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Appendix DR GHG

Greenhouse Gas Emissions Calculations

Vaca Dixon BESS Data Response
Energy Loss from Transmission and Charging/Discharging Cycles

21 Initial 57 MW
8 Future Batteries (year 17)

Annual Energy Production Total System		Annual Average Solar Radiation Hours/Day/Year
Grid Size (MW)	57	
Total hrs/year	8,760	
% Operational time [1]	*21%*	5.1
Operational hours/year	1,862	
KWh produced per year	106,105,500	
Assumed Heat Rate (Btu/KWh)	10,000	
Annual Fuel Equivalent (MMBtu)[2]	1,061,055	

Annual Energy Production Per Battery		Annual Average Solar Radiation Hours/Day/Year
Grid Size (MW)	2.71	
Total hrs/year	8,760	
% Operational time [1]	*21%*	5.1
Operational hours/year	1,862	
KWh produced per year	5,052,643	
Assumed Heat Rate (Btu/KWh)	10,000	
Annual Fuel Equivalent (MMBtu)[2]	50,526	

4.27% Loss associated with Transmission and Distribution of electricity (CA 2024)[2]
Charging/Discharging cycles Losses per unit[3]
20% 80% Year 1
35% 65% Year 17
1.30% loss per year - self discharge[3]

Emissions Losses

Year 1	Year 17	
4,532,926	4,532,926	KWh/year loss from Transmission & Distribution
1,010,529	1,768,425	KWh/year Charging/Discharging Losses per unit
21,221,100	51,284,325	KWh/year Charging/Discharging Losses year Total
65,684	65,684	KWh/year Self Discharge Loss (per unit)
1,379,372	1,904,846	KWh/year Self Discharge Loss (Total)
4,533	4,533	MWh/year loss from Transmission & Distribution
21,221	51,284	MWh/year Charging/Discharging Losses year Total
1,379	1,905	MWh/year Self Discharge Loss (Total)
27,133	**57,722**	Total Loss per year

PG&E Pollutant Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMod	2028 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

Year 1	**Year 17**			
5,534,752	11,774,327	lbs CO2	1	CO2 GWP
895	1,905	lbs CH4	25	CH4 GWP
109	231	lbs N2O	298	NO2 GWP

From CalEEMod (uses IPCC's 4th Assessment Report)

Vaca Dixon BESS Data Response
Energy Loss from Transmission and Charging/Discharging Cycles

Year 1	**Year 17**				
5,534,752	11,774,327	lbs CO2			
22,385	47,621	lbs CH4 (CO2e)			
32,343	68,805	lbs N2O (CO2e)			
5,589,480	11,890,752	lbs CO2e			
0.00045359		Metric Tons/lb			
2,535	**5,394**	**Metric Tons/year**	2028	52.57%	Renewable content

GHG Emissions with increased Renewables reaching 100% by 2045

5,394	2028	3,194	2035	995	2042
5,079	2029	2,880	2036	681	2043
4,765	2030	2,566	2037	367	2044
4,451	2031	2,252	2038	53	2045
4,137	2032	1,938	2039		
3,823	2033	1,624	2040		
3,509	2034	1,309	2041		

Sources:

1. 1. Operational time is based on annual average solar radiation hours per day per year (5.1 Davis) for the project area. Source: solardirect.com
2. https://www.eia.gov/electricity/state/unitedstates/state_tables.php
3. https://climate-transparency-platform.org/sites/default/files/knowledge_centre_files/Greenhouse%20Gas%20Emissions%20Acc

Arges BESS Data Response
Energy Loss from Transmission and Charging/Discharging Cycles

100 Initial 100 MW
28 Future Batteries (year 17)

Annual Energy Production Total System		Annual Average Solar Radiation Hours/Day/Year
Grid Size (MW)	100	
Total hrs/year	8,760	
% Operational time [1]	*21%*	5.1
Operational hours/year	1,862	
KWh produced per year	186,150,000	
Assumed Heat Rate (Btu/KWh)	10,000	
Annual Fuel Equivalent (MMBtu)[2]	1,861,500	

Annual Energy Production Per Battery		Annual Average Solar Radiation Hours/Day/Year
Grid Size (MW)	1.00	
Total hrs/year	8,760	
% Operational time [1]	*21%*	5.1
Operational hours/year	1,862	
KWh produced per year	1,861,500	
Assumed Heat Rate (Btu/KWh)	10,000	
Annual Fuel Equivalent (MMBtu)[2]	18,615	

4.27% Loss associated with Transmission and Distribution of electricity (CA 2024)[2]
Charging/Discharging cycles Losses per unit[3]
20% 80% Year 1
35% 65% Year 17
1.30% loss per year - self discharge[3]

Emissions Losses

Year 1	Year 17	
7,952,501	7,952,501	KWh/year loss from Transmission & Distribution
372,300	651,525	KWh/year Charging/Discharging Losses per unit
37,230,000	83,395,200	KWh/year Charging/Discharging Losses year Total
24,200	24,200	KWh/year Self Discharge Loss (per unit)
2,419,950	3,097,536	KWh/year Self Discharge Loss (Total)
7,953	7,953	MWh/year loss from Transmission & Distribution
37,230	83,395	MWh/year Charging/Discharging Losses year Total
2,420	3,098	MWh/year Self Discharge Loss (Total)
47,602	**94,445**	Total Loss per year

PG&E Pollutant Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMod	2029 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

Year 1	**Year 17**			
9,710,091	19,265,223	lbs CO2	1	CO2 GWP
1,571	3,117	lbs CH4	25	CH4 GWP
190	378	lbs N2O	298	NO2 GWP

From CalEEMod (uses IPCC's 4th Assessment Report)

Arges BESS Data Response
Energy Loss from Transmission and Charging/Discharging Cycles

Year 1	**Year 17**				
9,710,091	19,265,223	lbs CO2			
39,272	77,917	lbs CH4 (CO2e)			
56,742	112,579	lbs N2O (CO2e)			
9,806,105	19,455,719	lbs CO2e			
0.00045359		Metric Tons/lb			
4,448	**8,825**	**Metric Tons/year**	2029	56.29%	Renewable content

GHG Emissions with increased Renewables reaching 100% by 2045

86	2029	5,002	2036	1,179	2043
8,825	2030	4,456	2037	633	2044
8,279	2031	3,910	2038	86	2045
7,733	2032	3,363	2039		
7,186	2033	2,817	2040		
6,640	2034	2,271	2041		
5,548	2035	1,725	2042		

Sources:

1. 1. Operational time is based on annual average solar radiation hours per day per year (5.1 Davis) for the project area. Source: solardirect.com
2. https://www.eia.gov/electricity/state/unitedstates/state_tables.php
3. https://climate-transparency-platform.org/sites/default/files/knowledge_centre_files/Greenhouse%20Gas%20Emissions%20Acc

Vaca Dixon BESS Data Response
GHG Emissions from Auxillary Loads

Chiller Electrical Usage (Chiller Manual- BTMS950-ESA10 Energy Storage Liquid Cooling Unit)

55	kW	Chiller power usage
1,320	kwH/day/unit	
481,800	kWh/year/unit	
21	initial units	
10,117,800	kWh/year	
10,118	MW/year - Initial	
29	Units (year 17)	
13,972,200	kWh/year	
13,972	MW/year - Initial	

Container Electrical Usage

(estimated in CalEEMod based on refrigerated warehouse electrical usage)

899,686	kWh/year
900	MW/year - Initial
42.84	MWh/year/unit
299.90	MWh/year = additional 7 units
1,200	MWh/year total Year 17

Total Energy Consumption (MW)

11,017	Initial Year
15,172	Year 17

PG&E Pollutant Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMod	2028 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

Year 1	**Year 17**			
2,247,380	3,094,785	lbs CO2	1	CO2 GWP
364	501	lbs CH4	25	CH4 GWP
44	61	lbs N2O	298	NO2 GWP

From CalEEMod (uses IPCC's 4th Assessment Report)

