	0		1739
Refrig.																	86.9	86.9
Total	6.91	24.5	5.06	62.8	0.18	0.08	20.7	20.8	0.07	5.26	5.34	586	18919	19505	50.7	0.92	89.9	21136
Annual																		
Mobile	1.13	1.02	0.92	10.7	0.03	0.01	3.78	3.8	0.01	0.96	0.97		3088	3088	0.09	0.12	0.5	3126
Area	0.13	3.45	0.01	0.75	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		2.81	2.81	< 0.005	< 0.005		2.82
Energy	0	0	0	0	0	0	0		0	0		0	38.5	38.5	0.02	< 0.005		39.5
Water												14.8	3.25	18	0.05	0.03		29
Waste												82.3	0	82.3	8.23	0		288
Refrig.																	14.4	14.4
Total	1.26	4.47	0.92	11.5	0.03	0.01	3.78	3.8	0.01	0.96	0.97	97.1	3132	3229	8.39	0.15	14.9	3499

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Of	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Free-Stand	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Day-Care C	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Fast Food F	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
City Park	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Hotel	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Other Aspt	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Parking Lot	0.82	0.75	0.57	9.09	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2514	2514	0.07	0.08	0.87	2541
Total	6.57	5.98	4.54	72.7	0.2	0.07	21.2	21.3	0.07	5.39	5.46		20108	20108	0.53	0.68	6.99	20331
Daily, Winter (Max)																		
General Of	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Free-Stand	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Day-Care C	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Fast Food F	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
City Park	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Hotel	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Other Aspt	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Parking Lot	0.77	0.7	0.68	7.18	0.02	0.01	2.65	2.66	0.01	0.67	0.68		2283	2283	0.07	0.09	0.02	2313
Total	6.16	5.58	5.42	57.4	0.18	0.07	21.2	21.3	0.07	5.39	5.46		18265	18265	0.57	0.74	0.18	18502
Annual																		
General Of	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Free-Stand	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Day-Care C	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Fast Food F	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
City Park	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Hotel	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Other Aspt	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Parking Lot	0.14	0.13	0.11	1.34	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12		386	386	0.01	0.01	0.06	391
Total	1.13	1.02	0.92	10.7	0.03	0.01	3.78	3.8	0.01	0.96	0.97		3088	3088	0.09	0.12	0.5	3126

Operational Energy Calcs (Soft Open)

Unmitigated fuel consumption

Sector	CO2 (MT/year)	CO2 (km)	fuel	BTU	million BTU
Mobile	144	144000	**16400.9112**	1971623820	1971.6
Area	0.42	420	**47.8359909**	5750569.476	5.8
Energy	209	209000	**23804.1002**	2861592906	2861.6
Water	21	21400	**2437.35763**	293005206.6	293.0
Waste	42	42200	**4806.37813**	577795314	577.8
Refrig.	0	20	**2.27790433**	273836.6417	0.3
Total	417	417040	47498.861	5710041653	5710.0

Mitigated fuel consumption

Sector	CO2 (MT)	CO2 (km)	fuel	BTU	million BTU
Mobile	144	144000	**16400.91**	1971623820	1971.6
Area	0.42	420	**47.83599**	5750569.476	5.8
Energy	61.8	61800	**7038.724**	846155222.9	846.2
Water	21.4	21400	**2437.358**	293005206.6	293.0
Waste	42.2	42200	**4806.378**	577795314	577.8
Refrig.	0.02	20	**2.277904**	273836.6417	0.3
Total	269.84	269840	30733.49	3694603970	3694.6

MT to km	1000					
CO2 to Gal gasoline	8.78	Climate Registry 2022		motor gas	distallate	
gasoline gal/btu	120,214	EIA 2023	btu per barrel	5,049,000	5,770,000	EIA
CO2 to gas diesel	10.21	Climate Registry 2022	gallons per barı	42	42	EIA
diesel gas/btu	137,381	EIA 2023	btu per gallon	120,214	137,381	conversion

Scenario	TOG (tons/year)	ROG (tons/yr)	Nox (tons/yr)	CO (tons/yr)	SO_2 (tons/yr)	PM10E (to	PM10D (tc	PM10T (to	PM2.5E (tons/yr)	PM2.5D (ton	PM2.5T (ton	BCO_2 (MT/	$NBCO_2$ (MT/yr	CO_2T (MT/yr)	CH_4 (MT/y	N_2O (MT/y	R (MT/yr)	CO_2e (MT/
Unmit.	0.04	0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	364	381	1.24	0.02	0.19	417
Mit.	0.04	0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	218	234	1.23	0.02	0.19	270
% Reduced	0	0	0	0	0	0	0	0	0	0	0	0	40.2	38.5	0.64	6.25	0	35.2