Year 1	**Year 17**			
2,247,380	3,094,785	lbs CO2		
9,089	12,517	lbs CH4 (CO2e)		
13,133	18,085	lbs N2O (CO2e)		
2,269,602	3,125,387	lbs CO2e		
0.00045359		Metric Tons/lb		
1,029	**1,418**	**Metric Tons/year**	2028	52.57%

Vaca Dixon BESS Data Response
GHG Emissions from Auxillary Loads

GHG Emissions with increased Renewables reaching 100% by 2045

1,029	2028	610	2035	190	2042
970	2029	550	2036	130	2043
910	2030	490	2037	70	2044
850	2031	430	2038	10	2045
790	2032	370	2039		
730	2033	310	2040		
670	2034	250	2041		

520 Average MT CO2e/year

Arges BESS Data Response
GHG Emissions from Auxillary Loads

Chiller Electrical Usage (Chiller Manual- BTMS950-ESA10 Energy Storage Liquid Cooling Unit)

55	kW	Chiller power usage
1,320	kwH/day/unit	
481,800	kWh/year/unit	
100	initial units	
48,180,000	kWh/year	
48,180	MW/year - Initial	
128	Units (year 17)	
61,670,400	kWh/year	
61,670	MW/year - Initial	

Container Electrical Usage

(estimated in CalEEMod based on refrigerated warehouse electrical usage)

1,607,941	kWh/year
1,608	MW/year - Initial
84.63	MWh/year/unit
2369.60	MWh/year = additional 28 units
3,978	MWh/year total Year 17

Total Energy Consumption (MW)

49,788	Initial Year
65,648	Year 17

PG&E Pollutant Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMod	2029 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

Year 1	**Year 17**			
10,155,894	13,391,063	lbs CO2	1	CO2 GWP
1,643	2,166	lbs CH4	25	CH4 GWP
199	263	lbs N2O	298	NO2 GWP
			From CalEEMod	(uses IPCC's 4th Assessment Report)

Year 1	**Year 17**			
10,155,894	13,391,063	lbs CO2		
41,075	54,160	lbs CH4 (CO2e)		
59,347	78,252	lbs N2O (CO2e)		
10,256,316	13,523,475	lbs CO2e		
0.00045359		Metric Tons/lb		
4,652	**6,134**	**Metric Tons/year**	2029	56.29% renewable

Arges BESS Data Response
GHG Emissions from Auxillary Loads

GHG Emissions with increased Renewables reaching 100% by 2045

4,652	2029	2,637	2036	621	2043
4,364	2030	2,349	2037	333	2044
4,076	2031	2,061	2038	46	2045
3,788	2032	1,773	2039		
3,501	2033	1,485	2040		
3,213	2034	1,197	2041		
2,925	2035	909	2042		

2,349 Average MT CO2e/year

Vaca Dixon BESS Data Response
Annual GHG Emissions from Charging BESS from the Grid

If not provided b	Units	
57	MW Storage	
4	hrs/day	Charging from Grid
228	MWh/day	
365	days/year	
83220	MWh/year	
1000	kWh/MWh	
83,220,000	**kWh/year**	

PG&E Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMOd	2028 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

16,975,465	lbs CO2
2,746	lbs CH4
333	lbs N2O

1	CO2 GWP	From CalEEMod (uses IPCC's 4th Assessment Report)
25	CH4 GWP	
298	NO2 GWP	

16,975,465	lbs CO2
68,657	lbs CH4 (CO2e)
99,198	lbs N2O (CO2e)
17,143,320	lbs CO2e
0.00045359	Metric Tons/lb
7,776	**Metric Tons/year**

2028 52.57% renewable

7,776	2028	4,605	2035	1,435	2042
7,323	2029	4,153	2036	982	2043
6,870	2030	3,700	2037	529	2044
6,417	2031	3,247	2038	76	2045
5,964	2032	2,794	2039		
5,511	2033	2,341	2040		
5,058	2034	1,888	2041		

3,926 Average MT CO2e/year

Vaca Dixon BESS Data Response
Intensity Factor Reduction based on increased Renewables

Year	Renewable %	Change in %	reduction per year	Intensity Factor CO2	reduction per year
2019					
2023	34.00%				
2024	37.71%				
2025	41.43%				
2026	45.14%				
2027	48.86%				
2028	52.57%			203.98	11.999
2029	56.29%			191.98	
2030	60%	26.0000%	0.037142857	179.99	
2031	66.00%			167.99	
2032	72.00%			155.99	
2033	78.00%			143.99	
2034	84.00%			131.99	
2035	90%	30%	0.06	119.99	
2036	91.00%			107.99	
2037	92.00%			95.99	
2038	93.00%			83.99	
2039	94.00%			71.99	
2040	95%	5%	0.01	60.00	
2041	96.00%			48.00	
2042	97.00%			36.00	
2043	98.00%			24.00	
2044	99.00%			12.00	
2045	100%	5%	0.01	0.00	

Arges BESS Data Response
Annual GHG Emissions from Charging BESS from the Grid

If not provided b	Units	
100	MW Storage	
4	hrs/day	Charging from Grid
400	MWh/day	
365	days/year	
146000	MWh/year	
1000	kWh/MWh	
146,000,000	**kWh/year**	

PG&E Intensity Factors

203.983	CO2	lbs/MWhr	CalEEMOd	2029 forecasted
0.033	CH4	lbs/MWhr		
0.004	N2O	lbs/MWhr		

29,781,518	lbs CO2
4,818	lbs CH4
584	lbs N2O

1	CO2 GWP
25	CH4 GWP
298	NO2 GWP

From CalEEMod (uses IPCC's 4th Assessment Report)

29,781,518	lbs CO2
120,450	lbs CH4 (CO2e)
174,032	lbs N2O (CO2e)
30,076,000	lbs CO2e
0.00045359	Metric Tons/lb
13,642	**Metric Tons/year**

2029 56.29% renewable

13,642	2029	7,732	2036	1,822	2043
12,798	2030	6,888	2037	978	2044
11,954	2031	6,044	2038	134	2045
11,109	2032	5,199	2039		
10,265	2033	4,355	2040		
9,421	2034	3,511	2041		
8,576	2035	2,666	2042		

6,888 Average MT CO2e/year

Arges BESS Data Response
Intensity Factor Reduction based on increased Renewables

Year	Renewable %	Change in %	reduction per year	Intensity Factor CO2	reduction per year
2019					
2023	34.00%				
2024	37.71%				
2025	41.43%				
2026	45.14%				
2027	48.86%				
2028	52.57%				
2029	56.29%			203.98	12.7489375
2030	60%	26.0000%	0.037142857	191.23	
2031	66.00%			178.49	
2032	72.00%			165.74	
2033	78.00%			152.99	
2034	84.00%			140.24	
2035	90%	30%	0.06	127.49	
2036	91.00%			114.74	
2037	92.00%			101.99	
2038	93.00%			89.24	
2039	94.00%			76.49	
2040	95%	5%	0.01	63.74	
2041	96.00%			51.00	
2042	97.00%			38.25	
2043	98.00%			25.50	
2044	99.00%			12.75	
2045	100%	5%	0.01	0.00	

Table 10. Supply and disposition of electricity, 1990 through 2024

United States

megawatthours

Category	Year 2024	Year 2023	Year 2022	Year 2021	Year 2020	Year 2019	Year 2018	Year 2017	Year 2016	Year 2015
Supply										
Generation										
..Electric utilities	2,256,336,248	2,189,614,522	2,229,610,568	2,210,187,303	2,170,316,460	2,268,722,543	2,339,959,902	2,275,539,007	2,305,886,743	2,316,508,487
..Independent power producers	1,763,687,568	1,703,467,027	1,714,778,313	1,612,665,808	1,546,399,810	1,559,801,349	1,538,235,238	1,464,502,555	1,459,558,339	1,448,725,510
..Combined heat and power, electric	136,603,217	135,459,735	129,503,354	132,931,745	136,940,183	139,823,636	142,681,796	138,583,503	153,532,135	155,172,552
Electric power sector generation subtotal	**4,156,627,033**	**4,028,541,285**	**4,073,892,234**	**3,955,784,856**	**3,853,656,454**	**3,968,347,528**	**4,020,876,936**	**3,878,625,065**	**3,918,977,217**	**3,920,406,548**
..Combined heat and power, commercial	15,258,042	16,065,508	16,737,258	12,767,674	13,046,064	13,688,950	13,312,386	13,059,753	12,706,351	12,595,196
..Combined heat and power, industrial	136,749,223	138,663,879	140,042,740	139,750,305	143,064,328	148,537,402	146,798,381	143,758,076	145,890,233	145,712,028
Industrial and commercial generation subtotal	**152,007,264**	**154,729,388**	**156,779,998**	**152,517,979**	**156,110,392**	**162,226,352**	**160,110,767**	**156,817,829**	**158,596,584**	**158,307,224**
Total net generation	**4,308,634,297**	**4,183,270,672**	**4,230,672,233**	**4,108,302,835**	**4,009,766,846**	**4,130,573,879**	**4,180,987,703**	**4,035,442,895**	**4,077,573,801**	**4,078,713,772**
Total international imports	**33,254,488**	**38,917,208**	**56,970,303**	**53,167,008**	**61,448,863**	**59,052,461**	**58,260,602**	**65,684,917**	**72,716,263**	**75,594,323**
Net interstate imports	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total supply	**4,341,888,785**	**4,222,187,880**	**4,287,642,536**	**4,161,469,843**	**4,071,215,709**	**4,189,626,340**	**4,239,248,305**	**4,101,127,812**	**4,150,290,064**	**4,154,308,095**
Disposition										
Sales to ultimate customers										
..Full service providers	3,364,435,468	3,294,906,835	3,346,987,449	3,215,296,558	3,144,897,974	3,213,128,642	3,260,944,103	3,149,972,818	3,189,541,028	3,191,424,561
..Energy-only providers	593,516,397	562,573,231	565,117,295	575,566,959	558,832,197	583,431,236	584,077,437	559,727,018	560,015,208	554,944,016
..Facility direct sales	17,429,967	16,773,296	15,064,325	15,010,736	13,944,310	14,590,585	14,163,721	13,656,138	12,905,394	12,623,813
Total electric industry sales	**3,975,381,832**	**3,874,253,362**	**3,927,169,069**	**3,805,874,253**	**3,717,674,481**	**3,811,150,463**	**3,859,185,261**	**3,723,355,974**	**3,762,461,630**	**3,758,992,390**
Direct use	**135,040,521**	**136,918,155**	**139,725,701**	**138,915,068**	**138,702,540**	**143,270,338**	**143,903,731**	**140,959,389**	**139,836,699**	**141,167,519**
Total international exports	**19,437,047**	**20,013,046**	**15,758,322**	**13,855,417**	**14,134,679**	**20,008,032**	**13,804,492**	**9,370,803**	**6,214,017**	**9,117,535**
Estimated losses	**185,489,533**	**171,579,708**	**212,426,330**	**179,052,976**	**207,053,152**	**206,655,385**	**199,047,717**	**202,544,716**	**196,366,940**	**187,519,774**
Unaccounted	**26,539,852**	**19,423,609**	**-7,436,886**	**23,772,129**	**-6,349,143**	**8,542,122**	**23,307,104**	**24,896,930**	**45,410,778**	**57,510,877**
Net interstate exports	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total disposition	**4,341,888,785**	**4,222,187,880**	**4,287,642,536**	**4,161,469,843**	**4,071,215,709**	**4,189,626,340**	**4,239,248,290**	**4,101,127,814**	**4,150,290,063**	**4,154,308,094**
Net interstate trade	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Net trade index (ratio)	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

Facility Direct Sales are electricity sales from non-utility power producers which reported electricity sales to an ultimate customer.

Net Interstate Trade = Total Supply - (Total Electric Industry Sales + Direct Use + Total International Exports (if applies) + Estimated Losses).

Net Trade Index is the sum of Total Supply / (Total Disposition - Net Interstate Trade).

A negative Net Interstate Trade value indicates a net import of electric power.

Notes: Totals may not equal sum of components because of independent rounding. Estimated Losses are reported at the utility level, and then allocated to States based on the utility`s salesto ultimate customers by State. Reported losses may ir year 2010, Total disposition has been reorganized to include Net Interstate Trade. Therefore, Total Disposition equals Total Supply.

4.27% 4.06% 4.95% 4.30% 5.09% 4.93%

Year 2014	Year 2013	Year 2012	Year 2011	Year 2010	Year 2009	Year 2008	Year 2007	Year 2006	Year 2005	Year 2004	Year 2003	Year 2002	Year 2001
2,382,499,653	2,388,058,409	2,342,015,457	2,460,851,000	2,471,632,103	2,372,775,997	2,475,366,697	2,504,130,899	2,483,655,548	2,474,845,558	2,505,231,152	2,462,280,615	2,549,457,170	2,629,945,673
1,404,256,356	1,368,038,297	1,384,189,769	1,331,303,294	1,338,711,826	1,277,915,522	1,332,067,733	1,323,855,868	1,258,569,053	1,246,971,382	1,118,870,083	1,063,204,954	955,331,147	780,591,918
150,205,400	147,618,619	164,152,677	156,031,914	162,042,109	159,145,778	166,914,506	177,356,481	165,852,444	180,374,953	184,259,161	195,673,709	193,669,639	169,515,452
3,936,961,409	**3,903,715,325**	**3,890,357,903**	**3,948,186,209**	**3,972,386,037**	**3,809,837,297**	**3,974,348,935**	**4,005,343,248**	**3,908,077,046**	**3,902,191,893**	**3,808,360,397**	**3,721,159,278**	**3,698,457,956**	**3,580,053,043**
12,519,578	12,233,670	11,300,753	10,080,000	8,591,598	8,164,521	7,925,652	8,273,395	8,370,912	8,491,664	8,269,686	7,496,178	7,414,510	7,415,941
144,083,155	150,015,073	146,106,611	141,874,717	144,082,263	132,329,109	137,113,172	143,128,081	148,254,269	144,739,193	153,925,180	154,529,750	152,579,786	149,174,675
156,602,733	**162,248,742**	**157,407,364**	**151,954,717**	**152,673,862**	**140,493,630**	**145,038,824**	**151,401,476**	**156,625,182**	**153,230,857**	**162,194,866**	**162,025,927**	**159,994,296**	**156,590,616**
4,093,564,142	**4,065,964,067**	**4,047,765,267**	**4,100,140,926**	**4,125,059,899**	**3,950,330,926**	**4,119,387,760**	**4,156,744,724**	**4,064,702,227**	**4,055,422,750**	**3,970,555,263**	**3,883,185,205**	**3,858,452,252**	**3,736,643,659**
66,510,284	**69,249,049**	**59,257,073**	**52,299,710**	**45,083,186**	**52,190,595**	**57,019,381**	**51,395,702**	**42,691,309**	**43,929,316**	**34,210,063**	**30,394,551**	**36,779,215**	**38,500,244**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4,160,074,426	**4,135,213,116**	**4,107,022,340**	**4,152,440,636**	**4,170,143,085**	**4,002,521,521**	**4,176,407,141**	**4,208,140,426**	**4,107,393,536**	**4,099,352,066**	**4,004,765,326**	**3,913,579,756**	**3,895,231,467**	**3,775,143,903**
3,184,841,482	3,147,192,126	3,172,096,249	3,272,622,353	3,365,337,951	3,289,877,285	3,436,011,459	3,468,018,224	3,438,336,913	3,412,720,509	3,317,635,480	3,285,249,457	3,325,180,731	3,297,833,540
563,440,828	559,210,699	514,290,099	466,964,497	379,277,453	294,229,222	284,386,479	282,538,015	219,184,738	237,054,631	221,759,318	188,784,920	141,373,307	97,845,964
16,417,957	18,464,996	8,263,438	10,259,330	10,225,964	12,688,627	13,566,681	14,004,473	12,397,189	11,193,373	7,817,330	19,700,109	17,429,353	0
3,764,700,267	**3,724,867,821**	**3,694,649,786**	**3,749,846,180**	**3,754,841,368**	**3,596,795,134**	**3,733,964,619**	**3,764,560,712**	**3,669,918,840**	**3,660,968,513**	**3,547,212,128**	**3,493,734,486**	**3,483,983,391**	**3,395,679,504**
138,573,884	**143,461,937**	**137,656,510**	**132,754,037**	**131,910,249**	**126,937,958**	**132,196,685**	**125,670,185**	**146,926,612**	**150,015,531**	**168,470,004**	**168,294,528**	**166,184,295**	**162,648,616**
13,298,253	**11,373,211**	**11,995,651**	**15,048,552**	**19,106,180**	**18,137,984**	**24,198,159**	**20,143,593**	**24,271,333**	**19,150,968**	**22,897,864**	**23,974,703**	**15,795,682**	**16,473,293**
196,027,713	**200,098,551**	**200,079,915**	**231,716,623**	**231,965,709**	**228,962,715**	**237,855,382**	**238,268,363**	**237,953,391**	**244,683,533**	**259,925,502**	**256,538,377**	**261,332,291**	**265,553,891**
47,474,309	**55,411,596**	**62,640,478**	**23,075,244**	**32,319,579**	**31,687,730**	**48,192,296**	**59,497,573**	**0**	**0**	**0**	**0**	**0**	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4,160,074,427	**4,135,213,113**	**4,107,022,336**	**4,152,440,637**	**4,170,143,085**	**4,002,521,521**	**4,176,407,140**	**4,208,140,426**	**4,107,393,536**	**4,099,352,066**	**4,004,765,326**	**3,913,579,756**	**3,895,231,467**	**3,775,143,903**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1.0	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