~~Unmitigated~~	~~CO2e (MT/yr)~~
~~Mobile~~	144
~~Area~~	~~0.4~~
~~Energy~~	~~209.0~~
~~Water~~	~~21.4~~
~~Waste~~	~~42.2~~
~~Refrig.~~	~~0.0~~
~~Total~~	~~417.0~~

Mitigated	CO2e (MT/yr)
Mobile	144
Area	0.4
Energy	61.8
Water	21.4
Waste	42.2
Refrig.	0.0
Total	270.0

GHG reduction from solar
147.2

Max lbs/day	ROG	NOx	CO	SO_2	PM10T	PM2.5T
Mobile	0.1	0.33	3.35	0.01	0.83	0.22
Area	0.77	0.01	0.9	0	0	0
Energy	0	0	0	0	0	0
Water	0	0	0	0	0	0
Waste	0	0	0	0	0	0
Refrig.	0	0	0	0	0	0
Total	0.87	0.34	4.25	0.01	0.83	0.22

Non transport
125.8

Measure	% reductio	Reduction	2394
Bike Reduc	4.4%	6.3	105.336
mmA	0.0%	0.0	0
mmB	26.0%	37.4	622.44
mmC	0.0%	0.0	0
mmD	11.9%	17.1	284.886
Total	0.4	60.9	1012.7

Mobile afte	83.1
Total GHGs	208.9

CA Energy Consumption

Sector	Trillion BTU	Percentage
Residential	1473.2	20.02%
Commercial	1396.7	18.98%
Industrial	1704.4	23.16%
Transporation	2785.1	37.84%
Total	7359.4	100.00%

Source: https://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_1.pdf

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Nar	EGZ Phase 1 operations
Operations	2029
Lead Agency	
Land Use S	Project/site
Analysis Le	County
Windspeed	3
Precipitatic	36.6
Location	38.37891510696102, -121.38702398167291
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	712
EDFZ	13
Electric Uti	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Versio	2022.1.1.21

1.2. Land Use Types

Land Use S	Size	Unit	Lot Acreag	Building Ar	Landscape	Special Lan	Population	Description
General Of	57.5	1000sqft	0	0				
Free-Stand	18.1	1000sqft	0.42	18100				
Day-Care C	2.7	1000sqft	0.06	2700				
Other Asph	8.6	1000sqft	0.2	0				
City Park	5.72	Acre	5.72	0	249015	249015		
Parking Lot	1200	Space	10.8	0				

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-10-B	Establish Onsite Renewable Energy Systems: Solar Power

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	0.29		0.87	0.29	4.26	0.01	0.01	0.83	0.84	0.01	0.21	0.22	100	2265	2365	7.48	0.1	2.55	2584
Mit.	0.29		0.87	0.29	4.26	0.01	0.01	0.83	0.84	0.01	0.21	0.22	100	1381	1481	7.43	0.09	2.55	1697
% Reduced														39	37.4	0.64	6.35		34.3
Daily, Winter (Max)																			
Unmit.	0.13		0.73	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22	100	2179	2279	7.48	0.1	0.16	2497
Mit.	0.13		0.73	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22	100	1295	1395	7.43	0.1	0.16	1610
% Reduced														40.6	38.8	0.64	6.19		35.5
Average Daily (Max)																			
Unmit.	0.24		0.83	0.31	3.19	0.01	0.01	0.81	0.82	0.01	0.21	0.21	100	2199	2299	7.48	0.1	1.16	2517
Mit.	0.24		0.83	0.31	3.19	0.01	0.01	0.81	0.82	0.01	0.21	0.21	100	1315	1415	7.43	0.09	1.16	1630
% Reduced														40.2	38.5	0.64	6.25		35.2
Annual (Max)																			
Unmit.	0.04		0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	364	381	1.24	0.02	0.19	417
Mit.	0.04		0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	218	234	1.23	0.02	0.19	270
% Reduced														40.2	38.5	0.64	6.25		35.2

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	0.13		0.1	0.28	3.35	0.01	0.01	0.83	0.83	0.01	0.21	0.22		924	924	0.02	0.03	2.45	936
Area	0.16		0.77	0.01	0.9	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		3.72	3.72	< 0.005	< 0.005		3.73
Energy	0		0	0	0	0	0		0	0		0		1256	1256	0.07	0.01		1260
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.29		0.87	0.29	4.26	0.01	0.01	0.83	0.84	0.01	0.21	0.22	100	2265	2365	7.48	0.1	2.55	2584
Daily, Winter (Max)																			
Mobile	0.13		0.1	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22		842	842	0.02	0.03	0.06	852
Area			0.62																
Energy	0		0	0	0	0	0		0	0		0		1256	1256	0.07	0.01		1260
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.13		0.73	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22	100	2179	2279	7.48	0.1	0.16	2497
Average Daily																			
Mobile	0.13		0.1	0.31	2.57	0.01	0.01	0.81	0.81	0.01	0.21	0.21		859	859	0.02	0.03	1.06	870
Area	0.11		0.73	0.01	0.62	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		2.55	2.55	< 0.005	< 0.005		2.56
Energy	0		0	0	0	0	0		0	0		0		1256	1256	0.07	0.01		1260
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.24		0.83	0.31	3.19	0.01	0.01	0.81	0.82	0.01	0.21	0.21	100	2199	2299	7.48	0.1	1.16	2517
Annual																			
Mobile	0.02		0.02	0.06	0.47	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04		142	142	< 0.005	0.01	0.18	144
Area	0.02		0.13	< 0.005	0.11	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		0.42	0.42	< 0.005	< 0.005		0.42
Energy	0		0	0	0	0	0		0	0		0		208	208	0.01	< 0.005		209
Water													4.56	13.4	18	0.02	0.01		21.4
Waste													12.1	0	12.1	1.21	0		42.2
Refrig.																		0.02	0.02
Total	0.04		0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	364	381	1.24	0.02	0.19	417