ıclude electricity unaccounted for by the utility. Direct use is commercial or industrial use of electricity that (1) is self-generated (2) is produced by either the same entity that consumes the power or an affiliate,and (3) is used in direct support of

Year 2000	Year 1999	Year 1998	Year 1997	Year 1996	Year 1995	Year 1994	Year 1993	Year 1992	Year 1991	Year 1990
3,015,383,376	3,173,673,550	3,212,170,791	3,122,523,144	3,077,442,152	2,994,528,592	2,910,712,079	2,882,524,766	2,797,219,151	2,825,022,865	2,808,151,009
457,539,886	200,904,625	91,454,833	58,741,255	60,132,253	58,222,075	54,513,595	53,395,639	45,835,540	38,596,052	31,895,161
164,605,717	155,404,288	153,790,021	148,110,732	146,566,946	141,479,514	123,499,656	107,976,400	91,318,913	71,941,755	61,275,451
3,637,528,979	**3,529,982,463**	**3,457,415,645**	**3,329,375,132**	**3,284,141,351**	**3,194,230,181**	**3,088,725,330**	**3,043,896,805**	**2,934,373,604**	**2,935,560,672**	**2,901,321,622**
7,902,773	8,563,054	8,748,086	8,700,542	9,029,715	8,232,203	7,619,327	7,000,421	6,228,133	5,659,026	5,837,120
156,673,290	156,264,291	154,131,767	154,096,608	151,016,556	151,024,977	151,177,735	146,293,871	143,280,470	132,579,189	130,668,598
164,576,063	**164,827,345**	**162,879,854**	**162,797,150**	**160,046,271**	**159,257,181**	**158,797,062**	**153,294,293**	**149,508,602**	**138,238,215**	**136,505,717**
3,802,105,042	**3,694,809,808**	**3,620,295,499**	**3,492,172,282**	**3,444,187,622**	**3,353,487,361**	**3,247,522,391**	**3,197,191,098**	**3,083,882,207**	**3,073,798,887**	**3,037,827,339**
48,592,275	**43,214,744**	**39,513,328**	**43,031,229**	**43,496,530**	**42,853,533**	**46,833,176**	**31,357,523**	**28,246,600**	**21,931,032**	**18,445,396**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3,850,697,317	**3,738,024,552**	**3,659,808,827**	**3,535,203,511**	**3,487,684,152**	**3,396,340,894**	**3,294,355,567**	**3,228,548,621**	**3,112,128,807**	**3,095,729,919**	**3,056,272,735**
3,309,550,064	3,235,899,039	3,239,818,459	3,139,760,964	3,097,809,945	3,013,286,589	2,934,562,864	2,861,462,340	2,763,365,449	2,762,003,040	2,712,554,665
111,864,202	76,188,042	24,412,293	5,849,464	3,317,078	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
3,421,414,266	**3,312,087,081**	**3,264,230,752**	**3,145,610,428**	**3,101,127,023**	**3,013,286,589**	**2,934,562,864**	**2,861,462,340**	**2,763,365,449**	**2,762,003,040**	**2,712,554,665**
170,942,510	**171,629,285**	**160,865,884**	**156,238,896**	**152,638,016**	**150,676,542**	**146,325,329**	**139,237,874**	**133,841,242**	**124,057,179**	**124,368,001**
14,829,381	**14,221,773**	**13,656,482**	**8,974,040**	**3,301,986**	**3,622,665**	**2,009,882**	**3,540,891**	**1,863,170**	**2,304,579**	**16,133,584**
266,128,783	**259,840,277**	**232,111,946**	**237,169,405**	**240,714,722**	**229,989,806**	**222,927,982**	**229,013,278**	**218,454,479**	**212,079,843**	**205,939,310**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3,850,697,317	**3,738,024,552**	**3,659,808,827**	**3,535,203,511**	**3,487,684,152**	**3,396,340,894**	**3,294,355,567**	**3,228,548,621**	**3,112,128,807**	**3,095,729,919**	**3,056,272,735**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1.0	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

a service or industrial process located within the same facility or group of facilities that houses the generating equipment. Direct use is exclusive of station use. Beginning with publication

Arges BESS_refrigerant Detailed Report

Table of Contents

8.5.1.4. Road Dust

8.5.5. Solid Waste

8.5.6. Refrigerants

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Arges BESS_refrigerant
Construction Start Date	6/1/2028
Operational Year	2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	34.8000
Location	5221 Quinn Rd, Vacaville, CA 95688, USA
County	Solano-Sacramento
City	Unincorporated
Air District	Yolo/Solano AQMD
Air Basin	Sacramento Valley
TAZ	837
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

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
Refrigerated Warehouse-No Rail	65.7180	1000sqft	5.00000	65,718.0	11,865.0	—	—	—

Unmit.	1.80387	1.77846	0.11509	1.54442	0.00076	0.01012	0.16121	0.17133	0.00949	0.01724	0.02674	29.5647	1,063.82	1,093.39	3.19322	0.09099	281.867	1,482.20
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32921	0.32457	0.02100	0.28186	0.00014	0.00185	0.02942	0.03127	0.00173	0.00315	0.00488	4.89478	176.128	181.022	0.52867	0.01506	46.6664	245.395