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	0.13		0.1	0.28	3.35	0.01	0.01	0.83	0.83	0.01	0.21	0.22		924	924	0.02	0.03	2.45	936
Area	0.16		0.77	0.01	0.9	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		3.72	3.72	< 0.005	< 0.005		3.73
Energy	0		0	0	0	0	0		0	0		0		372	372	0.02	< 0.005		373
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.29		0.87	0.29	4.26	0.01	0.01	0.83	0.84	0.01	0.21	0.22	100	1381	1481	7.43	0.09	2.55	1697
Daily, Winter (Max)																			
Mobile	0.13		0.1	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22		842	842	0.02	0.03	0.06	852
Area			0.62																
Energy	0		0	0	0	0	0		0	0		0		372	372	0.02	< 0.005		373
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.13		0.73	0.33	2.43	0.01	0.01	0.83	0.83	0.01	0.21	0.22	100	1295	1395	7.43	0.1	0.16	1610
Average Daily																			
Mobile	0.13		0.1	0.31	2.57	0.01	0.01	0.81	0.81	0.01	0.21	0.21		859	859	0.02	0.03	1.06	870
Area	0.11		0.73	0.01	0.62	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		2.55	2.55	< 0.005	< 0.005		2.56
Energy	0		0	0	0	0	0		0	0		0		372	372	0.02	< 0.005		373
Water													27.5	80.9	108	0.1	0.06		129
Waste													72.9	0	72.9	7.29	0		255
Refrig.																		0.1	0.1
Total	0.24		0.83	0.31	3.19	0.01	0.01	0.81	0.82	0.01	0.21	0.21	100	1315	1415	7.43	0.09	1.16	1630
Annual																			
Mobile	0.02		0.02	0.06	0.47	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04		142	142	< 0.005	0.01	0.18	144
Area	0.02		0.13	< 0.005	0.11	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		0.42	0.42	< 0.005	< 0.005		0.42
Energy	0		0	0	0	0	0		0	0		0		61.6	61.6	< 0.005	< 0.005		61.8
Water													4.56	13.4	18	0.02	0.01		21.4
Waste													12.1	0	12.1	1.21	0		42.2
Refrig.																		0.02	0.02
Total	0.04		0.15	0.06	0.58	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	16.6	218	234	1.23	0.02	0.19	270

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

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
General Office Building													863	863	0.05	0.01		866
Free-Standing Discount store													110	110	0.01	< 0.005		111
Day-Care Center													13.4	13.4	< 0.005	< 0.005		13.5
Other Asphalt Surfaces													0	0	0	0		0
City Park													0	0	0	0		0
Parking Lot													269	269	0.01	< 0.005		270
Total													1256	1256	0.07	0.01		1260
Daily, Winter (Max)																		
General Office Building													863	863	0.05	0.01		866
Free-Standing Discount store													110	110	0.01	< 0.005		111
Day-Care Center													13.4	13.4	< 0.005	< 0.005		13.5
Other Asphalt Surfaces													0	0	0	0		0
City Park													0	0	0	0		0
Parking Lot													269	269	0.01	< 0.005		270
Total													1256	1256	0.07	0.01		1260
Annual																		
General Office Building													143	143	0.01	< 0.005		143
Free-Standing Discount store													18.3	18.3	< 0.005	< 0.005		18.4
Day-Care Center													2.22	2.22	< 0.005	< 0.005		2.23
Other Asphalt Surfaces													0	0	0	0		0
City Park													0	0	0	0		0
Parking Lot													44.5	44.5	< 0.005	< 0.005		44.6
Total													208	208	0.01	< 0.005		209

NOTES:
gasoline kg/gal = 8.78 kg/G
diesel kg/G = 10.21 kg/G
gasoline gal/btu = 113,927 BTU per gallon
diesel btu/G = 129,488 btu per gallon
electricity btu/kWh = 3416 btu per kwh