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	0.00493	0.00460	0.00394	0.03437	0.00009	0.00007	0.17756	0.17764	0.00007	0.01890	0.01897	—	9.22543	9.22543	0.00032	0.00040	0.02393	9.37701
Area	2.05026	2.01043	0.02441	2.90172	0.00017	0.00515	—	0.00515	0.00390	—	0.00390	—	11.9323	11.9323	0.00050	0.00010	—	11.9753
Energy	0.01086	0.00543	0.09871	0.08292	0.00059	0.00750	—	0.00750	0.00750	—	0.00750	—	1,022.16	1,022.16	0.15673	0.01796	—	1,031.43
Water	—	—	—	—	—	—	—	—	—	—	—	29.5647	27.0809	56.6456	3.03590	0.07256	—	154.166
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.857	281.857
Total	2.06605	2.02046	0.12707	3.01901	0.00086	0.01273	0.17756	0.19029	0.01147	0.01890	0.03037	29.5647	1,070.40	1,099.96	3.19346	0.09102	281.881	1,488.80
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00459	0.00424	0.00464	0.03179	0.00008	0.00007	0.17756	0.17764	0.00007	0.01890	0.01897	—	8.57465	8.57465	0.00037	0.00044	0.00062	8.71533
Area	1.53370	1.53370	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01086	0.00543	0.09871	0.08292	0.00059	0.00750	—	0.00750	0.00750	—	0.00750	—	1,022.16	1,022.16	0.15673	0.01796	—	1,031.43
Water	—	—	—	—	—	—	—	—	—	—	—	29.5647	27.0809	56.6456	3.03590	0.07256	—	154.166
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.857	281.857
Total	1.54915	1.54336	0.10335	0.11471	0.00068	0.00758	0.17756	0.18514	0.00757	0.01890	0.02647	29.5647	1,057.82	1,087.38	3.19300	0.09095	281.858	1,476.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.00457	0.00423	0.00434	0.03052	0.00009	0.00007	0.16121	0.16129	0.00007	0.01724	0.01731	—	8.69552	8.69552	0.00034	0.00042	0.01033	8.83992
Area	1.78844	1.76880	0.01204	1.43099	0.00009	0.00254	—	0.00254	0.00192	—	0.00192	—	5.88442	5.88442	0.00025	0.00005	—	5.90563
Energy	0.01086	0.00543	0.09871	0.08292	0.00059	0.00750	—	0.00750	0.00750	—	0.00750	—	1,022.16	1,022.16	0.15673	0.01796	—	1,031.43
Water	—	—	—	—	—	—	—	—	—	—	—	29.5647	27.0809	56.6456	3.03590	0.07256	—	154.166
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.857	281.857
Total	1.80387	1.77846	0.11509	1.54442	0.00076	0.01012	0.16121	0.17133	0.00949	0.01724	0.02674	29.5647	1,063.82	1,093.39	3.19322	0.09099	281.867	1,482.20
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00083	0.00077	0.00079	0.00557	0.00002	0.00001	0.02942	0.02943	0.00001	0.00315	0.00316	—	1.43964	1.43964	0.00006	0.00007	0.00171	1.46355
Area	0.32639	0.32281	0.00220	0.26115	0.00002	0.00046	—	0.00046	0.00035	—	0.00035	—	0.97423	0.97423	0.00004	0.00001	—	0.97775
Energy	0.00198	0.00099	0.01801	0.01513	0.00011	0.00137	—	0.00137	0.00137	—	0.00137	—	169.230	169.230	0.02595	0.00297	—	170.765
Water	—	—	—	—	—	—	—	—	—	—	—	4.89478	4.48355	9.37833	0.50263	0.01201	—	25.5239
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.6646	46.6646
Total	0.32921	0.32457	0.02100	0.28186	0.00014	0.00185	0.02942	0.03127	0.00173	0.00315	0.00488	4.89478	176.128	181.022	0.52867	0.01506	46.6664	245.395

3. Construction Emissions Details

3.1. Site Preparation (2028) - 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	0.14106	0.14106	2.92014	7.98505	0.01141	0.02055	—	0.02055	0.02055	—	0.02055	—	1,137.76	1,137.76	0.04615	0.00923	—	1,141.66

Hauling	0.03737	0.02017	1.12700	0.27877	0.00694	0.01984	4.69143	4.71127	0.01984	0.51623	0.53608	—	961.687	961.687	0.00959	0.15013	1.73078	1,008.40
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13175	0.11790	0.10132	1.16589	0.00000	0.00000	14.1003	14.1003	0.00000	1.45061	1.45061	—	307.499	307.499	0.00794	0.01385	0.02626	311.850
Vendor	0.01305	0.00966	0.31134	0.14021	0.00185	0.00370	2.54193	2.54563	0.00370	0.26592	0.26962	—	257.460	257.460	0.00295	0.03347	0.01388	267.520
Hauling	0.03538	0.01852	1.21728	0.27811	0.00694	0.01984	4.69143	4.71127	0.01984	0.51623	0.53608	—	962.492	962.492	0.00926	0.15013	0.04483	1,007.51
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01745	0.01559	0.01174	0.15184	0.00000	0.00000	1.71562	1.71562	0.00000	0.17690	0.17690	—	42.1002	42.1002	0.00095	0.00174	0.05863	42.7011
Vendor	0.00178	0.00133	0.04080	0.01832	0.00025	0.00050	0.30942	0.30992	0.00050	0.03250	0.03299	—	34.5411	34.5411	0.00040	0.00446	0.03100	35.9121
Hauling	0.00493	0.00262	0.15938	0.03778	0.00093	0.00266	0.57267	0.57533	0.00266	0.06351	0.06617	—	129.149	129.149	0.00124	0.02016	0.10018	135.286
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00318	0.00285	0.00214	0.02771	0.00000	0.00000	0.31310	0.31310	0.00000	0.03228	0.03228	—	6.97017	6.97017	0.00016	0.00029	0.00971	7.06965
Vendor	0.00033	0.00024	0.00745	0.00334	0.00005	0.00009	0.05647	0.05656	0.00009	0.00593	0.00602	—	5.71868	5.71868	0.00007	0.00074	0.00513	5.94565
Hauling	0.00090	0.00048	0.02909	0.00689	0.00017	0.00049	0.10451	0.10500	0.00049	0.01159	0.01208	—	21.3820	21.3820	0.00021	0.00334	0.01659	22.3982

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	898.610	898.610	0.14538	0.01762	—	907.495
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	5.77297	5.77297	0.00093	0.00011	—	5.83006
Total	—	—	—	—	—	—	—	—	—	—	—	—	904.383	904.383	0.14631	0.01773	—	913.325
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	898.610	898.610	0.14538	0.01762	—	907.495
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	5.77297	5.77297	0.00093	0.00011	—	5.83006
Total	—	—	—	—	—	—	—	—	—	—	—	—	904.383	904.383	0.14631	0.01773	—	913.325
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	148.775	148.775	0.02407	0.00292	—	150.246
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.95578	0.95578	0.00015	0.00002	—	0.96523
Total	—	—	—	—	—	—	—	—	—	—	—	—	149.731	149.731	0.02422	0.00294	—	151.211

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00963	0.00482	0.08757	0.07356	0.00053	0.00666	—	0.00666	0.00666	—	0.00666	—	104.490	104.490	0.00925	0.00020	—	104.780
General Light Industry	0.00122	0.00061	0.01114	0.00935	0.00007	0.00085	—	0.00085	0.00085	—	0.00085	—	13.2869	13.2869	0.00118	0.00003	—	13.3237
Total	0.01086	0.00543	0.09871	0.08292	0.00059	0.00750	—	0.00750	0.00750	—	0.00750	—	117.777	117.777	0.01042	0.00022	—	118.104
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00963	0.00482	0.08757	0.07356	0.00053	0.00666	—	0.00666	0.00666	—	0.00666	—	104.490	104.490	0.00925	0.00020	—	104.780
General Light Industry	0.00122	0.00061	0.01114	0.00935	0.00007	0.00085	—	0.00085	0.00085	—	0.00085	—	13.2869	13.2869	0.00118	0.00003	—	13.3237
Total	0.01086	0.00543	0.09871	0.08292	0.00059	0.00750	—	0.00750	0.00750	—	0.00750	—	117.777	117.777	0.01042	0.00022	—	118.104
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00176	0.00088	0.01598	0.01343	0.00010	0.00121	—	0.00121	0.00121	—	0.00121	—	17.2996	17.2996	0.00153	0.00003	—	17.3476
General Light Industry	0.00022	0.00011	0.00203	0.00171	0.00001	0.00015	—	0.00015	0.00015	—	0.00015	—	2.19979	2.19979	0.00019	< 0.000005	—	2.20590
Total	0.00198	0.00099	0.01801	0.01513	0.00011	0.00137	—	0.00137	0.00137	—	0.00137	—	19.4994	19.4994	0.00173	0.00004	—	19.5535

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	1.42777	1.42777	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10593	0.10593	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.51656	0.47673	0.02441	2.90172	0.00017	0.00515	—	0.00515	0.00390	—	0.00390	—	11.9323	11.9323	0.00050	0.00010	—	11.9753
Total	2.05026	2.01043	0.02441	2.90172	0.00017	0.00515	—	0.00515	0.00390	—	0.00390	—	11.9323	11.9323	0.00050	0.00010	—	11.9753
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.42777	1.42777	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10593	0.10593	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.53370	1.53370	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Product	0.26057	0.26057	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01933	0.01933	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04649	0.04291	0.00220	0.26115	0.00002	0.00046	—	0.00046	0.00035	—	0.00035	—	0.97423	0.97423	0.00004	0.00001	—	0.97775
Total	0.32639	0.32281	0.00220	0.26115	0.00002	0.00046	—	0.00046	0.00035	—	0.00035	—	0.97423	0.97423	0.00004	0.00001	—	0.97775

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.1216	26.6762	55.7977	2.99040	0.07147	—	151.856
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.44313	0.40474	0.84787	0.04550	0.00109	—	2.30954
Total	—	—	—	—	—	—	—	—	—	—	—	29.5647	27.0809	56.6456	3.03590	0.07256	—	154.166
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	29.1216	26.6762	55.7977	2.99040	0.07147	—	151.856
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.44313	0.40474	0.84787	0.04550	0.00109	—	2.30954
Total	—	—	—	—	—	—	—	—	—	—	—	29.5647	27.0809	56.6456	3.03590	0.07256	—	154.166
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.82141	4.41654	9.23795	0.49509	0.01183	—	25.1415
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.07337	0.06701	0.14038	0.00753	0.00018	—	0.38237
Total	—	—	—	—	—	—	—	—	—	—	—	4.89478	4.48355	9.37833	0.50263	0.01201	—	25.5239

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.778	281.778
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07866	0.07866
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.857	281.857
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.778	281.778
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07866	0.07866
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	281.857	281.857
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.6516	46.6516
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01302	0.01302
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.6646	46.6646

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)

Equipm 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	203.983	0.03300	0.00400
2029	0.00000	203.983	0.03300	0.00400

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	1.13973	1.13973	1.13973	416.000	11.3973	11.3973	11.3973	4,160.00

5.10. Operational Area Sources

5.10.1. Hearths

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

General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light 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)
0.00000	0.00000	100,077	33,359.0	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

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)
Refrigerated Warehouse-No Rail	1,607,941	203.983	0.0330	0.0040	326,038
General Light Industry	10,330.0	203.983	0.0330	0.0040	41,458.6

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Refrigerated Warehouse-No Rail	15,197,288	85,672.7
General Light Industry	231,250	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0.00000	0.00000
General Light Industry	0.00000	0.00000

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
Refrigerated Warehouse-No Rail	Cold storage	R-404A	631.000	7.50000	7.50000	7.50000	25.0000
General Light Industry	Other commercial A/C and heat pumps	R-410A	631.000	0.30000	4.00000	4.00000	18.0000

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

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	27.4700	annual days of extreme heat
Extreme Precipitation	6.90000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	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	4	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	4	1	1	4
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	37.5731
AQ-PM	12.6696
AQ-DPM	31.5246
Drinking Water	37.4547
Lead Risk Housing	9.17454
Pesticides	80.7931
Toxic Releases	42.6857
Traffic	50.4875
Effect Indicators	—
CleanUp Sites	86.8234
Groundwater	87.7802

Haz Waste Facilities/Generators	93.6466
Impaired Water Bodies	43.7841
Solid Waste	77.6174
Sensitive Population	—
Asthma	86.7647
Cardio-vascular	67.4850
Low Birth Weights	20.8879
Socioeconomic Factor Indicators	—
Education	46.2288
Housing	17.9341
Linguistic	25.5515
Poverty	10.9045
Unemployment	48.2561

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	94.26408315
Employed	49.30065443
Median HI	79.84088284
Education	—
Bachelor's or higher	45.52803798
High school enrollment	100
Preschool enrollment	37.79032465
Transportation	—
Auto Access	93.63531374
Active commuting	3.772616451

Social	—
2-parent households	88.50250225
Voting	54.13832927
Neighborhood	—
Alcohol availability	81.95816759
Park access	4.619530348
Retail density	10.04747851
Supermarket access	9.790837931
Tree canopy	17.28474272
Housing	—
Homeownership	66.77787758
Housing habitability	86.03875273
Low-inc homeowner severe housing cost burden	84.11394842
Low-inc renter severe housing cost burden	87.5914282
Uncrowded housing	56.30694213
Health Outcomes	—
Insured adults	83.11305017
Arthritis	60.6
Asthma ER Admissions	18.3
High Blood Pressure	76.3
Cancer (excluding skin)	45.0
Asthma	55.1
Coronary Heart Disease	81.5
Chronic Obstructive Pulmonary Disease	76.7
Diagnosed Diabetes	82.1
Life Expectancy at Birth	50.8
Cognitively Disabled	24.2
Physically Disabled	37.2

Heart Attack ER Admissions	32.3
Mental Health Not Good	64.8
Chronic Kidney Disease	79.8
Obesity	59.2
Pedestrian Injuries	19.6
Physical Health Not Good	79.7
Stroke	84.7
Health Risk Behaviors	—
Binge Drinking	8.9
Current Smoker	56.8
No Leisure Time for Physical Activity	74.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	48.8
Elderly	37.4
English Speaking	87.9
Foreign-born	26.8
Outdoor Workers	23.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.2
Traffic Density	51.7
Traffic Access	23.0
Other Indices	—
Hardship	32.8
Other Decision Support	—
2016 Voting	69.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	56.0000
Healthy Places Index Score for Project Location (b)	70.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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
Land Use	Lot acreage provided by applicant; sq ft building given; sq ft of BESS estimated using Google Earth and facility site plans.
Construction: Construction Phases	Schedule provided by Applicant.
Construction: Off-Road Equipment	Equipment provided by Applicant.
Construction: Dust From Material Movement	Information provided by Applicant.
Construction: Trips and VMT	Trip data provided by Applicant. Assuming daily onsite truck trips for watering.
Construction: On-Road Fugitive Dust	% pavement #'s based on site diameter ratioed against the default trip lengths.

Operations: Road Dust	Consistency with construction assumptions.
Operations: Solid Waste	No soild waste generation
Operations: Refrigerants	R513 used instead with GWP of 631

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	1.50868	5.00000
Landscape Area	sq. ft	—	11,865.0

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	End Date	7/14/2028	9/22/2028
Site Preparation	Site Preparation	Days/Week	5.00000	6.00000
Site Preparation	Site Preparation	Work Days per Phase	10.00000	73.0000
Grading	Grading	Start Date	7/15/2028	6/30/2028
Grading	Grading	End Date	8/12/2028	9/22/2028
Grading	Grading	Days/Week	5.00000	6.00000
Grading	Grading	Work Days per Phase	20.0000	73.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site Preparation	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Site Preparation	Tractors/Loaders/Backhoes	Number per Day	4.00000	2.00000
Grading	Graders	Engine Tier	Average	Tier 4 Final
Grading	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final

Grading	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Grading	Tractors/Loaders/Backhoes	Number per Day	3.00000	1.000000
Set Modules, Inverters, & Switchgear	Cranes	Engine Tier	Average	Tier 4 Final
Electrical Wire Installation/Finish Grading	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Electrical Wire Installation/Finish Grading	Tractors/Loaders/Backhoes	Number per Day	3.00000	1.000000
Electrical Wire Installation/Finish Grading	Welders	Engine Tier	Average	Tier 4 Final
Access Road	Pavers	Engine Tier	Average	Tier 4 Final
Access Road	Paving Equipment	Engine Tier	Average	Tier 4 Final
Access Road	Paving Equipment	Number per Day	2.00000	1.000000
Access Road	Rollers	Engine Tier	Average	Tier 4 Final
Access Road	Rollers	Number per Day	2.00000	1.000000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Site Preparation	Worker	One-Way Trips per Day	12.5000	40.0000
Site Preparation	Hauling	One-Way Trips per Day	49.3014	25.0000
Commissioning & Testing	Worker	One-Way Trips per Day	0.00000	40.0000
Commissioning & Testing	Hauling	One-Way Trips per Day	0.00000	3.00000
Grading	Worker	One-Way Trips per Day	12.5000	40.0000
Grading	Hauling	One-Way Trips per Day	0.00000	25.0000
Set Modules, Inverters, & Switchgear	Worker	One-Way Trips per Day	27.6016	40.0000
Set Modules, Inverters, & Switchgear	Vendor	One-Way Trips per Day	10.7712	10.00000
Set Modules, Inverters, & Switchgear	Hauling	One-Way Trips per Day	0.00000	15.0000
Electrical Wire Installation/Finish Grading	Worker	One-Way Trips per Day	27.6016	40.0000
Electrical Wire Installation/Finish Grading	Vendor	One-Way Trips per Day	10.7712	10.00000

Electrical Wire Installation/Finish Grading	Hauling	One-Way Trips per Day	0.00000	15.0000
Access Road	Worker	One-Way Trips per Day	12.5000	40.0000
Access Road	Hauling	One-Way Trips per Day	48.0000	50.0000
Installation of Foundations & Equipment	Worker	One-Way Trips per Day	5.00000	40.0000
Installation of Foundations & Equipment	Hauling	One-Way Trips per Day	0.00000	15.0000

8.4.7. On-Road Fugitive Dust

Phase Name	Model Parameter	Units	Default Value	New Value
Site Preparation	Worker Trip Paved	%	94.0000	98.0000
Site Preparation	Vendor Trip Paved	%	94.0000	98.0000
Site Preparation	Hauling Trip Paved	%	94.0000	99.0000
Commissioning & Testing	Worker Trip Paved	%	94.0000	98.0000
Commissioning & Testing	Vendor Trip Paved	%	94.0000	98.0000
Commissioning & Testing	Hauling Trip Paved	%	94.0000	99.0000
Grading	Worker Trip Paved	%	94.0000	98.0000
Grading	Vendor Trip Paved	%	94.0000	98.0000
Grading	Hauling Trip Paved	%	94.0000	99.0000
Set Modules, Inverters, & Switchgear	Worker Trip Paved	%	94.0000	98.0000
Set Modules, Inverters, & Switchgear	Vendor Trip Paved	%	94.0000	98.0000
Set Modules, Inverters, & Switchgear	Hauling Trip Paved	%	94.0000	99.0000
Electrical Wire Installation/Finish Grading	Worker Trip Paved	%	94.0000	98.0000
Electrical Wire Installation/Finish Grading	Vendor Trip Paved	%	94.0000	98.0000
Electrical Wire Installation/Finish Grading	Hauling Trip Paved	%	94.0000	99.0000
Access Road	Worker Trip Paved	%	94.0000	98.0000

Access Road	Vendor Trip Paved	%	94.0000	98.0000
Access Road	Hauling Trip Paved	%	94.0000	99.0000
Installation of Foundations & Equipment	Worker Trip Paved	%	94.0000	98.0000
Installation of Foundations & Equipment	Vendor Trip Paved	%	94.0000	98.0000
Installation of Foundations & Equipment	Hauling Trip Paved	%	94.0000	99.0000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.4. Road Dust

Model Parameter	Units	Default Value	New Value
% Paved	%	94.0000	98.0000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
Refrigerated Warehouse-No Rail	Solid Waste Generation Rate	ton/1000sqft/yr	0.94000	0.00000
General Light Industry	Solid Waste Generation Rate	ton/1000sqft/yr	1.24000	0.00000

8.5.6. Refrigerants

Land Use	Equipment Type	Model Parameter	Default Value	New Value
Refrigerated Warehouse-No Rail	Cold storage	GWP	3,922.00	631.000
General Light Industry	Other commercial A/C and heat pumps	GWP	2,088.00	631.000

Vaca Dixon BESS_refrigerant Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Vaca Dixon BESS_refrigerant
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	34.8000
Location	5221 Quinn Rd, Vacaville, CA 95688, USA
County	Solano-Sacramento
City	Unincorporated
Air District	Yolo/Solano AQMD
Air Basin	Sacramento Valley
TAZ	837
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

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
Refrigerated Warehouse-No Rail	36.7710	1000sqft	3.30000	36,771.0	11,865.0	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	1.14084	1.11581	0.06717	1.68003	0.00049	0.00665	0.17757	0.18422	0.00595	0.01890	0.02485	16.2943	592.691	608.985	1.76039	0.05046	157.697	825.728
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.85597	0.85286	0.05456	0.07815	0.00038	0.00381	0.17757	0.18138	0.00380	0.01890	0.02271	16.2943	585.424	601.718	1.76017	0.05044	157.663	818.418
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.99622	0.98230	0.06083	0.86512	0.00043	0.00521	0.16122	0.16643	0.00486	0.01725	0.02211	16.2943	588.795	605.089	1.76027	0.05045	157.677	821.808
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18181	0.17927	0.01110	0.15789	0.00008	0.00095	0.02942	0.03037	0.00089	0.00315	0.00404	2.69771	97.4817	100.179	0.29143	0.00835	26.1053	136.060

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	0.00571	0.00532	0.00471	0.03972	0.00010	0.00009	0.17757	0.17766	0.00008	0.01890	0.01898	—	9.83078	9.83078	0.00037	0.00044	0.03405	10.0048

Area	1.12975	1.10780	0.01346	1.59915	0.00010	0.00284	—	0.00284	0.00215	—	0.00215	—	6.57637	6.57637	0.00028	0.00006	—	6.60008
Energy	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	561.262	561.262	0.08652	0.00997	—	566.396
Water	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Total	1.14084	1.11581	0.06717	1.68003	0.00049	0.00665	0.17757	0.18422	0.00595	0.01890	0.02485	16.2943	592.691	608.985	1.76039	0.05046	157.697	825.728
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00529	0.00488	0.00556	0.03699	0.00009	0.00009	0.17757	0.17766	0.00008	0.01890	0.01898	—	9.13987	9.13987	0.00043	0.00048	0.00088	9.29498
Area	0.84528	0.84528	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	561.262	561.262	0.08652	0.00997	—	566.396
Water	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Total	0.85597	0.85286	0.05456	0.07815	0.00038	0.00381	0.17757	0.18138	0.00380	0.01890	0.02271	16.2943	585.424	601.718	1.76017	0.05044	157.663	818.418
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00527	0.00487	0.00519	0.03534	0.00009	0.00009	0.16122	0.16130	0.00008	0.01725	0.01733	—	9.26768	9.26768	0.00040	0.00046	0.01470	9.42975
Area	0.98557	0.97474	0.00664	0.78862	0.00005	0.00140	—	0.00140	0.00106	—	0.00106	—	3.24314	3.24314	0.00014	0.00003	—	3.25483
Energy	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	561.262	561.262	0.08652	0.00997	—	566.396
Water	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Total	0.99622	0.98230	0.06083	0.86512	0.00043	0.00521	0.16122	0.16643	0.00486	0.01725	0.02211	16.2943	588.795	605.089	1.76027	0.05045	157.677	821.808
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00096	0.00089	0.00095	0.00645	0.00002	0.00002	0.02942	0.02944	0.00001	0.00315	0.00316	—	1.53437	1.53437	0.00007	0.00008	0.00243	1.56120
Area	0.17987	0.17789	0.00121	0.14392	0.00001	0.00026	—	0.00026	0.00019	—	0.00019	—	0.53694	0.53694	0.00002	< 0.000005	—	0.53888
Energy	0.00098	0.00049	0.00894	0.00751	0.00005	0.00068	—	0.00068	0.00068	—	0.00068	—	92.9233	92.9233	0.01432	0.00165	—	93.7733

Water	—	—	—	—	—	—	—	—	—	—	—	2.69771	2.48710	5.18481	0.27702	0.00662	—	14.0835
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.1028	26.1028
Total	0.18181	0.17927	0.01110	0.15789	0.00008	0.00095	0.02942	0.03037	0.00089	0.00315	0.00404	2.69771	97.4817	100.179	0.29143	0.00835	26.1053	136.060

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	502.797	502.797	0.08134	0.00986	—	507.768
Total	—	—	—	—	—	—	—	—	—	—	—	—	502.797	502.797	0.08134	0.00986	—	507.768
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	502.797	502.797	0.08134	0.00986	—	507.768
Total	—	—	—	—	—	—	—	—	—	—	—	—	502.797	502.797	0.08134	0.00986	—	507.768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	83.2437	83.2437	0.01347	0.00163	—	84.0668
Total	—	—	—	—	—	—	—	—	—	—	—	—	83.2437	83.2437	0.01347	0.00163	—	84.0668

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	58.4652	58.4652	0.00517	0.00011	—	58.6274
Total	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	58.4652	58.4652	0.00517	0.00011	—	58.6274
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	58.4652	58.4652	0.00517	0.00011	—	58.6274
Total	0.00539	0.00270	0.04900	0.04116	0.00029	0.00372	—	0.00372	0.00372	—	0.00372	—	58.4652	58.4652	0.00517	0.00011	—	58.6274

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.00098	0.00049	0.00894	0.00751	0.00005	0.00068	—	0.00068	0.00068	—	0.00068	—	9.67958	9.67958	0.00086	0.00002	—	9.70643
Total	0.00098	0.00049	0.00894	0.00751	0.00005	0.00068	—	0.00068	0.00068	—	0.00068	—	9.67958	9.67958	0.00086	0.00002	—	9.70643

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	0.78690	0.78690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05838	0.05838	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.28446	0.26251	0.01346	1.59915	0.00010	0.00284	—	0.00284	0.00215	—	0.00215	—	6.57637	6.57637	0.00028	0.00006	—	6.60008
Total	1.12975	1.10780	0.01346	1.59915	0.00010	0.00284	—	0.00284	0.00215	—	0.00215	—	6.57637	6.57637	0.00028	0.00006	—	6.60008
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.78690	0.78690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.05838	0.05838	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.84528	0.84528	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.14361	0.14361	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01066	0.01066	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02560	0.02363	0.00121	0.14392	0.00001	0.00026	—	0.00026	0.00019	—	0.00019	—	0.53694	0.53694	0.00002	< 0.000005	—	0.53888
Total	0.17987	0.17789	0.00121	0.14392	0.00001	0.00026	—	0.00026	0.00019	—	0.00019	—	0.53694	0.53694	0.00002	< 0.000005	—	0.53888

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Total	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Total	—	—	—	—	—	—	—	—	—	—	—	16.2943	15.0222	31.3165	1.67323	0.03999	—	85.0648
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	2.69771	2.48710	5.18481	0.27702	0.00662	—	14.0835
Total	—	—	—	—	—	—	—	—	—	—	—	2.69771	2.48710	5.18481	0.27702	0.00662	—	14.0835

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157.663	157.663
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.1028	26.1028
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.1028	26.1028

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

5.9. 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	1.13973	1.13973	1.13973	416.000	11.3973	11.3973	11.3973	4,160.00

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Refrigerated Warehouse-No Rail	Wood Fireplaces	0	0
Refrigerated Warehouse-No Rail	Gas Fireplaces	0	0
Refrigerated Warehouse-No Rail	Propane Fireplaces	0	0
Refrigerated Warehouse-No Rail	Electric Fireplaces	0	0
Refrigerated Warehouse-No Rail	No Fireplaces	0	0
Refrigerated Warehouse-No Rail	Conventional Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Catalytic Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Non-Catalytic Wood Stoves	0	0
Refrigerated Warehouse-No Rail	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)
0.00000	0.00000	55,156.5	18,385.5	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

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)
Refrigerated Warehouse-No Rail	899,686	203.983	0.0330	0.0040	182,427

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	8,503,294	154,672

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

Refrigerated Warehouse-No Rail	0.00000	0.00000

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
Refrigerated Warehouse-No Rail	Cold storage	R-404A	631.000	7.50000	7.50000	7.50000	25.0000

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

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	27.4700	annual days of extreme heat
Extreme Precipitation	6.90000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	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	4	0	0	N/A

Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	4	1	1	4
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	37.5731
AQ-PM	12.6696
AQ-DPM	31.5246
Drinking Water	37.4547
Lead Risk Housing	9.17454
Pesticides	80.7931
Toxic Releases	42.6857
Traffic	50.4875
Effect Indicators	—
CleanUp Sites	86.8234
Groundwater	87.7802
Haz Waste Facilities/Generators	93.6466
Impaired Water Bodies	43.7841
Solid Waste	77.6174
Sensitive Population	—
Asthma	86.7647
Cardio-vascular	67.4850
Low Birth Weights	20.8879
Socioeconomic Factor Indicators	—
Education	46.2288
Housing	17.9341
Linguistic	25.5515

Poverty	10.9045
Unemployment	48.2561

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	94.26408315
Employed	49.30065443
Median HI	79.84088284
Education	—
Bachelor's or higher	45.52803798
High school enrollment	100
Preschool enrollment	37.79032465
Transportation	—
Auto Access	93.63531374
Active commuting	3.772616451
Social	—
2-parent households	88.50250225
Voting	54.13832927
Neighborhood	—
Alcohol availability	81.95816759
Park access	4.619530348
Retail density	10.04747851
Supermarket access	9.790837931
Tree canopy	17.28474272
Housing	—
Homeownership	66.77787758

Housing habitability	86.03875273
Low-inc homeowner severe housing cost burden	84.11394842
Low-inc renter severe housing cost burden	87.5914282
Uncrowded housing	56.30694213
Health Outcomes	—
Insured adults	83.11305017
Arthritis	60.6
Asthma ER Admissions	18.3
High Blood Pressure	76.3
Cancer (excluding skin)	45.0
Asthma	55.1
Coronary Heart Disease	81.5
Chronic Obstructive Pulmonary Disease	76.7
Diagnosed Diabetes	82.1
Life Expectancy at Birth	50.8
Cognitively Disabled	24.2
Physically Disabled	37.2
Heart Attack ER Admissions	32.3
Mental Health Not Good	64.8
Chronic Kidney Disease	79.8
Obesity	59.2
Pedestrian Injuries	19.6
Physical Health Not Good	79.7
Stroke	84.7
Health Risk Behaviors	—
Binge Drinking	8.9
Current Smoker	56.8
No Leisure Time for Physical Activity	74.2

Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	48.8
Elderly	37.4
English Speaking	87.9
Foreign-born	26.8
Outdoor Workers	23.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.2
Traffic Density	51.7
Traffic Access	23.0
Other Indices	—
Hardship	32.8
Other Decision Support	—
2016 Voting	69.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	56.0000
Healthy Places Index Score for Project Location (b)	70.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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
Land Use	Lot acreage provided by applicant; sq ft of BESS estimated using Google Earth and facility site plans.
Construction: Construction Phases	Schedule provided by Applicant.
Construction: Off-Road Equipment	Equipment provided by Applicant.
Construction: Dust From Material Movement	Based on applicant provided information
Construction: Trips and VMT	Trip data provided by Applicant. Assuming daily onsite truck trips for watering.
Construction: On-Road Fugitive Dust	% pavement #'s based on site diameter ratioed against the default trip lengths.
Operations: Road Dust	Consistency with construction assumptions.
Operations: Solid Waste	No solid waste generation
Operations: Refrigerants	R513A is used instead wth GWP of 631

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	0.84415	3.30000
Landscape Area	sq. ft	—	11,865.0

8.5. Operations

8.5.1. Mobile Sources

8.5.1.4. Road Dust

Model Parameter	Units	Default Value	New Value
% Paved	%	94.0000	98.0000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
Refrigerated Warehouse-No Rail	Solid Waste Generation Rate	ton/1000sqft/yr	0.94000	0.00000

8.5.6. Refrigerants

Land Use	Equipment Type	Model Parameter	Default Value	New Value
Refrigerated Warehouse-No Rail	Cold storage	GWP	3,922.00	631.000